ILLINOIS POLLUTION CONTROL BOARD
March 31, 1994

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

Proposed Rule. Second First Notice.

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

This matter comes before the Board upon a petition filed by the Illinois Steel Group and the Illinois Cast Metal Association (collectively as SFG). The SFG proposes that the Board amend its landfill regulations to give consideration to certain wastes generated by the steel and foundry industries.

On September 23, 1993 the Board adopted the SFG proposal for second first notice. However, the Board issued its September 23 opinion and order without commenting on the substantive merits of the proposal. Similarly, the Board had also issued its earlier first first notice opinion and order without commenting on the substantive merits of that proposal.

Accordingly, today the Board supplements these earlier actions with a discussion of the proposed regulations. The Board takes this action because it desires that all interested persons have an opportunity to review and comment on the Board's perspective prior to the proposal moving to second notice. Pursuant thereto, the Board will entertain additional comment on the proposal for a two-week period beginning today. Barring unforeseen circumstances, the Board intends thereafter to move the proposal to second notice as soon as is practicable consistent with the time necessary to respond to any new comments.

Today's discussion also addresses changes that the Board is entertaining for inclusion in the second notice proposal. These changes are proposed in response to concerns raised at hearings and in public comments, including comment of the Administrative Code Division (PC. #15). To assist the interested person in following these changes, today's opinion is accompanied by a copy of the proposed regulations in which the Board's contemplated substantive departures from the second first notice proposal are identified by redlining.

An aspect of the SFG's overall proposal not contained in today's proposal are provisions regarding location restrictions for potentially usable waste (PUW) landfills, proposed for Section 817.309. (PC. #19.) For the reasons explained below, the Board will consider the location restrictions in Docket B, which the Board creates by its order today.

PROPOSAL OVERVIEW

Today's proposed regulations would add new Part 817 to the Board's waste disposal regulations. Part 817 pertains solely to wastes from the steel and foundry industries. Today's action would also make several conforming amendments to existing Parts 807 and 810 through 815.

A principal feature of the proposed regulations is the creation of three new waste classifications. These classifications apply only to nonhazardous waste streams produced by the steel and foundry industries. The new waste classes are proposed in place of the "inert waste" class in the Board's current regulatory scheme. (35 Ill. Adm. Code 810 through 815) The "chemical and putrescible waste" class in the present regulatory framework would remain in place and apply to those steel and foundry industry wastes not meeting the industry specific waste classification.

The proposed regulations specify requirements for the disposal of each class of waste, and additionally include standards for operation, monitoring, and closure of landfill units accepting each class of waste.

PROCEDURAL HISTORY

On December 3, 1990 the SFG filed its initial proposal to amend the Board's nonhazardous solid waste landfill regulations found at 35 Ill. Adm. Code Parts 810-815, as adopted in Docket R88-7[1]. Pursuant to 35 Ill. Adm. Code 811.101(b) the applicability of the general landfill standards to new landfills solely receiving wastes generated by steel and foundry industries was to be delayed if regulations of general applicability for that industrial category were filed with the Board no later than December 1, 1990.

The SFG filed additional information on February 4, 1991 in response to a December 20, 1990 Board order. Without reviewing the merits of the SFG's proposal, the Board adopted on February

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[1] In re Development, Operating and Reporting Requirements for Non-hazardous Waste Landfills R88-7, 114 PCB 483, August 17, 1990.

7, 1991 a first notice opinion and order; the proposal was published in the Illinois Register on March 1, 1991 at 17 Ill. Reg. 3166 (Part 811), 3155 (Part 814), and 3173 (Part 817). Hearings were held before Hearing Officer Deborah A. Stonich on May 29, June 7, and June 21, 1991 (the latter two having been consolidated with R90-25, a similar proposal, since dismissed, filed by the Illinois Utility Group with regard to disposal of fly-ash).

A first amended proposal was filed by the SFG on May 13, 1991. After filing a discussion draft on June 24, 1992, the SFG filed a second amended proposal on March 4, 1993; further documentation was filed on May 13, 1993 in response to a March 26, 1993 hearing officer's order.

On September 23, 1993 the Board authorized publication of a second first notice consisting of the SFG's second amended proposal. The proposal was published in the Illinois Register on October 15, 1993. (17 Ill. Reg. 17644 et seq.)

The Board issued a correction order on December 2, 1993 that authorized the publication of a list of definitions as submitted by the proponents. The corrections appeared in the Illinois Register published on December 17, 1993. (17 Ill. Reg. 21878 et seq.) Hearings on the second first notice proposal were held before Hearing Officer Kathleen M. Crowley on October 1 and November 19, 1993. The last of the final comments concerning the proposed regulations were received by the Board on January 31, 1994.

DOCKET B

The Board is today opening Docket B in this rulemaking to consider additional location standards for potentially usable waste landfills. These location standards have been proposed by the SFG in response to concerns raised by the Board at hearing[2].

The SFG sets out the proposed location standards as a new section of Part 817; the Board believes that this is the correct format. However, because it is a new section not heretofore first noticed, the Board is prohibited from immediately moving the section for second notice, as it anticipates doing with the proposal as a whole. Under these circumstances, the best procedure is to allow the proposal as a whole and the proposed new location standards section to each move forward on their own schedule.

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[2] The interested person is directed to the Board's opinion and order of this same date in Docket B for a full discussion of the location standards provision.

MERIT HEARINGS/PUBLIC COMMENT

The Board has held five hearings[3] in this rulemaking to discuss the merits of the SFG's proposal. The SFG's initial proposal (filed on 2-4-91), and the first amended proposal (filed on 5-13-91) were the subject of the first set of three hearings held in 1991. To expedite the proceedings, the participants were required to file written questions concerning the SFG's proposal. Questions were filed by the Agency (Exh. 14) and the Board's technical staff (Exh. 13). The proponents provided written answers to the prefiled questions (Exh. 15) and presented expert testimony at hearing in support of the proposed regulations.

The testimony presented by the proponents raised a number of issues not resolved at hearing. In responding to these issues, the SFG stated that it would undertake some additional studies and work with the Agency to address the unresolved issues. Further, the SFG noted that it would address the issues concerning the initial proposal in an amended proposal.

The SFG's second amended proposal, which is the proposal currently before the Board, was the subject of the last two hearings held in 1993. Again, the participants were required to prefile written questions concerning the proposed regulations. Questions were filed by the Agency (Exh. 59), and the Board's technical staff (Exh. 56). The proponents answered the participants' prefiled questions at the hearings.

In addition to the testimony and technical information presented at hearings, the Board has received twenty-one (21) public comments (PC.) since the initiation of this rulemaking in December 1990. Of the twenty-one (21) public comments, fourteen (14) (PC. #8 through #21) were filed in response to the Board's second first notice proposal. The Board extends its appreciation to all commenters for their thoughtful contributions to today's proposal.

DISCUSSION -- GENERAL

In the following portions of this opinion the Board will discuss the major provisions involved in today's amendments.

The Board has reviewed in detail the second first notice proposal in conjunction with the record in this proceeding, which includes the hearing testimony and public comments. This review forms the basis for the following discussion. It also forms the basis for a number of changes that the Board today proposes to second first notice proposal.

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[3] The transcripts of the five hearings are cited to herein respectively in the form "Tr1.", "Tr2.", etc.

DISCUSSION -- PART 810 