

ILLINOIS POLLUTION CONTROL BOARD
September 23, 1993

IN THE MATTER OF:)
)
STEEL AND FOUNDRY INDUSTRY) R90-26
AMENDMENTS TO THE LANDFILL) (General Rulemaking)
REGULATIONS (35 Ill. Adm. Code)
810 through 815 and 817))

PROPOSED RULE. SECOND FIRST NOTICE.

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

The Board today is authorizing a second First Notice publication in the Illinois Register of the second amended proposal of the Illinois Steel Group and the Cast Metals Association (Steel and Foundry). This action occurs without substantive review of the proposal; it does not constitute the Board's adoption of a substantive position concerning the proposal.

On December 12, 1990, Steel and Foundry initially proposed to amend the Board's landfill regulations. After a February 4, 1991 response by Steel and Foundry to a December 20, 1993 request by the Board for more information, the Board adopted on February 7, 1991 a first First Notice opinion and order; this proposal was published in the Illinois Register on March 1, 1991. (See 17 Ill. Reg. 3166 (Part 811), and 3155 (Part 814), and 3173 (Part 817) (Mar. 1, 1991).) Hearings were held on May 19, 1991, June 7, 1991 and June 21, 1991 (the latter two having been consolidated with R90-25, a similar proposal, since dismissed, filed by the coal-fired electric generating industry with regard to fly-ash). The first amended proposal was filed on May 13, 1991. After filing a pre-hearing discussion draft on June 24, 1992, the second amended proposal was filed on March 4, 1993, with further documentation filed on May 13, 1993 in response to a March 26, 1993 Board hearing officer's order.

The Board notes that this second First Notice is required by the Administrative Procedure Act, which, at Section 5-40(e) (5 ILCS 100/5-40(e)), requires such notice if more than one year has passed without a final filing of the first First Notice proposal. We also note that timely notice has been published for hearings on the second revised proposal on October 1 and 13, 1993, the latter hearing being subject to cancellation.

The Board has made some non-substantive changes to the proposal. It has opened the following Parts to make the applicability provisions compatible with newly proposed Part 817: Part 807 (Section 807.105); Part 810 (Section 810.101), Part 811 (Sections 811.101 and 811.301); Part 812 (Section 812.101 and 812.301); and Part 813 (Section 813.101). The Board has also opened Section 810.103, to provide for hearing officer-requested

definitions of "foundry sand", "iron slag", and "steel slag",¹ and Section 810.104, to add incorporations by reference of the ASTM methods contained in the Steel and Foundry proposal. The Board has also added to Part 817 a definitions Section 817.102, for definitions of terms specific to that Part.² Finally, the Board has made certain formatting changes to comport with the Illinois Administrative Code and Illinois Register publication and filing requirements.

The text of the second revised proposal follows with all revisions indicated by redlining:

-- THE BOARD ADDED THE FOLLOWING PROVISIONS TO THE PROPOSAL --
 ---- REDLINING OF REVISIONS BEGINS AT THE MARK ON PAGE 30 ----

TITLE 35: ENVIRONMENTAL PROTECTION
 SUBTITLE G: WASTE DISPOSAL
 CHAPTER I: POLLUTION CONTROL BOARD
 SUBCHAPTER i: SOLID WASTE AND SPECIAL WASTE HAULING

PART 807
 SOLID WASTE

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¹ The participants should be receiving the hearing officer's order shortly.

² This meant renumbering Sections 817.102 through 817.106 in the proposal to Sections 817.103 through 817.107 in this order.

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Section
 807.600 Purpose, Scope and Applicability
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 807.661 Trust Fund
 807.662 Surety Bond Guaranteeing Payment
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 807.664 Letter of Credit
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 807.666 Self-insurance for Non-commercial Sites

Appendix A Financial Assurance Forms

Illustration A Trust Agreement
 Illustration B Certificate of Acknowledgment
 Illustration C Forfeiture Bond
 Illustration D Performance Bond
 Illustration E Irrevocable Standby Letter of Credit
 Illustration F Certificate of Insurance for Closure and/or
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 Illustration G Operator's Bond Without Surety
 Illustration H Operator's Bond With Parent Surety
 Illustration I Letter from Chief Financial Officer

Appendix B Old Rule Numbers Referenced

AUTHORITY: Implementing Sections 5, 21.1 and 22 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989¹, ch. 111 $\frac{1}{2}$, pars. 1005, 1021.1, 1022 and 1027 [415 ILCS 5/5, 5/21.1, and 5/22]).

SOURCE: Adopted as an emergency rule and filed with the Secretary of State July 27, 1973; amended at 2 Ill. Reg. 16, p. 3, effective April 10, 1978; codified at 7 Ill. Reg. 13636; recodified from Subchapter h to Subchapter i at 8 Ill. Reg. 13198; emergency amendment in R84-22A at 9 Ill. Reg. 741, effective January 3, 1985 for a maximum of 150 days; amended in R84-22B at 9 Ill. Reg. 6722, effective April 29, 1985; amended in R84-22C at 9 Ill. Reg. 18942, effective November 25, 1985; amended in R84-45 at 12 Ill. Reg. 15566, effective September 14, 1988; amended in R88-7 at 14 Ill. Reg. 15832, effective September 18, 1990; amended in R90-26 at 18 Ill. Reg. _____, effective _____.

NOTE: Capitalization denotes statutory language.

SUBPART A: GENERAL PROVISIONS

Section 807.105 Relation to Other Rules

- a) Persons and facilities regulated pursuant to 35 Ill. Adm. Code 700 through 749 are not subject to the requirements of this Part or of 35 Ill. Adm. Code 811 through 815 and 817. However, if such a facility also contains one or more units used solely for the disposal of solid wastes, as defined in 35 Ill. Adm. Code 810.103, such units are subject to requirements of this Part and 35 Ill. Adm. Code 811 through 815 and 817.
- b) Persons and facilities subject to 35 Ill. Adm. Code 807, 809 or 811 through 815 or 817 may be subject to other applicable Parts of 35 Ill. Adm. Code: Chapter I based on the language of those other Parts. Specific examples of such applicability are provided as explained at 35 Ill. Adm. Code 700.102.
- c) The requirements of 35 Ill. Adm. Code 810 through 815 and 817 are intended to supersede the requirements of this Part. Persons and facilities regulated pursuant to 35 Ill. Adm. Code 810 through 815 and 817 are not subject to the requirements of this Part. This Part does not apply to new units as defined in 35 Ill. Adm. Code 810.103.

(Source: Amended at 18 Ill. Reg. _____, effective _____
_____)

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE G: WASTE DISPOSAL
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER i: SOLID WASTE AND SPECIAL WASTE HAULING

PART 810
SOLID WASTE DISPOSAL: GENERAL PROVISIONS

Section	
810.101	Scope and Applicability
810.102	Severability
810.103	Definitions
810.104	Incorporations by Reference

AUTHORITY: Implementing Sections 5, 21, 21.1, 22 and 22.17, and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111½, pars. 1005, 1021, 1021.1, 1022, 1022.17 and 1027).

SOURCE: Adopted in R88-7 at 14 Ill. Reg. 15838, effective September 18, 1990; amended in R90-26 at 18 Ill. Reg. _____, effective _____.

NOTE: Capitalization indicates statutory language.

Section 810.101 Scope and Applicability

This Part applies to all solid waste disposal facilities regulated pursuant to 35 Ill. Adm. Code 811 through 815 and 817. This Part does not apply to hazardous waste management facilities regulated pursuant to 35 Ill. Adm. Code 700 through 750.

(Source: Amended at 18 Ill. Reg. _____, effective _____)

Section 810.103 Definitions

Except as stated in this Section, or unless a different meaning of a word or term is clear from the context, the definition of words or terms in this Part shall be the same as that applied to the same words or terms in the Environmental Protection Act (Act) (Ill. Rev. Stat. 1989, ch. 111½, pars. 1001 et. seq.):

"Act" means the Environmental Protection Act, Ill. Rev. Stat. 1989, ch. 111½, pars. 1001 et. seq.

"AGENCY" IS THE ENVIRONMENTAL PROTECTION AGENCY ESTABLISHED BY THE ENVIRONMENTAL PROTECTION ACT. (Section 3.08 of the Act.)

"Admixtures" are chemicals added to earth materials to improve for a specific application the physical or chemical properties of the earth materials. Admixtures include, but are not limited to: lime, cement, bentonite and sodium silicate.

"Applicant" means the person, submitting an application to the Agency for a permit for a solid waste disposal facility.

"AQUIFER" MEANS SATURATED (WITH GROUNDWATER) SOILS AND GEOLOGIC MATERIALS WHICH ARE SUFFICIENTLY PERMEABLE TO READILY YIELD ECONOMICALLY USEFUL QUANTITIES OF WATER TO WELLS, SPRINGS, OR STREAMS UNDER ORDINARY HYDRAULIC GRADIENTS and whose boundaries can be identified and mapped from hydrogeologic data. (Section 3 of the Illinois Groundwater Protection Act (Ill. Rev. Stat. 1989, ch. 111½, par. 7453).)

"Bedrock" means the solid rock formation immediately underlying any loose superficial material such as soil, alluvium or glacial drift.

"BOARD" IS THE POLLUTION CONTROL BOARD ESTABLISHED BY THE ACT. (Section 3.04 of the Act.)

"Borrow area" means an area from which earthen material

is excavated for the purpose of constructing daily cover, final cover, a liner, a gas venting system, roadways or berms.

"Chemical waste" means a non-putrescible solid whose characteristics are such that any contaminated leachate is expected to be formed through chemical or physical processes, rather than biological processes, and no gas is expected to be formed as a result.

"Contaminated leachate" means any leachate whose constituent violate the standards of 35 Ill. Adm. Code 811.202.

"Design Period" means that length of time determined by the sum of the operating life of the solid waste landfill facility plus the postclosure care period necessary to stabilize the waste in the units.

"DISPOSAL" MEANS THE DISCHARGE, DEPOSIT, INJECTION, DUMPING, SPILLING, LEAKING OR PLACING OF ANY SOLID WASTE INTO OR ON ANY LAND OR WATER OR INTO ANY WELL SUCH THAT SOLID WASTE OR ANY CONSTITUENT OF THE SOLID WASTE MAY ENTER THE ENVIRONMENT BY BEING EMITTED INTO THE AIR OR DISCHARGED INTO ANY WATERS, INCLUDING GROUNDWATER. (Section 3.08 of the Act.) If the solid waste is accumulated and not confined or contained to prevent its entry into the environment, or there is no certain plan for its disposal elsewhere, such accumulation shall constitute disposal.

"Disturbed areas" means those areas within a facility that have been physically altered during waste disposal operations or during the construction of any part of the facility.

"Documentation" means items, in any tangible form, whether directly legible or legible with the aid of any machine or device, including but not limited to affidavits, certificates, deeds, leases, contracts or other binding agreements, licenses, permits, photographs, audio or video recordings, maps, geographic surveys, chemical and mathematical formulas or equations, mathematical and statistical calculations and assumptions, research papers, technical reports, technical designs and design drawings, stocks, bonds and financial records, that are used to support facts or hypotheses.

"Earth liners" means structures constructed from naturally occurring soil material that has been compacted to achieve a low permeability.

"Existing facility" or "Existing unit" means a facility or unit which is not defined in this Section as a new facility or a new unit.

"Facility" means a site and all equipment and fixtures on a site used to treat, store or dispose of solid or special wastes. A facility consists of an entire solid or special waste treatment, storage or disposal operation. All structures used in connection with or to facilitate the waste disposal operation shall be considered a part of the facility. A facility may include, but is not limited to, one or more solid waste disposal units, buildings, treatment systems, processing and storage operations, and monitoring stations.

"Field capacity" means that maximum moisture content of a waste, under field conditions of temperature and pressure, above which moisture is released by gravity drainage.

"Foundry sand"

BOARD NOTE: [The Board has requested that the proponent (steel and foundry) industries provide a definition of this term.]

"Gas collection system" means a system of wells, trenches, pipes and other related ancillary structures such as manholes, compressor housing, and monitoring installations that collects and transports the gas produced in a putrescible waste disposal unit to one or more gas processing points. The flow of gas through such a system may be produced by naturally occurring gas pressure gradients or may be aided by an induced draft generated by mechanical means.

"Gas condensate" means the liquid formed as a landfill gas is cooled or compressed.

"Gas venting system" means a system of wells, trenches, pipes and other related structures that vents the gas produced in a putrescible waste disposal unit to the atmosphere.

"Geomembranes" means manufactured membrane liners and barriers of low permeability used to control the migration of fluids or gases.

"Geotextiles" are permeable manufactured materials used for purposes which include, but are not limited to, strengthening soil, providing a filter to prevent clogging of drains, collecting and draining liquids and

gases beneath the ground surface.

"GROUNDWATER" MEANS UNDERGROUND WATER WHICH OCCURS WITHIN THE SATURATED ZONE AND WITHIN GEOLOGIC MATERIALS WHERE THE FLUID PRESSURE IN THE PORE SPACE IS EQUAL TO OR GREATER THAN ATMOSPHERIC PRESSURE. (Section 3 of the Illinois Groundwater Protection Act)

"Hydraulic barriers" means structures designed to prevent or control the seepage of water. Hydraulic barriers include, but are not limited to cutoff walls, slurry walls, grout curtains and liners.

"Inert waste" means any solid waste that will not decompose biologically, burn, serve as food for vectors, form a gas, cause an odor, or form a contaminated leachate, as determined in accordance with Section 811.202(b). Such inert wastes shall include only non-biodegradable and non-putrescible solid wastes. Inert wastes may include, but are not limited to, bricks, masonry and concrete (cured for 60 days or more).

"Iron slag"

BOARD NOTE: [The Board has requested that the proponent (steel and foundry) industries provide a definition of this term.]

"Land application unit" means an area where wastes are agronomically spread over or disked into land or otherwise applied so as to become incorporated into the soil surface. For the purposes of this Part and 35 Ill. Adm. Code 811 through 815, a land application unit is not a landfill; however, other Parts of 35 Ill. Adm. Code: Chapter I may apply, and may include the permitting requirements of 35 Ill. Adm. Code 309.

"Landfill" means a unit or part of a facility in or on which waste is placed and accumulated over time for disposal, and which is not a land application unit, a surface impoundment or an underground injection well. For the purposes of this Part and 35 Ill. Adm. Code 811 through 815, landfills include waste piles, as defined in this Section.

"Leachate" means liquid that has been or is in direct contact with a solid waste.

"Lift" means an accumulation of waste which is compacted into a unit and over which cover is placed.

"Malodor" means an odor caused by ONE OR MORE

CONTAMINANT EMISSIONS INTO THE ATMOSPHERE FROM A FACILITY THAT IS IN SUFFICIENT QUANTITIES AND OF SUCH CHARACTERISTICS AND DURATION AS TO BE described as malodorous and which may be INJURIOUS TO HUMAN, PLANT, OR ANIMAL LIFE, TO HEALTH, OR TO PROPERTY, OR TO UNREASONABLY INTERFERE WITH THE ENJOYMENT OF LIFE OR PROPERTY. (Section 3.02 of the Act (defining "air pollution").)

"National Pollutant Discharge Elimination System" or "NPDES" means the program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits and imposing and enforcing pretreatment requirements under the Clean Water Act (33 U.S.C. 1251 et seq.), Section 12(f) of the Environmental Protection Act and 35 Ill. Adm. Code 309.Subpart A and 310. "NPDES permit" means a permit issued under the NPDES program.

"New facility" or "New unit" means a solid waste landfill facility or a unit at a facility, if one or more of the following conditions apply:

It is a landfill or unit exempt from permit requirements pursuant to Section 21(d) of the Act that has not yet accepted any waste as of the effective date of this Part;

It is a landfill or unit not exempt from permit requirements pursuant to Section 21(d) of the Act that has no development or operating permit issued by the Agency pursuant to 35 Ill. Adm. Code 807 as of the effective date of this Part; or

It is a landfill with a unit whose maximum design capacity or lateral extent is increased after the effective date of this Part.

BOARD NOTE: A new unit located in an existing facility shall be considered a unit subject to 35 Ill. Adm. Code 814, which references applicable requirements of 35 Ill. Adm. Code 811.

"One hundred (100) year flood plain" means any land area which is subject to a one percent or greater chance of flooding in a given year from any source.

"One hundred (100) year, 24 hour precipitation event" means a precipitation event of 24 hour duration with a probable recurrence interval of once in 100 years.

"Operator" means the person responsible for the operation and maintenance of a solid waste disposal

facility.

"Perched watertable" means an elevated watertable above a discontinuous saturated lens, resting on a low permeability (such as clay) layer within a high permeability (such as sand) formation.

"Permit area" means the entire horizontal and vertical region occupied by a permitted solid waste disposal facility.

"PERSON" IS 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. (Section 3.26 of the Act.)

"Professional engineer" means a person who has registered and obtained a seal pursuant to "The Illinois Professional Engineering Act" (Ill. Rev. Stat 1989, ch. 111, par. 5101 et seq.).

"Professional land surveyor" means a person who has received a certificate of registration and a seal pursuant to "The Land Surveyors Act" (Ill. Rev. Stat. 1989, ch. 111, par. 3201 et seq.).

"Putrescible waste" means a solid waste that contains organic matter capable of being decomposed by microorganisms so as to cause a malodor, gases, or other offensive conditions, or which is capable of providing food for birds and vectors. Putrescible wastes may form a contaminated leachate from microbiological degradation, chemical processes, and physical processes. Putrescible waste includes, but is not limited to, garbage, offal, dead animals, general household waste, and commercial waste. All solid wastes which do not meet the definitions of inert or chemical wastes shall be considered putrescible wastes.

"Publicly owned treatment works" or "POTW" means a treatment works that is owned by the State of Illinois or a unit of local government. This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastewater. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW treatment plant. The term also means the unit of local government which has jurisdiction over the indirect discharges to and the discharges from such a treatment works.

"Recharge zone" means an area through which water can enter an aquifer.

"Responsible charge," when used to refer to a person, means that the person is normally present at a waste disposal site; directs the day-to-day overall operation at the site; and either is the owner or operator or is employed by or under contract with the owner or operator to assure that the day-to-day operations at the site are carried out in compliance with any Part of 35 Ill. Adm. Code: Chapter I governing operations at waste disposal sites.

"Runoff" means water resulting from precipitation that flows overland before it enters a defined stream channel, any portion of such overland flow that infiltrates into the ground before it reaches the stream channel, and any precipitation that falls directly into a stream channel.

"Salvaging" means the return of waste materials to use, under the supervision of the landfill operator, so long as the activity is confined to an area remote from the operating face of the landfill, it does not interfere with or otherwise delay the operations of the landfill, and it results in the removal of all materials for salvaging from the landfill site daily or separates them by type and stores them in a manner that does not create a nuisance, harbor vectors or cause an unsightly appearance.

"Scavenging" means the removal of materials from a solid waste management facility or unit which is not salvaging.

"Seismic Slope Safety Factor" means the ratio between the resisting forces or moments in a slope and the driving forces or moments that may cause a massive slope failure during an earthquake or other seismic event such as an explosion.

"Settlement" means subsidence caused by waste loading, changes in groundwater level, chemical changes within the soil and adjacent operations involving excavation.

"Shredding" means the mechanical reduction in particle sizes of solid waste. Putrescible waste is considered shredded if 90 percent of the waste by dry weight passes a 3 inch sieve.

"Significant Modification" means a modification to an approved permit issued by the Agency in accordance with

Section 39 of the Act and 35 Ill. Adm. Code 813 that is required when one or more of the following changes, considered significant when that change measured by one or more parameters whose values lie outside the expected operating range of values as specified in the permit, are planned, occur or will occur:

An increase in the capacity of the waste disposal unit over the permitted capacity;

Any change in the placement of daily, intermediate or final cover;

A decrease in performance, efficiency or longevity of the liner system;

A decrease in efficiency or performance of the leachate collection system;

A change in configuration, performance, or efficiency of the leachate management system;

A change in the final disposition of treated effluent or in the quality of the discharge from the leachate treatment or pretreatment system;

Installation of a gas management system, or a decrease in the efficiency or performance of an existing gas management system;

A change in the performance or operation of the surface water control system;

A decrease in the quality or quantity of data from any environmental monitoring system;

A change in the applicable background concentrations or the maximum allowable predicted concentrations;

A change in the design or configuration of the regraded area after development or after final closure;

A change in the amount or type of postclosure financial assurance;

Any change in the permit boundary;

A change in the postclosure land use of the property;

A remedial action necessary to protect groundwater;

Transfer of the permit to a new operator;

Operating authorization is being sought to place into service a structure constructed pursuant to a construction quality assurance program; or

A change in any requirement set forth as a special condition in the permit.

"Sole source aquifer" means those aquifers designated pursuant to Section 1424(e) of the Safe Drinking Water Act of 1974, (42 U.S.C 300h-3).

"Solid Waste" means a waste that is defined in this Section as an inert waste, as a putrescible waste, as a chemical waste or as a special waste, and which is not also defined as a hazardous waste pursuant to 35 Ill. Adm. Code 721.

"SPECIAL WASTE" MEANS ANY INDUSTRIAL PROCESS WASTE, POLLUTION CONTROL WASTE OR HAZARDOUS WASTE, EXCEPT AS DETERMINED PURSUANT TO SECTION 22.9 OF THE ACT and 35 Ill. Adm. Code 808. (Section 3.45 of the Act.)

"Static Safety Factor" means the ratio between resisting forces or moments in a slope and the driving forces or moments that may cause a massive slope failure.

"Steel slag"

BOARD NOTE: [The Board has requested that the proponent (steel and foundry) industries to provide a definition of this term.]

"Surface impoundment" means a natural topographic depression, a man-made excavation, or a diked area into which flowing wastes, such as liquid wastes or wastes containing free liquids, are placed. For the purposes of this Part and 35 Ill. Adm. Code 811 through 815, a surface impoundment is not a landfill. Other Parts of 35 Ill. Adm. Code: Chapter I may apply, including the permitting requirements of 35 Ill. Adm. Code 309.

"Twenty-five (25) year, 24 hour precipitation event" means a precipitation event of 24 hour duration with a probable recurrence interval of once in 25 years.

"Uppermost aquifer" means the first geologic formation above or below the bottom elevation of a constructed

liner or wastes, where no liner is present, which is an aquifer, and includes any lower aquifer that is hydraulically connected with this aquifer within the facility's permit area.

"Unit" means a contiguous area used for solid waste disposal.

"Unit of local government" means a unit of local government, as defined by Article 7, Section 1 of the Illinois Constitution. A unit of local government may include, but is not limited to, a municipality, a county, or a sanitary district.

"Waste pile" means an area on which non-containerized masses of solid, non flowing wastes are placed for disposal. For the purposes of this Part and 35 Ill. Adm. Code 811 through 815, a waste pile is a landfill, unless the operator can demonstrate that the wastes are not accumulated over time for disposal. At a minimum, such demonstration shall include photographs, records or other observable or discernable information, maintained on a yearly basis, that show that within the preceding year the waste has been removed for utilization or disposed elsewhere.

"Waste stabilization" means any chemical, physical or thermal treatment of waste, either alone or in combination with biological processes, which results in a reduction of microorganisms, including viruses, and the potential for putrefaction.

"Working face" means any part of a landfill where waste is being disposed.

"Zone of attenuation" is the three dimensional region formed by excluding the volume occupied by the waste placement from the smaller of the volumes resulting from vertical planes drawn to the bottom of the uppermost aquifer at the property boundary or 100 feet from the edge of one or more adjacent units.

(Source: Amended at 18 Ill. Reg. _____, effective _____)

Section 810.104 Incorporations by Reference

- a) The Board incorporates the following material by reference:

1) Code of Federal Regulations:

40 CFR 141.40 (1988).

2) American Institute of Certified Public Accountants, 1211 Avenue of the Americas, New York, NY 10036:

Auditing Standards--Current Text, August 1, 1990 Edition, ~~available through the American Institute of Certified Public Accountants, 1211 Avenue of the Americas, New York, NY 10036.~~

3) ASTM. American Society for Testing and Materials, 1976 Race Street, Philadelphia, PA 19103 215/299-5585:

Method D2234-76, [title of method to be provided by the proponents].

Method D3987-85, [title of method to be provided by the proponents].

b) This incorporation includes no later amendments or editions.

(Source: Amended at 18 Ill. Reg. _____, effective _____)

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE G: WASTE DISPOSAL
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER i: SOLID WASTE AND SPECIAL WASTE HAULING

PART 811
STANDARDS FOR NEW SOLID WASTE LANDFILLS

SUBPART A: GENERAL STANDARDS FOR ALL LANDFILLS

- Section
- 811.101 Scope and Applicability
- 811.102 Location Standards
- 811.103 Surface Water Drainage
- 811.104 Survey Controls
- 811.105 Compaction
- 811.106 Daily Cover
- 811.107 Operating Standards
- 811.108 Salvaging
- 811.109 Boundary Control
- 811.110 Closure and Written Closure Plan
- 811.111 Postclosure Maintenance

SUBPART B: INERT WASTE LANDFILLS

Section	
811.201	Scope and Applicability
811.202	Determination of Contaminated Leachate
811.203	Design Period
811.204	Final Cover
811.205	Final Slope and Stabilization
811.206	Leachate Sampling
811.207	Load Checking

SUBPART C: PUTRESCIBLE AND CHEMICAL WASTE LANDFILLS

Section	
811.301	Scope and Applicability
811.302	Facility Location
811.303	Design Period
811.304	Foundation and Mass Stability Analysis
811.305	Foundation Construction
811.306	Liner Systems
811.307	Leachate Drainage System
811.308	Leachate Collection System
811.309	Leachate Treatment and Disposal System
811.310	Landfill Gas Monitoring
811.311	Landfill Gas Management System
811.312	Landfill Gas Processing and Disposal System
811.313	Intermediate Cover
811.314	Final Cover System
811.315	Hydrogeological Site Investigations
811.316	Plugging and Sealing of Drill Holes
811.317	Groundwater Impact Assessment
811.318	Design, Construction, and Operation of Groundwater Monitoring Systems
811.319	Groundwater Monitoring Programs
811.320	Groundwater Quality Standards
811.321	Waste Placement
811.322	Final Slope and Stabilization
811.323	Load Checking Program

SUBPART D: MANAGEMENT OF SPECIAL WASTES AT LANDFILLS

Section	
811.401	Scope and Applicability
811.402	Notice to Generators and Transporters
811.403	Special Waste Manifests
811.404	Identification Record
811.405	Recordkeeping Requirements
811.406	Procedures for Excluding Regulated Hazardous Wastes

SUBPART E: CONSTRUCTION QUALITY ASSURANCE PROGRAMS

Section	
811.501	Scope and Applicability
811.502	Duties and Qualifications of Key Personnel
811.503	Inspection Activities
811.504	Sampling Requirements
811.505	Documentation

811.506 Foundations and Subbases
 811.507 Compacted Earth Liners
 811.508 Geomembranes
 811.509 Leachate Collection Systems

SUBPART G: FINANCIAL ASSURANCE

Section
 811.700 Scope, Applicability and Definitions
 811.701 Upgrading Financial Assurance
 811.702 Release of Financial Institution
 811.703 Application of Proceeds and Appeals
 811.704 Closure and Postclosure Care Cost Estimates
 811.705 Revision of Cost Estimate
 811.706 Mechanisms for Financial Assurance
 811.707 Use of Multiple Financial Mechanisms
 811.708 Use of a Financial Mechanism for Multiple Sites
 811.709 Trust Fund for Unrelated Sites
 811.710 Trust Fund
 811.711 Surety Bond Guaranteeing Payment
 811.712 Surety Bond Guaranteeing Performance
 811.713 Letter of Credit
 811.714 Closure Insurance
 811.715 Self-Insurance for Non-commercial Sites

811.Appendix A Financial Assurance Forms

Illustration A Trust Agreement
 Illustration B Certificate of Acknowledgment
 Illustration C Forfeiture Bond
 Illustration D Performance Bond
 Illustration E Irrevocable Standby Letter of Credit
 Illustration F Certificate of Insurance for Closure and/or
 Postclosure Care
 Illustration G Operator's Bond Without Surety
 Illustration H Operator's Bond With Parent Surety
 Illustration I Letter from Chief Financial Officer

AUTHORITY: Implementing Sections 5, 21, 21.1, 22, 22.17 and 28.1 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111½, pars. 1005, 1021, 1021.1, 1022, 1022.17, 1028.1 and 1027).

SOURCE: Adopted in R88-7 at 14 Ill. Reg. 15861, effective September 18, 1990; amended in R92-19 at 17 Ill. Reg. 12413, effective July 19, 1993; amended in R90-26 at 18 Ill. Reg. _____, effective _____.

NOTE: Capitalization indicates statutory language.

SUBPART A: GENERAL STANDARDS FOR ALL LANDFILLS

Section 811.101 Scope and Applicability

- a) The standards of this Part apply to all new landfills, except as otherwise provided in 35 Ill. Adm. Code 817, and except those regulated pursuant to 35 Ill. Adm. Code 700 through 749. Subpart A contains general standards applicable to all new landfills. Subpart B contains additional standards for new landfills which dispose of only inert wastes. Subpart C contains additional standards for new landfills which dispose of chemical and putrescible wastes.
- b) ~~This Part shall not apply until one year after the effective date of this Part to new landfills solely receiving the following wastes generated by the following industries, provided that proposed regulations of general applicability to that industry category are filed with the Board no later than December 1, 1990: wastes generated by foundries and primary steel production facilities and coal combustion wastes generated by electric utilities. The requirements of 35 Ill. Adm. Code 807 shall apply to such landfills during the interim period of one year after the effective date of this Part. This Part shall become effective immediately after Dec. 1, 1990 if no proposal has been filed by that date.~~
- e) All general provisions of 35 Ill. Adm. Code 810 apply to this Part.

(Source: Amended at 18 Ill. Reg. _____, effective _____
_____)

SUBPART C: PUTRESCIBLE AND CHEMICAL WASTE LANDFILLS

Section 811.301 Scope and Applicability

In addition to the requirements of Subpart A, the standards of this Subpart apply to all landfills in which chemical and putrescible wastes are to be placed, except as otherwise provided in 35 Ill. Adm. Code 817.

(Source: Amended at 18 Ill. Reg. _____, effective _____
_____)

TITLE 35: ENVIRONMENTAL PROTECTION
 SUBTITLE G: WASTE DISPOSAL
 CHAPTER I: POLLUTION CONTROL BOARD
 SUBCHAPTER i: SOLID WASTE AND SPECIAL WASTE HAULING

PART 812
 INFORMATION TO BE SUBMITTED IN A PERMIT APPLICATION

SUBPART A: GENERAL INFORMATION REQUIRED FOR ALL LANDFILLS

Section	
812.101	Scope and Applicability
812.102	Certification by Professional Engineer
812.103	Application Fees
812.104	Required Signatures
812.105	Approval by Unit of Local Government
812.106	Site Location Map
812.107	Site Plan Map
812.108	Narrative Description of the Facility
812.109	Location Standards
812.110	Surface Water Control
812.111	Daily Cover
812.112	Legal Description
812.113	Proof of Property Ownership and Certification
812.114	Closure Plans
812.115	Postclosure Care Plans
812.116	Closure and Postclosure Cost Estimates

SUBPART B: ADDITIONAL INFORMATION REQUIRED FOR INERT WASTE
LANDFILLS

Section	
812.201	Scope and Applicability
812.202	Waste Stream Test Results
812.203	Final Cover
812.204	Closure Requirements

SUBPART C: ADDITIONAL INFORMATION REQUIRED FOR PUTRESCIBLE AND
CHEMICAL WASTE LANDFILLS

Section	
812.301	Scope and Applicability
812.302	Waste Analysis
812.303	Site Location
812.304	Waste Shredding
812.305	Foundation Analysis and Design
812.306	Design of the Liner System
812.307	Leachate Drainage and Collection Systems
812.308	Leachate Management System
812.309	Landfill Gas Monitoring Systems
812.310	Gas Collection Systems
812.311	Landfill Gas Disposal
812.312	Intermediate Cover
812.313	Design of the Final Cover System
812.314	Description of the Hydrogeology
812.315	Plugging and Sealing of Drill Holes
812.316	Results of the Groundwater Impact Assessment
812.317	Groundwater Monitoring Program
812.318	Operating Plans

AUTHORITY: Implementing Sections 5, 21, 21.1, 22, 22.17 and 28.1, and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111½, pars. 1005, 1021,

1021.1, 1022, 1022.17, 1028.1 and 1027).

SOURCE: Adopted in R88-7 at 14 Ill. Reg. 15785, effective September 18, 1990; amended in R90-26 at 18 Ill. Reg. _____, effective _____.

NOTE: Capitalization indicates statutory language.

SUBPART A: GENERAL INFORMATION REQUIRED FOR ALL LANDFILLS

Section 812.101 Scope and Applicability

- a) All persons, except those specifically exempted by Section 21(d) of the Environmental Protection Act (Act) (Ill. Rev. Stat. 1989, ch. 111½, par. 1021(d)) shall submit to the Agency an application for a permit to develop and operate a landfill. The application must contain the information required by this Subpart and by Section 39(a) of the Act, except as otherwise provided in 35 Ill. Adm. Code 817.
- b) Subpart A contains general standards applicable to all landfills. Subpart B contains additional standards applicable to landfills which accept only inert waste. Subpart C contains additional standards applicable to landfills which accept chemical and putrescible waste.
- c) All general provisions of 35 Ill. Adm. Code 810 apply to this Part.

(Source: Amended at 18 Ill. Reg. _____, effective _____)

SUBPART C: ADDITIONAL INFORMATION REQUIRED FOR PUTRESCIBLE AND CHEMICAL WASTE LANDFILLS

Section 812.301 Scope and Applicability

In addition to the information required by Subpart A, an application for a permit to develop a putrescible or chemical waste landfill shall contain the information required by this Subpart, except as otherwise provided in 35 Ill. Adm. Code 817.

(Source: Amended at 18 Ill. Reg. _____, effective _____)

TITLE 35: ENVIRONMENTAL PROTECTION
 SUBTITLE G: WASTE DISPOSAL
 CHAPTER I: POLLUTION CONTROL BOARD

SUBCHAPTER i: SOLID WASTE AND SPECIAL WASTE HAULING

PART 813
PROCEDURAL REQUIREMENTS FOR PERMITTED LANDFILLS

SUBPART A: GENERAL PROCEDURES

Section	
813.101	Scope and Applicability
813.102	Delivery of Permit Application
813.103	Agency Decision Deadlines
813.104	Standards for Issuance of a Permit
813.105	Standards for Denial of a Permit
813.106	Permit Appeals
813.107	Permit No Defense
813.108	Term of Permit
813.109	Transfer of Permits
813.110	Adjusted Standards to Engage in Experimental Practices
813.111	Agency Review of Contaminant Transport Models

SUBPART B: ADDITIONAL PROCEDURES FOR MODIFICATION AND
SIGNIFICANT MODIFICATION OF PERMITS

Section	
813.201	Initiation of a Modification or Significant Modification
813.202	Information Required for a Significant Modification of an Approved Permit
813.203	Specific Information Required for a Significant Modification to Obtain Operating Authorization
813.204	Procedures for a Significant Modification of an Approved Permit

SUBPART C: ADDITIONAL PROCEDURES FOR THE RENEWAL OF PERMITS

Section	
813.301	Time of Filing
813.302	Effect of Timely Filing
813.303	Information Required for a Permit Renewal
813.304	Updated Groundwater Impact Assessment
813.305	Procedures for Permit Renewal

SUBPART D: ADDITIONAL PROCEDURES FOR INITIATION AND TERMINATION
OF TEMPORARY AND PERMANENT CLOSURE AND POSTCLOSURE CARE

Section	
813.401	Agency Notification Requirements
813.402	Certification of Closure
813.403	Termination of the Permit

SUBPART E: REPORTS TO BE FILED WITH THE AGENCY

Section	
813.501	Annual Reports
813.502	Quarterly Groundwater Reports
813.503	Information to be Retained at or near the Waste Disposal Facility

AUTHORITY: Implementing Sections 5, 21, 21.1, 22, 22.17 and 28.1 and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111½, pars. 1005, 1021, 1021.1, 1022, 1022.17, 1028.1 and 1027).

SOURCE: Adopted in R88-7 at 14 Ill. Reg. 15814, effective September 18, 1990; amended in R92-19 at 17 Ill. Reg. 12409, effective July 19, 1993; amended in R90-26 at 18 Ill. Reg. _____, effective _____.

NOTE: Capitalization indicates statutory language.

SUBPART A: GENERAL PROCEDURES

Section 813.101 Scope and Applicability

- a) This Subpart contains the procedures to be followed by all applicants and the Agency for applications for permits required pursuant to Section 21(d) of the Environmental Protection Act (Act) (Ill. Rev. Stat. 1989, ch. 111½, par. 1021(d)) and 35 Ill. Adm. Code 811, 812, ~~and 814,~~ and 817. The procedures in this Part apply to applications to issue a permit to develop and operate a landfill, to modify a permit, to renew an expired permit, and to conduct an experimental practice.
- b) All general provisions of 35 Ill. Adm. Code 810 apply to this Part.

(Source: Amended at 18 Ill. Reg. _____, effective _____
_____)

TITLE 35: ENVIRONMENTAL PROTECTION
SUBTITLE G: WASTE DISPOSAL
CHAPTER I: POLLUTION CONTROL BOARD
SUBCHAPTER i: SOLID WASTE AND SPECIAL WASTE HAULING

PART 814
STANDARDS FOR EXISTING LANDFILLS AND UNITS

SUBPART A: GENERAL REQUIREMENTS

Section	
814.101	Scope and Applicability
814.102	Compliance Date
814.103	Notification to Agency
814.104	Applications for Significant Modification of Permits
814.105	Effect of Timely Filing of Notification and Application for Significant Modification
814.106	Agency Action on Applications for Significant

Modifications to Existing Permits

SUBPART B: STANDARDS FOR UNITS ACCEPTING INERT WASTE

Section

- 814.201 Scope and Applicability
814.202 Applicable Standards

SUBPART C: STANDARDS FOR EXISTING UNITS ACCEPTING CHEMICAL AND PUTRESCIBLE WASTES THAT MAY REMAIN OPEN FOR MORE THAN SEVEN YEARS

Section

- 814.301 Scope and Applicability
814.302 Applicable Standards

SUBPART D: STANDARDS FOR EXISTING UNITS ACCEPTING CHEMICAL AND PUTRESCIBLE WASTES THAT MUST INITIATE CLOSURE WITHIN SEVEN YEARS

Section

- 814.401 Scope and Applicability
814.402 Applicable Standards

SUBPART E: STANDARDS FOR EXISTING UNITS ACCEPTING INERT WASTE ONLY, OR ACCEPTING CHEMICAL AND PUTRESCIBLE WASTES THAT MUST INITIATE CLOSURE WITHIN TWO YEARS

Section

- 814.501 Scope and Applicability
814.502 Standards for Operation and Closure

SUBPART F: STANDARDS FOR EXISTING UNITS ACCEPTING ONLY LOW RISK WASTES FROM THE STEEL AND FOUNDRY INDUSTRIES THAT MAY REMAIN OPEN FOR MORE THAN SEVEN YEARS

Section

- 814.601 Scope and Applicability
814.602 Applicable Standards

SUBPART G: STANDARDS FOR EXISTING UNITS ACCEPTING ONLY LOW RISK WASTES FROM THE STEEL OR FOUNDRY INDUSTRIES THAT MUST INITIATE CLOSURE WITHIN SEVEN YEARS

Section

- 814.701 Scope and Applicability
814.702 Applicable Standards

SUBPART H: STANDARDS FOR EXISTING UNITS ACCEPTING POTENTIALLY REUSABLE STEEL OR FOUNDRY INDUSTRY WASTE ONLY, OR ACCEPTING LOW RISK STEEL OR FOUNDRY INDUSTRY WASTES THAT MUST INITIATE CLOSURE WITHIN TWO YEARS

Section

- 814.801 Scope and Applicability
814.802 Standards for Operation and Closure

AUTHORITY: Implementing Sections 5, 21, 21.1, 22, 22.17 and 28.1, and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111½, pars. 1005, 1021, 1021.1, 1022, 1022.17, 1028.1 and 1027).

SOURCE: Adopted in R88-7 at 14 Ill. Reg. 15850, effective September 18, 1990; amended in R90-26 at 18 Ill. Reg. _____, effective _____.

NOTE: Capitalization indicates statutory language.

SUBPART F: STANDARDS FOR EXISTING UNITS ACCEPTING ONLY
LOW RISK WASTES FROM THE STEEL AND FOUNDRY INDUSTRIES
THAT MAY REMAIN OPEN FOR MORE THAN SEVEN YEARS

Section 814.601 Scope and Applicability

- a) The standards in this Subpart are applicable to all existing units of landfills, including those exempt from permit requirements in accordance with Section 21(d) of the Act, that have accepted or accept low risk wastes. Based on an evaluation of the information submitted pursuant to Subpart A of this Part and any Agency site inspection, units that meet the requirements of this Subpart may remain open for an indefinite period of time beyond seven years after the effective date of this Part.
- b) Based on an evaluation of the information submitted pursuant to Subpart A of this Part and any Agency site inspection, units which are unable to comply with the requirements of this Subpart are subject to the requirements of Subpart G or Subpart H of this Part.

(Source: added at 18 Ill. Reg. _____, effective _____)

Section 814.602 Applicable Standards

- a) All of the requirements for new units described in 35 Ill. Adm. Code 817 shall apply to units regulated under this Subpart except the following:
- 1) The location standards in 35 Ill. Adm. Code 817.402(a) and (d);
 - 2) The foundation and mass stability analysis standards in 35 Ill. Adm. Code 817.404 and 817.405;
 - 3) The final cover requirements of 35 Ill. Adm. Code 817.410 shall not apply to units or parts of units closed, covered, and vegetated prior to the effective date of this Section;
 - 4) The liner and leachate drainage and collection requirements of 35 Ill. Adm. Code 817.406, 817.407, and 817.408; and

- 5) The hydrogeological site investigation requirements of 35 Ill. Adm. Code 817.411, except that information shall be collected to implement a groundwater monitoring program in accordance with 35 Ill. Adm. Code 817.414 and 817.415 and establish background concentrations for the purpose of establishing water quality standards pursuant to 35 Ill. Adm. Code 817.416.
- b) Units regulated under this Subpart shall be subject to the following standards:
- 1) The unit must be equipped with a system which will effectively drain and collect leachate and transport it to a leachate management system. However, if the facility can provide proof that the federal MCLs will not be exceeded at the compliance boundary, no leachate collection or transport system shall be required;
 - 2) The operator shall provide a long-term static safety factor of at least 1.5 to protect a completed unit against slope failure;
 - 3) Calculation of the Design Period. For the purpose of calculating financial assurance the design period shall be calculated as follows:
 - A) The design period shall be no less than the operating life of the landfill plus 15 years of postclosure care;
 - B) The postclosure care period shall be extended by three years for each year the unit is expected to be in operation up to the applicable design period required by 35 Ill. Adm. Code 817. (For example, an existing unit with expected operating lives of three or seven years after the effective date of this Part would be required to provide financial assurance during operation and for a postclosure care period of either 15 years since $3 \times 3 = 9$ years is less than the 15 year minimum specified in subsection (b) (3) (A); or 20 years since $3 \times 7 = 21$ years is greater than the 20 years specified in Section 817.403(a), respectively.)

(Source: added at 18 Ill. Reg. _____, effective _____)

SUBPART G: STANDARDS FOR EXISTING UNITS ACCEPTING

ONLY LOW RISK WASTES FROM THE STEEL OR FOUNDRY INDUSTRIES
THAT MUST INITIATE CLOSURE WITHIN SEVEN YEARS

Section 814.701 Scope and Applicability

- a) The standards in this Subpart are applicable to all existing units of landfills, including those exempt from permit requirements in accordance with Section 21(d) of the Act, that have accepted or accept low risk wastes. Based on an evaluation of the information submitted pursuant to Subpart A of this Part and any Agency site inspection, units that meet the requirements of this Subpart shall initiate closure between two and seven years after the effective date of this Section.
- b) Based on an evaluation of the information submitted pursuant to Subpart A of this Part and any Agency site inspection, units which are unable to comply with the requirements of this Section are subject to the requirements of Subpart H of this Part.

(Source: added at 18 Ill. Reg. _____, effective _____)

Section 814.702 Applicable Standards

- a) All of the requirements for new units described in 35 Ill. Adm. Code 817 shall apply to units regulated under this Subpart, except the following:
- 1) The location standards in 35 Ill. Adm. Code 817.402(a), (c), (d), and (e);
 - 2) The foundation and mass stability analysis standards in 35 Ill. Adm. Code 817.404 and 817.405;
 - 3) The final cover requirements of 35 Ill. Adm. Code 817.407 shall not apply to units or parts of units closed, covered, and vegetated prior to the effective date of this Section;
 - 4) The liner and leachate drainage and collection requirements of 35 Ill. Adm. Code 817.406, 817.407, and 817.408;
 - 5) The hydrogeological site investigation requirements of 35 Ill. Adm. Code 817.411;
 - 6) The groundwater impact assessment standards of 35 Ill. Adm. Code 817.413;
 - 7) The groundwater monitoring program requirements of

35 Ill. Adm. Code 817.414(c); and

8) The groundwater quality standards of 35 Ill. Adm. Code 817.416(a), (b), and (c).

b) The following standards shall apply to units regulated under this Subpart:

1) No new units shall be opened and an existing unit may not expand beyond the area included in a permit prior to the effective date of this Section or, in the case of permit exempt facilities, beyond the area needed for landfilling to continue until closure is initiated;

2) After the effective date of this Section, the unit may apply for supplemental waste stream permits provided, however, that the additional waste streams are of a similar or compatible chemical makeup to the wastes previously disposed of in the unit. The unit may also continue to accept special waste under permits existing prior to the effective date of this Section and may renew those permits as necessary.

1) Groundwater Standards. A unit shall not contaminate a source of drinking water at the compliance boundary, defined as any point on the edge of the unit at or below the ground surface. At any point on the compliance boundary, the concentration of constituents shall not exceed the applicable groundwater quality standards of 35 Ill. Adm. Code Part 620. The Board may provide for a zone of attenuation and adjust the compliance boundary in accordance with Section 28.1 of the Act and the procedures of 35 Ill. Adm. Code 106.Subpart G upon petition demonstration by the operator that the alternative compliance boundary will not result in contamination of groundwater which may be needed or used for human consumption. In reviewing such petitions, the Board will consider the following factors:

A) The hydrogeological characteristics of the unit and surrounding land, including any natural attenuation and dilution characteristics of the aquifer;

B) The volume and physical and chemical characteristics of the leachate;

C) The quantity, quality, and direction of flow of groundwater underlying the facility;

- D) The proximity and withdrawal rates of ground-water users;
 - E) The availability of alternative drinking water supplies;
 - F) The existing quality of the groundwater, including other sources of contamination and their cumulative impacts on the groundwater;
 - G) Public health, safety, and welfare effects; and
 - H) In no case shall the zone of compliance extend beyond the facility property line or beyond the annual high water mark of any navigable surface water.
- 4) Calculation of the Design Period. For the purposes of calculating financial assurance the design period shall be calculated as follows:
- A) The design period shall be no less than five years; and
 - B) The postclosure care period shall be extended by three years for each year the unit is expected to be in operation up to the applicable design period required by 35 Ill. Adm. Code 817. (For example, an existing unit with an expected life of three years after the effective date of this Part would be required to provide financial assurance for nine years of postclosure care, $9 = 3 \times 3$.)

(Source: added at 18 Ill. Reg. _____, effective _____)

SUBPART H: STANDARDS FOR EXISTING UNITS ACCEPTING POTENTIALLY REUSABLE STEEL OR FOUNDRY INDUSTRY WASTE ONLY, OR ACCEPTING LOW RISK STEEL OR FOUNDRY INDUSTRY WASTES THAT MUST INITIATE CLOSURE WITHIN TWO YEARS

Section 814.801 Scope and Applicability

- a) The standards in this Subpart are applicable to all existing units of landfills, including those exempt from permit requirements in accordance with Section 21(d) of the Act, that accept potentially reusable waste only, or which accept low risk wastes.
- b) All units that cannot demonstrate compliance with the requirements of Subparts B, F, or G of this Part, or are

scheduled to begin closure within two years of the effective date of this Section must begin closure within two years of the effective date of this Section.

- c) A new permit shall not be required for any facility at which all units will close within two years of the effective date of this Section.

(Source: added at 18 Ill. Reg. _____, effective _____)

Section 814.802 Standards for Operation and Closure

- a) All units regulated in this Subpart are subject to all requirements in 35 Ill. Adm. Code 807.
- b) All units regulated under this Subpart are subject to all conditions of the existing permit.

(Source: added at 18 Ill. Reg. _____, effective _____)

----- THE BOARD ADDED THE FOREGOING TO THE PROPOSAL -----
----- FROM THIS POINT ALL REVISIONS ARE REDLINED -----

TITLE 35: ENVIRONMENTAL PROTECTION
 SUBTITLE G: WASTE DISPOSAL
 CHAPTER I: POLLUTION CONTROL BOARD
 SUBCHAPTER i: SOLID WASTE AND SPECIAL WASTE HAULING

PART 815
 PROCEDURAL REQUIREMENTS FOR ALL LANDFILLS EXEMPT FROM PERMITS

SUBPART A: GENERAL REQUIREMENTS

- Section 815.101 Scope and Applicability
- 815.102 Required Signatures

SUBPART B: INITIAL FACILITY REPORT

- Section 815.201 Scope and Applicability
- 815.202 Filing Deadline
- 815.203 Information to be Filed
- 815.204 Required Signatures

SUBPART C: ANNUAL REPORTS

- Section 815.301 Scope and Applicability
- 815.302 Reporting Period
- 815.303 Information to be Submitted

SUBPART D: QUARTERLY GROUNDWATER REPORTS

Section
815.401 Scope and Applicability
815.402 Filing Schedule

SUBPART E: INFORMATION TO BE RETAINED ON-SITE

Section
815.501 Scope and Applicability
815.502 Acceptance Reports
815.503 Other Information

AUTHORITY: Implementing Sections 5, 21, 21.1, 22, 22.17, 28.1, and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1989, ch. 111½, pars. 1005, 1021, 1021.1, 1022, 1022.17, 1028.1 and 1027).

SOURCE: Adopted in R88-7 at 14 Ill. Reg. 15807, effective September 18, 1990; amended in R90-26 at 18 Ill. Reg. _____, effective _____.

SUBPART B: INITIAL FACILITY REPORT

Section 815.202 Filing Deadline

a) Existing 35 Ill. Adm. Code 811 Facilities

The initial facility report shall be filed with the Agency within two years of the effective date of this Part.

b) Existing 35 Ill. Adm. Code 817 Facilities

Those facilities covered by 35 Ill. Adm. Code 817 shall file an amended initial facility report within one year of the effective date of that Part.

c) New Facilities

The initial facility report shall be filed with the Agency before any waste is accepted.

(Source: Amended at 18 Ill. Reg. _____, effective _____)

SUBPART D: QUARTERLY GROUNDWATER REPORTS

Section 815.401 Scope and Applicability

All landfills regulated under this Part shall file all groundwater monitoring data with the Agency in accordance with

the filing schedule of this Subpart, and file modifications, since the last quarterly report, to any list of background concentrations prepared in accordance with 35 Ill. Adm. Code 811.320(d)(1) or 817.416(d)(1), as applicable.

----- PART 817, WHICH FOLLOWS, IS AN ENTIRELY NEW PART -----
 --- AS SUCH, THE ADDITIONS ARE NOT INDICATED BY UNDERLINING ---

TITLE 35: ENVIRONMENTAL PROTECTION
 SUBTITLE G: WASTE DISPOSAL
 CHAPTER I: POLLUTION CONTROL BOARD
 SUBCHAPTER i: SOLID WASTE AND SPECIAL WASTE HAULING

PART 817

REQUIREMENTS FOR NEW STEEL AND FOUNDRY INDUSTRY WASTES LANDFILLS

SUBPART A: GENERAL REQUIREMENTS

Section	
817.101	Scope and Applicability
817.102	Definitions
817.103	Determination of Waste Status
817.104	Sampling Frequency
817.105	Waste Classification
817.106	Waste Classification Limits
817.107	Waste Mining

SUBPART B: STANDARDS FOR MANAGEMENT OF BENEFICIALLY USABLE
 STEEL AND FOUNDRY INDUSTRY WASTES

Section	
817.201	Scope and Applicability
817.202	Limitations on Use
817.203	Notification
817.204	Long-Term Storage

SUBPART C: STEEL AND FOUNDRY INDUSTRY POTENTIALLY
 USABLE WASTE LANDFILLS

Section	
817.301	Scope and Applicability
817.302	Design Period
817.303	Final Cover
817.304	Final Slope and Stabilization
817.305	Leachate Sampling
817.306	Load Checking
817.307	Closure
817.308	Nuisance Precautions

SUBPART D: NEW STEEL AND FOUNDRY INDUSTRY LOW RISK WASTE
 LANDFILLS

Section	
817.401	Scope and Applicability
817.402	Facility Location

817.403	Design Period
817.404	Foundation and Mass Stability Analysis
817.405	Foundation Construction
817.406	Liner Systems
817.407	Leachate Drainage System
817.408	Leachate Collection System
817.409	Leachate Treatment and Disposal System
817.410	Final Cover System
817.411	Hydrogeologic Site Investigations
817.412	Plugging and Sealing of Drill Holes
817.413	Groundwater Impact Assessment
817.414	Design, Construction and Operation of Groundwater Monitoring Systems
817.415	Groundwater Monitoring Programs
817.416	Groundwater Quality Standards
817.417	Waste Placement
817.418	Final Slope and Stabilization
817.419	Load Checking
817.420	Closure and Written Closure Plan
817.421	Postclosure Maintenance

SUBPART E: CONSTRUCTION QUALITY ASSURANCE PROGRAMS

Section

817.501 Scope and Applicability

Section

817.Appendix A Organic Chemical Constituents List

AUTHORITY: Implementing Sections 5, 21, 21.1, 22, 22.17, 28.1, and authorized by Section 27 of the Environmental Protection Act (Ill. Rev. Stat. 1991, ch. 111½, pars. 1005, 1021, 1021.1, 1022, 1022.17, 1028.1 and 1027 [415 ILCS 5/5, 5/21, 5/21.1, 5/22, 5/22.17, 5/28.1, and 5/27]).

SOURCE: Adopted in R90-26 at 18 Ill. Reg. _____, effective _____.

SUBPART A: GENERAL REQUIREMENTS

Section 817.101 Scope and Applicability

- a) In addition to the requirements of 35 Ill. Adm. Code 811.Subpart A, the standards of this Part apply exclusively to non-putrescible wastes from the steel and foundry industries. Steel and foundry industries are those covered by SIC Industry Group numbers 331 and 332 with the exception of those industries identified by SIC code 3313.
- b) Landfill units regulated under this Part shall accept waste only from the steel and foundry industries.

- c) This Part shall not apply to the not otherwise prohibited use of iron and steelmaking slags, including the use as a base for road building, but not including use for land reclamation except as allowed under subsection (e).
- d) This part shall not apply to the not otherwise prohibited use of foundry sand which has been demonstrated as suitable for beneficial use under Section 817.105, including the use as a base for road building, but not including use for land reclamation except as allowed under subsection (e).
- e) The use of iron and steelmaking slags and foundry sands for land reclamation purposes may be approved by the Agency provided it is determined that these uses do not pose a threat to public health and the environment.
- f) This part shall not apply to the use or reuse of iron and steelmaking slags and foundry sands as ingredients in an industrial process to make a product.

Section 817.102 Definitions

In addition to the definitions of 35 Ill. Adm. Code 810.103, the following terms shall have the following meanings for the purposes of this Part only:

"Beneficially usable waste"

BOARD NOTE: [The Board has requested that the proponent (steel and foundry) industries provide a definition of this term.]

"Low risk waste"

BOARD NOTE: [The Board has requested that the proponent (steel and foundry) industries provide a definition of this term.]

"Potentially usable waste"

BOARD NOTE: [The Board has requested that the proponent (steel and foundry) industries provide a definition of this term.]

Section 817.103 Determination of Waste Status

- a) A representative sample of leachate extracted by ASTM Method D3987-85, incorporated by reference in 35 Ill. Adm. Code 810.204 from each waste stream to be disposed of or utilized shall be used to characterize the expected constituents and concentrations of the leachate. Representative samples of waste streams to be tested shall be obtained by use of ASTM Method D2234-76, incorporated by reference in 35 Ill. Adm. Code 810.204.

b) Actual samples of leachate from an existing solid waste disposal unit or beneficial use site may be utilized under the following conditions:

- 1) The waste in the existing unit is similar to the waste to be used or disposed;
- 2) The conditions under which the leachate was formed are similar to those expected to be encountered; and
- 3) Leachate is sampled so as to be representative of undiluted and unattenuated leachate emanating from the unit.

Section 817.104 Sampling Frequency

a) All individual wastes streams shall be tested annually pursuant to 817.103(a).

b) Additional testing on individual waste streams shall be conducted when any of the following occurs:

- 1) There is a change in the raw materials which could result in a change in the wastes' classification;
- 2) There is a modification to the process which generates the waste and the change could significantly affect the wastes' leaching characteristics; or
- 3) There is an addition of a new process which may generate a new waste material.

Section 817.105 Waste Classification

a) Wastes regulated by this Part shall be classified on the basis of leaching potential as determined by the procedure at Section 817.103.

b) Wastes regulated by this Subpart shall fall into one of four classifications:

- 1) Beneficially usable waste;
- 2) Potentially usable waste;
- 3) Low risk waste; or
- 4) Chemical waste.

c) Maximum allowable leaching concentration (MALC) for the beneficially usable, potentially usable and low risk classes are presented in the table at Section 817.106.

Wastes exceeding the MALCs for the low risk class shall be regulated as chemical wastes under 35 Ill. Adm. Code 811.Subpart C.

Section 817.106 Waste Classification Limits

a) Maximum allowable leaching concentrations (MALCs) (concentrations in mg/L):

Parameter	Beneficially Usable Wastes	Potentially Usable Wastes	Low Risk Wastes
(Primary Standards)			
Arsenic	0.05	0.1	0.25
Barium	1.0	2.0	5.0
Cadmium	0.005	0.01	0.05
Chromium	0.1	0.2	0.25
Lead	0.05	0.1	0.25
Nitrate	10.	20.	30.
Selenium	0.05	0.05	0.25
Fluoride	4.	4.	20.
Benzene	0.005	0.01	0.025
Carbon Tetra- chloride	0.005	0.01	0.025
1,2-Dichloro- ethane	0.005	0.01	0.017
1,1-Dichloro- ethylene	0.007	0.014	0.035
cis-1,2-Dichloro- ethylene	0.07	0.14	0.35
trans-1,2-Dichloro- ethylene	0.1	0.2	0.5
1,2-Dichloro- propane	0.005	0.01	0.025
Ethylbenzene	0.7	1.	3.5
Monochlorobenzene	0.1	0.2	0.5
Styrene	0.1	0.2	0.5
Tetrachloro- ethylene	0.005	0.01	0.025
Toluene	1.	2.	5.
1,1,1-Trichloro- ethane	0.2	0.4	1.
Trichloroethylene	0.005	0.01	0.025
Trihalomethanes (total)	0.1	0.2	0.5
Vinyl Chloride	0.002	0.004	0.01
Xylenes (total)	10.	10.	50.

(Secondary Standards)

Chloride	250.	250.	500.
Manganese	0.15	0.75	3.75
Copper	5.	5.	10.
Iron	5.	5.	15.
Sulfates	400.	400.	800.
Zinc	5.	10.	50.
Total Dissolved Solids (TDS)	1,200.	1,200.	3,500.

- b) The Agency, pursuant to a permit, may allow exceedences of any secondary standard provided that the permit applicant can make an adequate showing that the limit increase will not adversely impact human health or the environment.

Section 817.107 Waste Mining

- a) Landfills covered by this Part, including previously abandoned or closed units, may be mined to recover useable materials. The handling, storage, and ultimate use of the mined wastes must conform with the requirements of this Part.
- b) A closure plan for the mined area must be developed prior to initiating mining activity. The closure plan must be consistent with the closure requirements of Subpart C of this Part.
- c) If the facility is conducting mining operations on the effective date of this rule, a closure plan must be submitted within 60 days of the effective date of this Part.
- d) If, during the mining operation, wastes are discovered in the landfill that exceed the leaching limits for low risk wastes, the closure plan must be amended to ensure that the closure complies with the standards of 35 Ill. Adm. Code 814.402.
- e) If no waste is removed from the landfill for a period of greater than one year, the facility must initiate closure.
- f) Following completion of the mining activity, those portions of the landfill that were disturbed and that still contain waste must be closed pursuant to the closure plan.
- g) No new wastes may be disposed of in the mined areas of the landfill during or after the mining operation unless provided for in the closure plan.

SUBPART B: STANDARDS FOR MANAGEMENT OF BENEFICIALLY USABLE
STEEL AND FOUNDRY INDUSTRY WASTES

Section 817.201 Scope and Applicability

The standards of this Subpart, along with 35 Ill. Adm. Code 811.101 and 811.102, shall apply to all steel and foundry industry wastes not exempt under Section 817.101 and which meet the MALC limits for beneficially usable wastes provided in Section 817.106.

Section 817.202 Limitations on Use

- a) Wastes regulated by this Subpart may only be used as substitutes for commercially available materials including soil used for land reclamation purposes. Open dumps containing beneficial waste are prohibited.
- b) Storers of wastes shall take all necessary precautions to ensure that the waste piles do not present a dust or runoff nuisance or produce violations of the Act or regulations promulgated pursuant thereto.
- c) Access to the open face of the unit and all other areas within the boundaries of the facility shall be restricted to prevent unauthorized entry at all times.

Section 817.203 Notification

- a) The generator of wastes regulated by this Subpart, including persons conducting waste mining under 817.107, shall certify that the waste sent to an offsite beneficial use meets the Subpart A requirements for beneficial waste. A copy of the certification shall be attached to the Bill of Lading for each shipment.
- b) The generator of wastes regulated by this subpart shall submit the following information to the Agency for each new recipient of the waste and for each new use location:
 - 1) A detailed description of the process generating the material;
 - 2) A demonstration that the proposed material handling activity will not cause a release or threat of release of contaminants to the air or water that will exceed standards promulgated by the Board or would adversely affect or impact human health or the environment;

- 3) A physical description of the waste stream. This description should include information on size, shape, form, particle size, and volume of the waste;
- 4) The analytical results of the leaching test completed pursuant to Section 817.103;
- 5) A physical analysis of the waste including percent moisture, ignitability, corrosivity, solubility, and reactivity;
- 6) Groundwater monitoring data, if available; and
- 7) A description of the proposed use or reuse activity and site including location, special handling instructions, and estimated usage timetable.

Section 817.204 Long-Term Storage

Storage piles and landfills that are regulated by this subpart and that have not had waste either added to or removed from the unit for more than eighteen months must be closed as a landfill pursuant to the provisions of Subpart C of this Part. Persons who store waste for periods of more than one year may obtain an extension of the closure requirement from the Agency provided that proof, in the form of a past or present sales contract, a request for quotation or similar evidence, of a specific market for the material is provided.

SUBPART C: STEEL AND FOUNDRY INDUSTRY POTENTIALLY USABLE WASTE LANDFILLS

Section 817.301 Scope and Applicability

The standards of this Subpart, in addition to the requirements of 35 Ill. Adm. Code 811.Subpart A, shall apply to all landfills in which only potentially usable waste is to be placed.

Section 817.302 Design Period

The design period for all potentially usable waste disposal units shall be the estimated operating life of the unit plus a minimum postclosure care period of five years. For landfills, other than those used exclusively for disposing waste generated at the site, the minimum postclosure care period, for purposes of monitoring settling at the site, shall be 15 years.

Section 817.303 Final Cover

Unless otherwise specified in a permit or other written Agency approval, a minimum of 0.46 meters (1.5 feet) of soil material that will support vegetation which prevents or minimizes erosion shall be applied over all disturbed areas.

Section 817.304 Final Slope and Stabilization

- a) The waste disposal unit shall be designed and constructed to achieve a minimum static slope safety factor of 1.5 and a minimum seismic safety factor of 1.3.
- b) Standards for vegetation:
 - 1) Vegetation shall be promoted on all reconstructed surfaces to minimize wind and water erosion;
 - 2) Vegetation shall be compatible with (i.e., grow and survive under) the local climatic conditions;
 - 3) Vegetation shall require little maintenance;
 - 4) Vegetation shall consist of a diverse mix of native and introduced species consistent with the postclosure land use; and
 - 5) Temporary erosion control measures, including, but not limited to, the application, alone or in combination, of mulch, straw, netting, or chemical soil stabilizers, shall be undertaken while vegetation is being established.
- c) The landfill site shall be monitored for settling as specified in Section 817.302 in order to meet the requirements of this Section.

Section 817.305 Leachate Sampling

- a) All potentially usable waste landfills shall be designed to include a monitoring system capable of collecting representative samples of leachate generated by the waste, using methods such as, but not limited to, a pressure-vacuum lysimeter, trench lysimeter or a well point. The sampling locations shall be located so as to collect the most representative leachate samples. Samples will not be composited but analyzed individually.
- b) Leachate samples shall be collected and analyzed at least once every six months to determine, using the statistical procedures of 35 Ill. Adm. Code 811.320(e)(2) and (e)(3), whether the section 817.106

limits for potentially useable waste have been exceeded.

- c) If the results of testing of leachate samples in accordance with subsection (b) above indicate that the organic chemical limits for potentially useable waste, as defined in Section 817.10, have not been exceeded for four consecutive sampling periods, the subsection (b) sampling frequency for organics shall be reduced to once every two years.
- d) If the results of testing of leachate samples in accordance with subsection (b) above confirm that the leachate exceeds the limits for potentially usable waste as defined in Section 817.106, the operator shall:
 - 1) notify the Agency in writing of this finding within 10 days following the finding;
 - 2) shall verify the exceedence by taking additional samples within 45 days of the initial observation;
 - 3) shall report the results of the verification sampling to the Agency within 60 days of the initial observation;
 - 4) shall determine the cause of the exceedence which may include, but not be limited to, the waste itself, natural phenomena, sampling or analysis errors, or an offsite source;
 - 5) shall notify the Agency in writing of a confirmed exceedence and provide the rationale used in such a determination within ten days of the determination; and
 - 6) if the exceedence is attributable to the landfill, return to a quarterly sampling program for organics until such time as the exceedences cease.
- e) If, as a result of further testing of the leachate pursuant to subsection (d) (2) of this Section and statistical analysis of the results in accordance with 35 Ill. Adm. Code 811.320(e), it is determined that the facility leachate exceeds the Section 817.106 limits for potentially useable waste but does not exceed the limits for low risk waste, the facility:
 - 1) shall no longer be subject to the potentially usable waste landfill requirements of Subpart C of this Part;

- 2) shall immediately be subject to the requirements for Low Risk Waste Landfills of 35 Ill. Adm. Code 814.602.
- f) If the results of the retesting completed pursuant to Section 817.305(d)(2) indicate that the leachate exceeds the Section 817.106 limits for low risk waste landfills, the facility:
- 1) shall no longer be subject to the potentially useable waste landfill requirements of Subpart C of this Part;
 - 2) shall immediately cease accepting waste;
 - 3) shall, within 60 days, develop a closure plan that incorporates the requirements of 35 Ill. Adm. Code 811. Subpart C; and
 - 4) shall initiate closure within 90 days pursuant to a closure plan and complete closure within one year or pursuant to an alternate closure schedule that has been approved, in writing, by the Agency.
- g) The results of the chemical analysis tests shall be included in the quarterly groundwater reports submitted to the Agency in accordance with 35 Ill. Adm. Code 813.502 for permitted facilities and 35 Ill. Adm. Code 815. Subpart D for non-permitted facilities.

Section 817.306 Load Checking

- a) The operator shall not accept wastes for disposal at a potentially usable waste landfill unless it is accompanied by documentation that such wastes are potentially usable based on testing of the leachate from such wastes performed in accordance with the requirements of Subpart A of this Part.
- b) The operator shall institute and conduct a random load checking program at each potentially usable waste facility in accordance with the requirements of 35 Ill. Adm. Code 811.323 except that this program shall also be designed:
 - 1) to detect and discourage attempts to dispose non-potentially usable wastes at the landfill;
 - 2) to require the facility's inspector to examine at least one random load of solid waste delivered to the landfill on a random day each week; and

- 3) to require the operator to test one randomly selected waste sample from each generator on an annual basis in accordance with Section 817.103(a) to determine if the waste is potentially usable as defined in this Part.
- c) The operator shall include the results of the load checking in the annual report submitted to the Agency in accordance with 35 Ill. Adm. Code 813.501 for permitted facilities and 35 Ill. Adm. Code 815.Subpart C for non-permitted facilities.

Section 817.307 Closure

- a) The final slopes and contours shall be designed to complement and blend with the surrounding topography of the proposed final land use of the area.
- b) All drainage ways and swales shall be designed to safely pass the runoff from the 100-year, 24-hour precipitation event without scouring or erosion.
- c) The final configuration of the facility shall be designed in a manner that minimizes the need for further maintenance.
- d) Closure of the landfill must be conducted pursuant to a written closure plan.
- e) The landfill must have a closure plan that shall include, at a minimum:
 - 1) a description of the steps necessary to complete the closure pursuant to the requirements of this Subpart;
 - 2) an estimate of the expected year of commencement of closure;
 - 3) a schedule identifying all major closure activities and the estimated time for completion of each of the identified activities; and
 - 4) a contingency plan for premature closure of the facility.
- f) The landfill may continue to accept waste during closure if additional volume is needed to achieve the final design contours specified in the landfill's design drawings.

Section 817.308 Nuisance Precautions

Owners and operators of landfills regulated under this Subpart shall take all necessary precautions to ensure that the facility does not present a dust or runoff nuisance or produce violations of the Act or regulations promulgated pursuant thereto.

SUBPART D: NEW STEEL AND FOUNDRY INDUSTRY LOW RISK WASTE
LANDFILLS

Section 817.401 Scope and Applicability

The standards of this Subpart, along with 35 Ill. Adm. Code 811.Subpart A, shall apply to all new landfills in which only steel and foundry industry low risk wastes are to be placed.

Section 817.402 Facility Location

- a) No part of a unit shall be located within a setback zone established pursuant to Section 14.2 or 14.3 of the Act.
- b) No part of a unit shall be located within the recharge zone or within 366 meters (1200 feet), vertically or horizontally, of a sole-source aquifer designated by the United States Environmental Protection Agency pursuant to Section 1424(e) of the Safe Drinking Water Act (42 U.S.C. 300h-3(e)), unless there is a stratum between the bottom of the waste disposal unit and the top of the aquifer that meets the following minimum requirements:
 - 1) The stratum has a minimum thickness of 15.2 meters (50 feet);
 - 2) The maximum hydraulic conductivity in both the horizontal and vertical directions is no greater than 1×10^{-7} centimeters per second, as determined by in situ borehole or equivalent tests;
 - 3) There is no indication of continuous sand or silt seams, faults, fractures or cracks within the stratum that may provide paths for migration; and
 - 4) Age dating of extracted water samples from both the aquifer and the stratum indicates that the time of travel for water percolating downward through the relatively impermeable stratum is no faster than 15.2 meters (50 feet) in 100 years.
- c) A facility located within 152 meters (500 feet) of the right of way of a township or county road or state or

interstate highway shall have its operations screened from view by a barrier of natural objects, fences, barricades, or plants no less than 2.44 meters (8 feet) in height.

- d) No part of a unit shall be located closer than 152 meters (500 feet) from an occupied dwelling, school, or hospital that was occupied on the date when the operator first applied for a permit to develop the unit or the facility containing the unit, unless the owner of such dwelling, school, or hospital provides permission to the operator, in writing, for a closer distance.

Section 817.403 Design Period

The design period for low risk waste disposal units shall be the estimated operating life plus 20 years.

Section 817.404 Foundation and Mass Stability Analysis

- a) The material beneath the unit shall have sufficient strength to support the weight of the unit during all phases of construction and operation. The loads and loading rate shall not cause or contribute to the failure of the liner.
- b) The total settlement or swell of the foundation shall not cause or contribute to the failure of the liner.
- c) The solid waste disposal unit shall be designed to achieve a safety factor against bearing capacity failure of at least: 2.0 under static conditions and 1.5 under seismic loadings.
- d) The waste disposal unit shall be designed to achieve a factor of safety against slope failure of at least: 1.5 for static conditions and 1.3 under seismic loading.
- e) In calculating factors of safety, both long term (in tens or hundreds of years) and short term (over the design period of the facility) conditions expected at the facility shall be considered.
- f) The potential for earthquake or blast induced liquefaction, and its effect on the stability and integrity of the unit shall be considered and taken into account in the design. The potential for landslides or earthquake induced liquefaction outside the unit shall be considered if such events could affect the unit.

Section 817.405 Foundation Construction

- a) If the in situ material provides insufficient strength to meet the requirements of Section 817.404, then the insufficient material shall be removed and replaced with clean materials sufficient to meet the requirements of Section 817.404.
- b) All trees, stumps, roots, boulders and debris shall be removed.
- c) All material shall be compacted to achieve the strength and density properties necessary to demonstrate compliance with this Part in conformance with a construction quality assurance plan pursuant to 35 Ill. Adm. Code 811.Subpart E.
- d) Placement of frozen soil or soil onto frozen ground is prohibited.
- e) The foundation shall be constructed and graded to provide a smooth, workable surface on which to construct the liner.

Section 817.406 Liner Systems

- a) All units shall be equipped with a leachate drainage and collection system and a compacted earth liner designed as an integrated system in compliance with the requirements of this Section and of Sections 817.407 and 817.408
- b) The liner and leachate collection system shall be stable during all phases of construction and operation. The side slopes shall achieve a minimum static safety factor of 1.3 and a minimum seismic safety factor of 1.0 at all times.
- c) The liner shall be designed to function for the entire design period.
- d) Compacted earth liner standards:
 - 1) The minimum allowable thickness shall be 0.91 meters (3.0 feet).
 - 2) The liner shall be compacted to achieve a maximum hydraulic conductivity of 1×10^{-7} centimeters per second.
 - 3) The construction and compaction of the liner shall

be carried out in accordance with the construction quality assurance procedures of 35 Ill. Adm. Code 811.Subpart E so as to reduce void spaces and allow the liner to support the loadings imposed by the waste disposal operation without settling that causes or contributes to the failure of the leachate collection system.

- 4) The liner shall be constructed from materials whose properties are not affected by contact with the constituents of the leachate expected to be produced.
- e) Slurry trenches and cutoff walls used to prevent migration of leachate:
- 1) Slurry trenches and cutoff walls built to contain leachate migration shall be used only in conjunction with a compacted earth liner meeting the requirements of subsection (d) above or as part of a remedial action required by 35 Ill. Adm. Code 811.319.
 - 2) Slurry trenches and cutoff walls shall extend into the bottom confining layer to a depth that will establish and maintain a continuous connection and prevent seepage.
 - 3) Exploration borings shall be drilled along the route of the slurry trench or cutoff wall to confirm the depth to the confining layer. In situ tests shall be conducted to determine the hydraulic conductivity of the confining layer.
 - 4) Slurry trenches and cutoff walls shall be stable under all conditions during the design period of the facility. They shall not be susceptible to displacement or erosion under stress or hydraulic gradient.
 - 5) Slurry trenches and cutoff walls shall be constructed in conformance to a construction quality assurance plan, pursuant to 35 Ill. Adm. Code 811.Subpart E, that insures that all material and construction methods meet design specifications.
- f) The owner or operator may utilize liner configurations other than those specified in this Section, special construction techniques, and admixtures, provided that:
- 1) The alternative technology or material provides equivalent, or superior, performance to the

requirements of this Section;

- 2) The technology or material has been successfully utilized in at least one application or pilot facility similar to the proposed application;
- 3) Methods for manufacturing quality control and construction quality assurance can be implemented and
- 4) The owner or operator has received written approval from the Agency prior to the start of construction.

Section 817.407 Leachate Drainage System

- a) The leachate drainage system shall be designed and constructed to be capable of operation throughout the entire design period.
- b) The system shall be designed in conjunction with the leachate collection system required by Section 817.408:
 - 1) To maintain a maximum head of leachate 3.0 meters (10 feet) above the liner and
 - 2) To operate during the month when the highest average monthly precipitation occurs and if the liner bottom is located within the saturated zone, under the condition that the groundwater table is at its seasonal high level. In addition, the following design assumptions shall apply:
 - A) The unit is assumed to be at field capacity, and
 - B) The final cover is in place.
- c) A drainage layer shall overlay the entire liner system. This drainage layer shall be no less than 0.30 meter (one foot) thick and shall have a hydraulic conductivity equal to or greater than 1×10^{-3} centimeters per second.
- d) The drainage layer shall be designed to maintain laminar flow throughout the drainage layer under the conditions described in subsection (b).
- e) The drainage layer shall be designed with a graded filter or geotextile as necessary to minimize clogging and prevent intrusion of fine material.

- f) Materials used in the leachate collection system shall be chemically resistant to the wastes and the leachate expected to be produced.

Section 817.408 Leachate Collection System

- a) The leachate collection system shall be designed and constructed to function for the entire design period.
- b) Collection pipes shall be designed for open channel flow to convey leachate under the conditions established in Section 817.407(b).
- c) Collection pipes shall be of a cross sectional area that allows cleaning.
- d) Materials used in the leachate collection system shall be chemically resistant to the waste and the leachate expected to be produced.
- e) The collection pipe material and bedding materials as placed shall possess structural strength to support the maximum loads imposed by the overlying materials and equipment used at the facility.
- f) Collection pipes shall be constructed within a coarse gravel envelope using a graded filter or geotextile as necessary to minimize clogging.
- g) The system shall be equipped with a sufficient number of manholes and cleanout risers to allow cleaning and maintenance of all pipes throughout the design period.

Section 817.409 Leachate Treatment and Disposal System

- a) Leachate shall be removed from the drainage and collection system when the leachate level in the landfill interferes with landfill operations. The operator is responsible for the operation of a leachate management system designed to handle all leachate removed from the collection system. The leachate management system shall consist of any combination of storage, treatment, pretreatment, and disposal options designed and constructed in compliance with the requirements of this Section.
- b) The leachate management system shall consist of any combination of multiple treatment and storage structures, to allow the management and disposal of leachate during routine maintenance and repairs.
- c) Standards for on-site treatment and pretreatment:

- 1) All on-site treatment or pretreatment systems shall be considered part of the facility.
 - 2) The on-site treatment or pretreatment system shall be designed in accordance with the expected characteristics of the leachate. The design may include modifications to the system necessary to accommodate changing leachate characteristics.
 - 3) The on-site treatment or pretreatment system shall be designed to function for the entire design period.
 - 4) All of the facility's unit operations, tanks, ponds, lagoons and basins shall be designed and constructed with liners or containment structures to control seepage to groundwater. The ponds, lagoons, and basins shall be inspected prior to use for cracks and settling and, if leachate is stored in them for more than 60 days, they shall be subject to groundwater monitoring pursuant to this Part.
 - 5) All treated effluent discharged to waters of the State shall meet the requirements of 35 Ill. Adm. Code 309.
 - 6) The treatment system shall be operated by an operator certified under the requirements of 35 Ill. Adm. Code 312.
- d) Standards for leachate storage systems:
- 1) The leachate storage facility must be able to store a minimum of at least five days' worth of accumulated leachate at the maximum generation rate used in designing the leachate drainage system in accordance with Section 817.407. The minimum storage capacity may be built up over time and in stages, so long as the capacity for five consecutive days of accumulated leachate, during extreme precipitation conditions, is available at any time during the design period of the facility.
 - 2) All leachate storage tanks shall be equipped with secondary containment systems equivalent to the protection provided by a clay liner 0.61 meter (2 feet thick) having a permeability no greater than 10^{-7} centimeters per second.
 - 3) Leachate storage systems shall be fabricated from

material compatible with the leachate expected to be generated and resistant to temperature extremes.

- 4) The leachate storage system shall not cause or contribute to a malodor.
- e) Standards for discharge to an off-site treatment works:
 - 1) Leachate may be discharged to an off-site treatment works that meets the following requirements:
 - A) All discharges of effluent from the treatment works shall meet the requirements of 35 Ill. Adm. Code 309.
 - B) The treatment system shall be operated by an operator certified under the requirements of 35 Ill. Adm. Code 312.
 - C) No more than 50 percent of the average daily influent flow can be attributable to leachate from the solid waste disposal facility. Otherwise, the treatment works shall be considered a part of the solid waste disposal facility.
 - 2) The operator is responsible for securing permission from the off-site treatment works for authority to discharge to the treatment works.
 - 3) All discharges to a treatment works shall meet the requirements of 35 Ill. Adm. Code 307 and 310.
 - 4) Pumps, meters, valves and monitoring stations that control and monitor the flow of leachate from the unit and which are under the control of the operator shall be considered part of the facility and shall be accessible to the operator at all times.
 - 5) Leachate shall be allowed to flow into the sewerage system at all times; however, if access to the treatment works is restricted or anticipated to be restricted for longer than five days, then an alternative leachate management system shall be constructed in accordance with subsection (c) above.
 - 6) Where leachate is not directly discharged into a sewerage system, the operator shall provide storage capacity sufficient to transfer all

leachate to an off-site treatment works. The storage system shall meet the requirements of subsection (d) above.

f) Leachate monitoring:

- 1) Representative samples of leachate shall be collected from each unit and tested in accordance with subsection (f)(2) below at a frequency of once per quarter. The frequency of testing may be changed to once per year for any monitored constituent, if it is not detected in the leachate for four consecutive quarters. However, if such a constituent is detected in the leachate, testing frequency shall return to a quarterly schedule and the constituent added to the groundwater monitoring program requirements of Section 817.415. In such case, the testing frequency shall remain on a quarterly schedule until such time as the monitored constituent has remained undetected for four additional quarters.
- 2) Leachate and discharges of leachate from units shall be monitored for constituents determined by the characteristics of the waste to be disposed of in the unit. They shall include, at a minimum:
 - A) pH;
 - B) Annually, the MALC's listed in Section 817.106 and the constituents listed in Section 817.Appendix A of this Part;
 - C) Any other constituents listed in the operator's NPDES discharge permit, pursuant to 35 Ill. Adm. Code 304, or required by a publicly owned treatment works, pursuant to 35 Ill. Adm. Code 307 and 310; and
 - D) All of the indicator constituents chosen in accordance with Section 817.415(a)(2)(B) and used by the operator for groundwater monitoring.

g) Time of operation of the leachate management system:

- 1) The operator shall collect and dispose of leachate after closure until treatment is no longer necessary.
- 2) Treatment is no longer necessary if the leachate constituents do not exceed the wastewater effluent

standards in 35 Ill. Adm. Code 304.124, 304.125, and 304.126.

- h) If the results of testing of leachate samples in accordance with subsection (f) above show that the leachate exceeds the limits for low risk waste as defined in Section 817.106, the operator shall:
- 1) notify the Agency in writing of this finding within 10 days following the finding;
 - 2) shall verify the exceedence by taking additional samples within 45 days of the initial observation;
 - 3) shall report the results of the verification sampling to the Agency within 60 days of the initial observation;
 - 4) shall determine the source of the exceedence which may include, but not be limited to, the waste itself, natural phenomena, sampling or analysis errors, or an offsite source within 90 days of the initial observation; and
 - 4) shall notify the Agency in writing of a confirmed exceedence and provide the rationale used in such a determination within ten days of the determination.
- i) If, as a result of further testing of the leachate and the background groundwater and analysis using the 35 Ill. Adm. Code 811.320(e) statistical procedure, it is determined that the facility leachate exceeds the Section 817.106 limits for low risk waste, the facility:
- 1) shall no longer be subject to the low risk waste landfill requirements of Subpart C of this Part;
 - 2) shall be subject to the requirements for chemical waste landfills of 35 Ill. Adm. Code 814.302.
- j) Leachate sampling and analysis shall be completed in accordance with the standards of 35 Ill. Adm. Code 817.414(e)(1), (e)(3), (e)(4), and (e)(5).

Section 817.410 Final Cover System

- a) The unit shall be covered by a final cover consisting of a low permeability layer overlain by a final protective layer constructed in accordance with the requirements of this Section.

- b) Standards for the low permeability layer:
- 1) Construction of a low permeability layer shall begin not later than 60 days after placement of the final lift of solid waste.
 - 2) The low permeability layer shall cover the entire unit and connect with the liner system.
 - 3) The low permeability layer shall consist of any one of the following:
 - A) A compacted earth layer constructed in accordance with the following standards:
 - i) The minimum allowable thickness shall be 0.61 meters (2.0 feet);
 - ii) The layer shall be compacted to achieve a permeability of 1×10^{-9} centimeters per second and minimize void spaces.
 - iii) Alternative specifications may be utilized provided that the performance of the low permeability layer is equal to or superior to the performance of a layer meeting the requirements of subsections (b) (3) (A) (i) and (b) (3) (A) (ii) above.
 - B) A geomembrane constructed in accordance with the following standards:
 - i) The geomembrane shall provide performance equal or superior to the compacted earth layer described in subsection (b) (3) (A) above.
 - ii) The geomembrane shall have strength to withstand the normal stresses imposed by the waste stabilization process.
 - iii) The geomembrane shall be placed over a prepared base free from sharp objects and other materials which may cause damage.
 - C) Any other low permeability layer construction techniques or materials, provided that they provide equivalent or superior performance to the requirements of this subsection.

- c) Standards for the final protective layer:
- 1) The final protective layer shall cover the entire low permeability layer.
 - 2) The thickness of the final protective layer shall be sufficient to protect the low permeability layer from freezing and minimize root penetration of the low permeability layer, but shall not be less than 0.46 meter (1.5 feet).
 - 3) The final protective layer shall consist of soil material capable of supporting vegetation.
 - 4) The final protective layer shall be placed as soon as possible after placement of the low permeability layer to prevent desiccation, cracking, freezing or other damage to the low permeability layer.

Section 817.411 Hydrogeologic Site Investigations

- a) Purpose. The operator shall conduct a hydrogeologic investigation to develop hydrogeologic information for the following uses:
- 1) Provide information to perform a groundwater impact assessment; and
 - 2) Provide information to establish a groundwater monitoring system.
- b) General requirements:
- 1) The investigation shall be conducted in a minimum of three phases prior to submission of any application to the Agency for a permit to develop and operate a landfill facility.
 - 2) The study area shall consist of the entire area occupied by the facility and any adjacent areas, if necessary for the purpose of the hydrogeological investigation set forth in subsection (a) above.
 - 3) All borings shall be sampled continuously at all recognizable points of geologic variation, except where non-continuous sampling can provide equivalent information, samples shall be obtained at intervals no greater than 1.52 meters (five feet) in homogeneous strata.

c) Minimum requirements for a Phase I investigation:

- 1) The operator shall conduct a Phase I investigation to develop the following information:
 - A) Climatic aspects of the study area;
 - B) The regional and study area geologic setting, including a description of the geomorphology and stratigraphy of the area;
 - C) The regional groundwater regime including water table depths and aquifer characteristics; and
 - D) Information for the purpose of designing a Phase II hydrogeologic investigation.

2) Specific requirements:

- A) The regional hydrogeologic setting of the unit shall be established by using material available from all possible sources, including, but not limited to, the Illinois State Water Survey, the Illinois Geological Survey, the Agency, other State and Federal organizations, water well drilling logs, and previous investigations.
- B) A minimum of one continuously sampled boring shall be drilled on the site, as close as feasible to the geographic center, to determine if the available regional hydrogeologic setting information is accurate and to characterize the site-specific hydrogeology to the extent specified by this phase of the investigation. The boring shall extend at least 15.2 meters (50 feet) below the bottom of the uppermost aquifer or through the full depth of the confining layer below the uppermost aquifer, or to bedrock, if the bedrock is below the upper most aquifer, whichever elevation is higher. The locations of any additional borings, required under this subsection, may be chosen by the investigator, but shall be sampled continuously.

d) Minimum requirements for a Phase II hydrogeologic investigation (Phase II investigation):

- 1) Information to be developed

Using the information developed in the Phase I survey, a Phase II investigation shall be conducted to collect the site-specific information listed below as needed to augment data collected during the Phase I investigation and to prepare for the Phase III investigation:

- A) Structural characteristics and distribution of underlying strata including bedrock;
 - B) Chemical and physical properties including, but not limited to, lithology, mineralogy, and hydraulic characteristics of underlying strata including those below the uppermost aquifer;
 - C) Soil characteristics, including soil types, distribution, geochemical and geophysical characteristics;
 - D) The hydraulic conductivities of the uppermost aquifer and all strata above it;
 - E) The vertical extent of the uppermost aquifer; and
 - F) The direction and rate of groundwater flow.
- 2) Specific requirements:
- A) One boring shall be located as close as feasible to the topographical high point, and another shall be located as close as feasible to the topographical low point of the study area.
 - B) At least one boring shall be at or near each corner of the site. Where the property is irregularly shaped the borings shall be located near the boundary in a pattern and spacing necessary to obtain data over the entire study area.
 - C) Additional borings may be located at intermediate points at locations and spacings necessary to establish the continuity of the stratigraphic units.
 - D) Piezometers and groundwater monitoring wells shall be established to determine the direction and flow characteristics of the groundwater in all strata and extending down to the

bottom of the uppermost aquifer. Groundwater samples taken from such monitoring wells shall be used to develop preliminary information needed for establishing background concentrations in accordance with subsection (e)(1)(G) below.

- E) Other methods may be utilized to confirm or accumulate additional information. Such methods may be used only as a supplement to, not in lieu of, site-specific boring information. Other methods include, but are not limited to, geophysical well logs, geophysical surveys, aerial photography, age dating, and test pits.
- e) Minimum standards for a phase III investigation:
- 1) Using the information developed during the Phase I and Phase II investigations, the operator shall conduct a Phase III investigation. This investigation shall be conducted to collect or augment the site-specific information needed to carry out the following:
 - A) Verification and reconciliation of the information collected in the Phase I and II investigations;
 - B) Characterization of potential pathways for contaminant migration;
 - C) Correlation of stratigraphic units between borings;
 - D) Continuity of petrographic features including, but not limited to, sorting, grain size distribution, cementation and hydraulic conductivity;
 - E) Identification of zones of potentially high hydraulic conductivity;
 - F) Identification of the confining layer, if present;
 - G) Concentrations of chemical constituents present in the groundwater and expected to appear in the leachate below the unit, down to the bottom of the uppermost aquifer, using a broad range of chemical analysis and detection procedures such as, gas

chromatographic and mass spectrometric scanning. However, additional measurements and procedures shall be carried out to establish background concentrations, in accordance with Section 817.416(d), for any constituent which is listed in Section 817.106 (MALCs) or Section 817.Appendix A of this Part and which is expected to appear in the leachate;

- H) Characterization of the seasonal and temporal, naturally and artificially induced, variations in groundwater quality and groundwater flow; and
 - I) Identification of unusual or unpredicted geologic features, including: fault zones, fractures traces, facies changes, solution channels, buried stream deposits, cross cutting structures and other geologic features that may affect the ability of the operator to monitor the groundwater or predict the impact of the disposal facility on groundwater.
- 2) In addition to the specific requirements applicable to Phase I and II investigations, the operator shall collect information needed to meet the minimum standards of a Phase III investigation by using methods that may include, but not limited to excavation to test pits, additional borings located at intermediate points between boreholes placed during Phase I and II investigations, placement of piezometers and monitoring wells, and institution of procedures for sampling and analysis.
- f) The operator may conduct the hydrogeologic investigation in any number of alternative ways provided that the necessary information is collected in a systematic sequence consisting of at least three phases that is equal to or superior to the investigation procedures of this section.

Section 817.412 Plugging and Sealing of Drill Holes

All drill holes, including exploration borings that are not converted into monitoring wells, monitoring wells that are no longer necessary to the operation of the site, and other holes that may cause or facilitate contamination of groundwater shall be sealed in accordance with the following standards:

- a) If not sealed or plugged immediately, the drill hole shall be covered to prevent injury to people or animals.
- b) All drill holes no longer intended for use shall be back-filled with materials that are compatible with the geochemistry of the site and with the leachate in sufficient quantities and in such a way as to prevent the creation of a pathway for contaminants to migrate.
- c) For drill holes in gravels and other permeable strata where a watertight seal is not necessary to prevent the creation of pathway, drill cuttings and other earthen materials may be utilized as backfill.
- d) All excess drilling mud, oil, drill cuttings, and any other contaminated materials uncovered during or created by drilling shall be disposed of in accordance with the requirements of 35 Ill. Adm. Code 700 through 749, 807, and 809 through 815.
- e) The operator shall restore the area around the drill hole to its original condition.

Section 817.413 Groundwater Impact Assessment

The impacts of the seepage of leachate from the unit shall be assessed in a systematic fashion using the techniques described in this Section.

- a) Procedures for performing the groundwater impact assessment:
 - 1) The operator shall estimate the amount of seepage from the unit during operations which assume:
 - A) That the minimum design standards for slope configuration, cover, liner, leachate drainage, and collection system apply; and
 - B) That the actual design standards planned for the unit apply. Other designs for the unit may be used if determined by the operator to be appropriate to demonstrate the impacts to groundwater.
 - 2) The concentration of constituents in the leachate shall be determined from actual leachate samples from the waste or similar waste, or laboratory-derived extracts.
 - 3) The operator shall estimate the capability of the

geology and hydrology beneath the unit to meet the groundwater quality standards of Section 817.416 at the edge of the zone of attenuation. The estimate shall be based on the volume and concentration of the leachate seepage estimated in subsections (a)(1)(A) and (a)(1)(B) of this Section and shall consider the applicable information assembled under Section 817.411.

Section 817.414 Design, Construction and Operation of
Groundwater Monitoring Systems

- a) All potential sources of discharges to groundwater within the facility, including, but not limited to all waste disposal units and the leachate management system shall be identified and studied through a network of monitoring wells operated during the active life of the unit and for the time after closure specified in accordance with Section 817.415. Monitoring wells designed and constructed as part of the monitoring network shall be maintained along with records that include, but are not limited to, exact well location, well size, type of well, the design and construction practice used in its installation and well and screen depths.
- b) Standards for the location of monitoring points:
 - 1) A network of monitoring points shall be established at sufficient locations downgradient with respect to groundwater flow and not excluding the downward direction, to detect any discharge of contaminants from any part of a potential source of discharge.
 - 2) The network shall include at least one monitoring well upgradient to the potential source(s) of discharge to provide background groundwater quality data.
 - 3) Monitoring wells shall be located in stratigraphic horizons that could serve as contaminant migration pathways.
 - 4) Monitoring wells shall be established as close to the potential source of discharge as possible without interfering with the waste disposal operations, and within half the distance from the edge of the potential source of discharge to the edge of the zone of attenuation downgradient, with respect to groundwater flow, from the source.

- 5) The network of monitoring points of several potential sources of discharge within a single facility may be combined into a single monitoring network, provided that discharges from any part of all potential sources can be detected.
 - 6) A minimum of at least one monitoring well shall be established at the edge of the zone of attenuation and shall be located downgradient with respect to groundwater flow and not excluding the downward direction, from the unit. Such well or wells shall be used to monitor any statistically significant increase in the concentration of any constituent, in accordance with Section 817.416(e) and shall be used for determining compliance with an applicable groundwater quality standard of Section 817.416. An observed statistically significant increase above the applicable groundwater quality standards of Section 817.416 in a well located at or beyond the compliance boundary shall constitute a violation.
- c) Maximum allowable predicted concentrations. For the purposes of this Part, the maximum allowable predicted concentration (MAPC) for each monitored constituent shall be determined as follows:
- 1) MAPC's for those constituents with an MALC identified as a primary standard shall be background plus 10 percent of the MALC. MAPC's for those constituents with an MALC identified as a secondary standard shall be background plus 50 percent of the MALC. The MAPCs calculated in this subsection shall be applicable within the zone of attenuation.
 - 2) For those constituents listed in Section 817.Appendix A of this Part, the MAPC shall be the practicable quantitation limit (PQL) or, if the constituent concentration exceeds the PQL in the background sample, the MAPC shall be the background constituent concentration.
- d) Standards for monitoring well design and construction:
- 1) All monitoring wells shall be cased in a manner that maintains the integrity of the borehole. The casing material shall be inert so as not to affect the water sample. Casing requiring solvent-cement type coupling shall not be used.
 - 2) Wells shall be screened to allow sampling only at

the desired interval. Annular space between the borehole wall and well screen section shall be packed with gravel sized to avoid clogging by the material in the zone being monitored. The slot size of the screen shall be designed to minimize clogging. Screens shall be fabricated from material expected to be inert with respect to the constituents of the groundwater to be sampled.

- 3) Annular space above the well screen section shall be sealed with a relatively impermeable, expandable material such as a cement/bentonite grout, which does not react with or in any way affect the sample, in order to prevent contamination of samples and groundwater and avoid interconnections. The seal shall extend to the highest known seasonal groundwater level.
- 4) The annular space shall be back-filled with expanding cement grout from an elevation below the frost line and mounded above the surface and sloped away from the casing so as to divert surface water away.
- 5) The annular space between the upper and lower seals and in the unsaturated zone may be back filled with uncontaminated cuttings.
- 6) All wells shall be covered with vented caps and equipped with devices to protect against tampering and damage.
- 7) All wells shall be developed to allow free entry of water, minimize turbidity of the sample, and minimize clogging.
- 8) The transmissivity of the zone surrounding all well screens shall be established by field testing techniques.
- 9) Other sampling methods and well construction techniques may be utilized if they meet the water well construction standards of 77 Ill. Adm. Code part 920 or if the Agency has issued a written approval.

e) Standards for Sample Collection and Analysis

- 1) The groundwater monitoring program shall include consistent sampling and analysis procedures to assure that monitoring results can be relied upon

to provide data representative of groundwater quality in the zone being monitored.

- 2) The operator shall utilize procedures and techniques to insure that collected samples are representative of the zone being monitored and that prevent cross contamination of samples from other monitoring wells or from other samples. At least 95 percent of a collected sample shall consist of groundwater from the zone being monitored.
- 3) The operator shall establish a quality assurance program that provides quantitative detection limits and the degree of error for analysis of each chemical constituent.
- 4) The operator shall establish a sample preservation and shipment procedure that maintains the reliability of the sample collected for analysis.
- 5) The operator shall institute a chain of custody procedure to prevent tampering and contamination of the collected samples prior to completion of analysis.
- 6) At a minimum, the operator shall sample the following parameters at all wells at the time of sample collection and immediately before filtering and preserving samples for shipment:
 - A) The elevation of the water table;
 - B) The depth of the well below ground;
 - C) pH;
 - D) The temperature of the sample; and
 - E) Specific conductance;

Section 817.415 Groundwater Monitoring Programs

a) Detection monitoring program:

Any use of the term "maximum allowable predicted concentration" or "MAPC" in this Section is a reference to Section 817.414(c), as defined in Section 811.102. The operator shall implement a detection monitoring program in accordance with the following requirements:

- 1) Monitoring schedule and frequency:

- A) The monitoring period shall begin as soon as waste is placed into the unit of a new landfill or within one year of the effective date of this Part for an existing landfill. Monitoring shall continue for a period of fifteen years after closure. The operator shall sample all monitoring points for all potential sources of contamination on a quarterly basis except as specified in subsection (a)(3) below or may institute more frequent sampling throughout the time the source constitutes a threat to groundwater. For the purposes of this Section, the source shall be considered a threat to groundwater, if the results of the monitoring indicate that the concentrations of any of the constituent monitored within the zone of attenuation are above the MAPC for that constituent.
- B) Beginning five years after closure of the unit, or five years after all other potential sources of discharge no longer constitute a threat to groundwater, as defined in subsection (a)(1)(A) above, the monitoring frequency may change on a well by well basis to an annual schedule if either of the following conditions exist. However, monitoring shall return to a quarterly schedule at any well where a statistically significant increase is determined to have occurred in accordance with Section 817.416(e), in the concentration of any constituent with respect to the previous sample.
- i) All constituents monitored within the zone of attenuation have returned to a concentration less than or equal to ten percent of the MAPC; or
 - ii) All constituents monitored within the zone of attenuation are less than or equal to their MAPC for eight consecutive quarters.
- C) Monitoring shall be continued for a minimum period of five years after closure or, in the case of landfills, other than those used exclusively for disposing waste generated at the site, a minimum period of ten years after closure. Monitoring, beyond the minimum period, may be discontinued under the following conditions:

- i) No statistically significant increase is detected in the concentration of any constituent above that measured and recorded during the immediately preceding scheduled sampling for three consecutive years, after changing to an annual monitoring frequency; or
 - ii) Immediately after contaminated leachate is no longer generated by the unit.
- 2) Criteria for choosing constituents to be monitored:
 - A) The operator shall monitor each well for constituents that will provide a means for detecting groundwater contamination. Constituents shall be chosen for monitoring if they meet the following requirements:
 - i) The constituent appears in, or is expected to be in, the leachate; and
 - ii) The Board has established a groundwater quality standard at 35 Ill. Adm. Code 620, or the constituent may otherwise cause or contribute to groundwater contamination.
 - B) One or more indicator constituents, representative of the transport processes of constituents in the leachate, may be chosen for monitoring in place of the constituents it represents. The use of such indicator constituents must be included in an Agency-approved permit.
- 3) Organic chemicals monitoring:
 - A) The operator shall monitor each existing well that is being used as part of the monitoring well network at the facility within one year of the effective date of this Part, and monitor each new well within three months of its establishment. The monitoring required by this subsection shall be for the organic chemicals listed in Section 817, Appendix A of this Part. The analysis shall be at least as sensitive as the procedures provided at 40 CFR 141.40 (1992), incorporated by reference at 35 Ill. Adm. Code 810.104.
 - B) At least once every two years, the operator shall monitor each well in accordance with subsection (a) (3) (A) above.

4) Confirmation of monitored increase:

A) The confirmation procedures of this Section shall be used only if the concentrations of the constituents monitored can be measured at or above the practical quantitation limit (PQL). The PQL is defined as the lowest concentration that can be reliably measured within specified limits of precision and accuracy under routine laboratory operating conditions, as defined in Section 817.102. The operator shall institute the confirmation procedures of subsection (a)(3)(B) after notifying the Agency in writing, within 10 days, of the following observed increases:

- i) The concentration of any constituent monitored in accordance with subsection (a)(1) and (a)(2) above shows a progressive increase over four consecutive quarters;
- ii) The concentration of any constituent exceeds the MAPC at an established monitoring point within the zone of attenuation;
- iii) The concentration of any constituent monitored in accordance with subsection (a)(3) above exceeds the preceding measured concentration at any established monitoring point; and
- iv) The concentration of any constituent monitored at or beyond the zone of attenuation exceeds the applicable groundwater quality standards of Section 817.416.

B) The confirmation procedures shall include the following:

- i) The operator shall verify any observed increase by taking additional samples within 45 days of the initial observation and ensure that the samples and sampling protocol used will detect any statistically significant increase in the concentration of the suspect constituent in accordance with 35 Ill. Adm. Code 811.320(e), so as to confirm the observed increase. The operator shall notify the Agency of any confirmed increase before the end of the next business day following the confirmation. The verification procedure shall be completed within 90 days of the

initial sampling event.

- ii) The operator shall determine the source of any confirmed increase, which may include, but shall not be limited to, natural phenomena, sampling or analysis errors, or an off-site source.
 - iii) The operator shall notify the Agency in writing of any confirmed increase and state the source of the confirmed increase and provide the rationale used in such a determination within ten days of the determination.
- b) Assessment monitoring. The operator shall begin an assessment monitoring program in order to confirm the source of the contamination and to provide information needed to carry out a groundwater impact assessment in accordance with subsection (c) below. The assessment monitoring program shall be conducted in accordance with the following requirements:
- 1) The assessment monitoring shall be conducted to collect information to assess the nature and extent of groundwater contamination, which shall consist of, but not limited to, the following steps:
 - A) More frequent sampling of the wells in which the observation occurred;
 - B) More frequent sampling of any surrounding wells;
 - C) The placement of additional monitoring wells to determine the source and extent of the contamination;
 - D) Monitoring of additional constituents to determine the source and extent of contamination; and
 - E) Any other investigative techniques that will assist in determining the nature and extent of the contamination.
 - 2) The operator of the facility for which assessment monitoring is required shall file the plans for an assessment monitoring program with the Agency. If the facility is permitted by the Agency, then the plans shall

be filed for review as a significant permit modification pursuant to 35 Ill. Adm. Code 813.Subpart B. The assessment monitoring program shall be implemented within 90 days of confirmation of any monitored increase in accordance with subsection (a)(4) below or, in the case of permitted facilities, within 90 days of the Agency approval. The assessment monitoring program shall be filed with the Agency within 20 days of an observed increase, as defined in Section 817.415(a)(4)(B)(iii).

- 3) If the analysis of the assessment monitoring data shows that the concentration of one or more constituents, monitored at or beyond the zone of attenuation is above the applicable groundwater quality standards of Section 817.416 and is attributable to the solid waste disposal facility, then the operator shall determine the nature and extent of the groundwater contamination including an assessment of the continued impact on the groundwater should additional waste continue to be accepted at the facility and shall implement remedial action in accordance with subsection (d) below.
 - 4) If the analysis of the assessment monitoring data shows that the concentration of one or more constituents is attributable to the solid waste disposal facility and exceeds the MAPC within the zone of attenuation, then the operator shall conduct a groundwater impact assessment in accordance with the requirements of subsection (c) below.
- c) Assessment of potential groundwater impact. An operator required to conduct a groundwater impact assessment in accordance with subsection (b)(4) above shall assess the potential impacts outside the zone of attenuation that may result from confirmed increases above the MAPC within the zone of attenuation, attributable to the facility, in order to determine if there is need for remedial action.
- 1) The operator shall utilize any new information developed since the initial assessment and information from the detection and assessment monitoring programs and such information shall be used to develop a

groundwater contaminant transport (GCT) model in accordance with 35 Ill. Adm. Code 811.317(c); and

- 2) The operator shall submit the groundwater impact assessment, GCT modeling and results, and any proposed remedial action plans determined necessary pursuant to subsection (d) to the Agency within 180 days of the start of the assessment monitoring program.
- d) Remedial action:
- 1) The operator shall submit plans for the remedial action to the Agency. Such plans and all supporting information including data collected during the assessment monitoring shall be submitted within 90 days of determination of either of the following:
 - A) The groundwater impact assessment performed in accordance with subsection (c) above, indicates that remedial action is needed; or
 - B) Any confirmed increase above the applicable groundwater quality standards of Section 817.416 is determined to be attributable to the solid waste disposal facility in accordance with subsection (b) above.
 - 2) If the facility has been issued a permit by the Agency, then the operator shall submit this information as an application for significant modification to the permit.
 - 3) The operator shall implement the plan for remedial action within 90 days of the following:
 - A) Completion of the groundwater impact assessment under subsection (c) above that requires remedial action;
 - B) Establishing that a violation of an applicable groundwater quality standard of Section 817.416 is attributable to the solid waste disposal facility in accordance with subsection (b)(3) above; or

- C) Agency approval of the remedial action plan, where the facility has been permitted by the Agency.
- 4) The remedial action program shall consist of one or a combination of one or more of the following solutions to meet the requirements of subsection (d)(5) below in a timely and appropriate manner:
- A) Retrofit additional groundwater protective measures within the unit;
 - B) Construct an additional hydraulic barrier, such as a cutoff wall or slurry wall system;
 - C) Pump and treat the contaminated groundwater; or
 - D) Any other Agency approved equivalent technique which will prevent further contamination of groundwater.
- 5) Termination of the remedial action program:
- A) The remedial action program shall continue in accordance with the plan until monitoring shows that the concentrations of all monitored constituents are below the MAPC within the zone of attenuation, and below the applicable groundwater quality standards of Section 817.416 at or beyond the zone of attenuation, over a period of 4 consecutive quarters.
 - B) The operator shall submit to the Agency all information collected under the subsection (d)(5)(A) above. If the facility is permitted then the operator shall submit this information as significant modification of the permit.

Section 817.416 Groundwater Quality Standards

- a) Applicable groundwater quality standards:
 - 1) Groundwater quality shall be maintained at each constituent's background concentration, at or beyond the zone of attenuation. The applicable groundwater quality standard established for any constituent shall be:

- A) The background concentration; or
 - B) The Board-established standard adjusted by the Board in accordance with the justification procedure of subsection (b) below.
- 2) Any statistically significant increase above an applicable groundwater quality standard established pursuant to subsection (a)(1) above that is attributable to the facility and which occurs at or beyond the zone of attenuation within 100 years after closure of the last unit accepting waste within such a facility shall constitute a violation.
- 3) For the purposes of this Part the following definitions apply:
- A) "Background concentration" means that concentration of a constituent that is established as the background in accordance with subsection (d); and
 - B) "Board-established standard" is the concentration of a constituent adopted by the Board as a groundwater quality standard under 35 Ill. Adm. Code Part 620.
- b) Justification for adjusted groundwater quality standards:
- 1) An operator may petition the Board for an adjusted groundwater quality standard in accordance with the procedures specified in Section 28.1 of the Act and 35 Ill. Adm. Code 106.410 through 106.416.
 - 2) For groundwater which contains naturally occurring constituents which meet the requirements of 35 Ill. Adm. Code Part 620, the Board will specify adjusted groundwater quality standards no greater than those of 35 Ill. Adm. Code Part 620, upon a demonstration by the generator that:
 - A) The change in standards will not interfere with, or become injurious to, any present or potential beneficial uses for such waters;
 - B) The change in standards is necessary for economic or social development by providing information including, but not limited to the impacts of the standards on the regional

economy, social disbenefits such as loss of jobs or closing of landfills and economic analysis contrasting the health and environmental benefits with costs likely to be incurred in meeting the standards; and

- C) All technically feasible and economically reasonable methods are being used to prevent the degradation of the groundwater quality.
- 3) For groundwater which contains naturally occurring constituents which do not meet the standards of 35 Ill. Adm. Code Part 620, the Board will specify adjusted groundwater quality standards, upon a demonstration by the operator that:
- A) The groundwater does not presently serve as a source of drinking water;
 - B) The change in standards will not interfere with, or become injurious to, any present or potential beneficial uses for such waters;
 - C) The change in standards is necessary for economic or social development, by providing information including, but not limited to, the impacts of the standards on the regional economy, social disbenefits such as loss of jobs or closing of landfills, and economic analysis contrasting the health and environmental benefits with costs likely to be incurred in meeting the standards; and
 - D) The groundwater cannot presently, and will not in the future, serve as a source of drinking water because:
 - i) It is impossible to remove water in usable quantities;
 - ii) the groundwater is situated at a depth or location such that recovery of water for drinking purposes is not technologically feasible or economically reasonable;
 - iii) The groundwater is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption;

- iv) The total dissolved solids content of the groundwater is more than 3,000 mg/l and that the water will not be used to serve a public water supply system; or
 - v) The total dissolved solids content of the groundwater exceeds 10,000 mg/l.
- c) Determination of the zone of attenuation.
- 1) The zone of attenuation, within which concentrations of constituents in leachate discharged from the unit may exceed the applicable groundwater quality standard of this Section, is a volume bounded by a vertical plane at the property boundary or 100 feet from the edge of the unit, whichever is less, extending from the ground surface to the bottom of the uppermost aquifer and excluding the volume occupied by the waste.
 - 2) Zones of attenuation shall not extend to the annual high water mark of navigable surface waters.
 - 3) Overlapping zones of attenuation from units within a single facility may be combined into a single zone for the purposes of establishing a monitoring network.
- d) Establishment of background concentrations:
- 1) The initial monitoring to determine background concentrations shall commence during the hydrogeological assessment required by Section 817.411. The background concentrations for those parameters identified in Sections 817.411(e)(1)(G) and 817.415(a)(2) and (a)(3) shall be established based on quarterly sampling of wells for one year, monitored in accordance with the requirements of subsections (d)(2), (d)(3), and (d)(4) below, which may be adjusted during the operation of a facility. Statistical tests and procedures shall be employed, in accordance with subsection (e) below, depending on the number, type and frequency of samples collected from the wells, to establish the background concentrations. Adjustments to the background concentrations shall be made only if changes in the concentrations of constituents observed in upgradient wells over time are determined, in accordance with subsection (d)(3) below, to be statistically significant. Background concentrations determined in accordance

with this subsection shall be used for the purposes of establishing groundwater quality standards, in accordance with subsection (a) above. The operator shall prepare a list of background concentrations established in accordance with this subsection. The operator shall maintain such a list at the facility, shall submit a copy of the list to the Agency for establishing standards in accordance with subsection (a), and shall provide updates to the list within ten days of any change to the list.

- 2) A network of monitoring wells shall be established upgradient from the unit, with respect to groundwater flow, in accordance with the following standards, in order to determine the background concentrations of constituents in the groundwater:
 - A) The wells shall be located at such a distance that discharges of contaminants from the unit will not be detectable but will be representative of groundwater immediately upgradient of the unit;
 - B) The wells shall be sampled at the same frequency as other monitoring points to provide continuous background concentration data, throughout the monitoring period; and
 - C) The wells shall be located at several depths to provide data on the spatial variability.
- 3) A determination of background concentrations may include the sampling of wells that are not hydraulically upgradient of the waste unit where:
 - A) Hydrogeologic conditions do not allow the owner or operator to determine what wells are hydraulically upgradient of the waste; and
 - B) Sampling at other wells will provide an indication of background concentrations that is representative of that which would have been provided by upgradient wells.
- 4) If background concentrations cannot be determined on site, then alternative background concentrations may be determined from actual monitoring data from the aquifer of concern, obtained from sample points located as close as is reasonably possible to the site.

- e) Statistical analysis of groundwater monitoring data:
- 1) Statistical tests shall be used to analyze groundwater monitoring data. One or more of the normal theory statistical tests listed in subsection (e)(4) below shall be chosen first for analyzing the data set or transformation of the data set. Where such normal theory tests are demonstrated to be inappropriate, tests listed in subsection (e)(5) below or a test in accordance with subsection (e)(6) below shall be used. Any statistical test chosen from subsections (e)(4) or (e)(5), the level of significance (Type 1 error level) shall be no less than 0.01, for individual well comparisons, and no less than 0.05, for multiple well comparisons. The statistical analysis shall include, but not be limited to, the accounting of data below, the detection limit of the analytical method used, the establishment of background concentrations and the determination of whether statistically significant changes have occurred in:
 - A) The concentration of any chemical constituent with respect to the background concentration or MAPC; and
 - B) The established background concentration of any chemical constituents over time.
 - 2) The statistical test or tests used shall be based upon the sampling and collection protocol of Sections 817.414 and 817.415.
 - 3) Monitored data that are below the level of detection shall be reported as not detected (ND). The level of detection for each constituent shall be the minimum concentration of that constituent which can be measured and reported with 99 percent confidence that the true value is greater than zero, which is defined as the method detection limit (MDL). The following procedures shall be used to analyze such data, unless an alternative procedure in accordance with subsection (e)(6) below, is shown to be applicable:
 - A) Where the percentage of nondetects in the data base used is less than 15 percent, the operator shall replace NDs with the MDL divided by two, then proceed with the use of one or more of the Normal Theory statistical tests listed in subsection (e)(4) below;

- B) Where the percentage of nondetected in the data base or data transformations used in between 15 and 50 percent, and the data are normally distributed, the operator shall use Cohen's adjustment to the sample mean and standard deviation, followed by one or more of the tests listed in subsection (e)(4)(C) below. However, where data are not normally distributed, the operator shall use an applicable nonparametric test from subsection (e)(5) below;
 - C) Where the percentage of nondetects in the database used is above 50 percent, then the owner or operator shall use the test of proportions listed in subsection (e)(4) below.
- 4) Normal theory statistical tests:
- A) Student t-test including, but not limited to, Cochran's Approximation to the Behren-Fisher (CABF) t-test and Averaged Replicate (AR) t-test.
 - B) Parametric analysis of variance (ANOVA) followed by one or more of the multiple comparison procedures including, but not limited to, Fisher's Least Significant Difference (LSD), Student Newman-Kuel procedure, Duncan's New Multiple Range Test and Tukey's W procedure.
 - C) Control Charts, Prediction Intervals and Tolerance Intervals, for which the type I error levels shall be specified by the Agency in accordance with the requirements of 35 Ill. Adm. Code 724.197(i).
- 5) Nonparametric statistical tests shall include: Mann-Whitney U-test, Kruskal-Wallis test, a nonparametric analysis of variance (ANOVA) for multiple comparisons or the Wilcoxon Rank Sum test.
- 6) Any other statistical test based on the distribution of the sampling data may be used, if it is demonstrated to meet the requirements of 35 Ill. Adm. Code 724.197(i).

Section 817.417 Waste Placement

- a) Phasing of operations:

- 1) Waste disposal operations shall move from the lowest portions of the unit to the highest portions. Except as provided in subsection (a)(2) below, the placement of waste shall begin in the lowest part of the active face of the unit, located in the part of the facility most downgradient with respect to groundwater flow.
 - 2) The operator may dispose of wastes in areas other than those specified in subsection (a)(1) above only under any of the following conditions:
 - A) Climatic conditions, such as wind and precipitation, are such that the placement of waste in the bottom of the unit would cause water pollution, litter, damage to any part of the liner or damage to equipment;
 - B) The topography of the land surrounding the unit makes the procedure of subsection (a)(1) above environmentally unsound, for example, because steep slopes surround the unit;
 - C) When groundwater monitoring wells, constructed in accordance with the requirements of 35 Ill. Adm. Code 811.319, are placed 50 feet, or less, downgradient from the filled portions of the unit; or
 - D) Equipment required for placement is temporarily unavailable.
- b) Initial waste placement:
- 1) An initial layer of waste, a minimum of five feet thick, shall be placed over the entire liner as soon as is practicable after construction, but prior to the onset of weather conditions that may cause the compacted earth liner to freeze.
 - 2) Waste shall not be placed over areas that are subject to freezing conditions until the liner has been inspected, tested, and reconstructed (if necessary) to meet the requirement of 35 Ill. Adm. Code 811.306.

Section 817.418 Final Slope and Stabilization

- a) All final slopes shall be designed and constructed to a grade capable supporting vegetation and which minimizes erosion.

- b) All slopes shall be designed to drain runoff away from the cover and which prevents ponding. No standing water shall be allowed anywhere in or on the unit.
- c) Vegetation:
 - 1) Vegetation shall be promoted on all reconstructed surfaces to minimize wind and water erosion of the final protective cover;
 - 2) Vegetation shall be compatible with the climatic conditions;
 - 3) Vegetation shall require little maintenance;
 - 4) Vegetation shall consist of a diverse mix of native and introduced species that is consistent with the postclosure land use;
 - 5) Vegetation shall be tolerant of the landfill gas expected to be generated;
 - 6) The root depth of the vegetation shall not exceed the depth of the final protective cover system.
 - 7) Temporary erosion control measures, including but not limited to mulch straw, netting and chemical soil stabilizers, shall be undertaken while vegetation is being established.
- d) Structures constructed over the unit:
 - 1) Structures constructed over the unit must be compatible with the land use;
 - 2) Such structures must in no way interfere with the operation of a cover system, leachate collection system or any monitoring system.

Section 817.419 Load Checking

- a) The operator shall not accept wastes for disposal at an offsite low risk waste landfill unless it is accompanied by documentation that such wastes are low risk wastes based on testing of the leachate from such wastes performed in accordance with the requirements of Section 817.103.
- b) The operator shall institute and conduct a random load checking program at each low risk waste facility in accordance with the requirements of 35 Ill. Adm. Code

811.323 except that this program shall also be designed:

- 1) to detect and discourage attempts to dispose non-low risk wastes at the landfill;
 - 2) to require the facility's inspector examine at least one random load of solid waste delivered to the landfill on a random day each week; and
 - 3) to require the operator to test one randomly selected waste sample in accordance with Section 817.103(a) and (b) to determine if the waste is low risk.
- c) The operator shall include the results of the load checking in the Annual Report submitted to the Agency in accordance with 35 Ill. Adm. Code 815.Subpart C for non-permitted facilities.

Section 817.420 Closure and Written Closure Plan

- a) The final slopes and contours shall be designed to complement and blend with the surrounding topography of the proposed final land use of the area.
- b) All drainage ways and swales shall be designed to safely pass the runoff from the 100-year, 24-hour precipitation event without scouring or erosion.
- c) The final configuration of the facility shall be designed in a manner that minimizes the need for further maintenance.
- d) Written closure plan:
 - 1) The operator shall maintain a written plan describing all actions that the operator will undertake to close the unit or facility in a manner that fulfills the provisions of the Act, of this Part and of other applicable Parts of 35 Ill. Adm. Code: Chapter I. The written closure plan shall fulfill the minimum information requirements of 35 Ill. Adm. Code 812.114.
 - 2) A modification of the written closure plan shall constitute a significant modification of the permit for the purposes of 35 Ill. Adm. Code 813.Subpart B.

Section 817.421 Postclosure Maintenance

- a) The operator shall treat, remove from the site, or dispose of all wastes and waste residues within 30 days after receipt of the final volume of waste.
- b) The operator shall remove all equipment or structures not necessary for the postclosure land use, unless otherwise authorized by permit.
- c) Maintenance and inspection of final cover and vegetation:
 - 1) Frequency of inspections:
 - A) The operator shall conduct a quarterly inspection of all vegetated surfaces for a minimum of five years after closure, and after five years, the operator may reduce the frequency to annual inspections until settling has stopped and there are no eroded or scoured areas.

SUBPART E: CONSTRUCTION QUALITY ASSURANCE PROGRAMS

Section 817.501 Scope and Applicability

All structures necessary to comply with the requirements of this Part shall be constructed according to a construction quality assurance program that, at a minimum, meets the requirements of 35 Ill. Adm. Code 811.Subpart E.

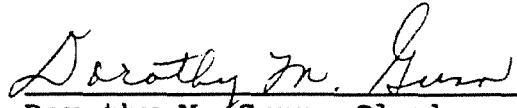
Section 817.Appendix A Organic Chemical Constituents List

1. Acenaphthene
2. 1,2,4-Trichlorobenzene
3. 2,4,6-Trichlorophenol
4. 2-Chlorophenol
5. 2,4-Dichlorophenol
6. 2,4-Dimethylphenol
7. Fluoranthene
8. Trichlorofluoromethane
9. Naphthalene
10. Nitrobenzene
11. 4-Nitrophenol
12. 2,4-Dinitrophenol
13. 4,6-Dinitro-o-cresol
14. n-Nitrosodiphenylamine
15. Pentachlorophenol
16. Phenol
17. bis-(2-ethylhexyl) phthalate
18. Butyl benzyl phthalate

19. Di-n-butyl phthalate
20. Di-n-octyl phthalate
21. Dimethyl phthalate
22. Benzo (a) anthracene
23. Chrysene
24. Acenaphthene
25. Anthracene
26. Fluorene
27. Phenanthrene
28. Pyrene
29. Formaldehyde
30. Formic acid
31. Methanol
32. Methyl ethyl ketone
33. Methyl isobutyl ketone
34. Carbon disulfide
35. Isobutanol
36. Pyridine
37. Chloroform
38. Methylene chloride
39. Methyl chloride
40. Paraldehyde
41. Chloroacetaldehyde
42. Phorate
43. Phosphorodithioic acid
44. Phosphorodithioic acid esters
45. Toluene diisocyanate
46. Urethane
47. Maleic anhydride
48. Benzo(a)pyrene
49. Cresol
50. Acetaldehyde
51. Phthalic acid esters
52. Acetone
53. Benzoic acid
54. 2-Methylnaphthalene
55. sec-Butylbenzene
56. Diethylbenzenes
57. Dimethylnaphthalenes
58. p-Ethyltoluene
59. n-Hexane
60. Isopropylbenzene
61. 1- & 2-Methylnaphthalene
62. 1,2,4-Trimethylbenzene
63. 1,3,5-Trimethylbenzene
64. t-Butylbenzene

IT IS SO ORDERED.

I, Dorothy M. Gunn, Clerk of the Illinois Pollution Control Board, do hereby certify that the above opinion and order was adopted by the Board on the 23rd day of September, 1993, by a vote of 7-0.



Dorothy M. Gunn, Clerk
Illinois Pollution Control Board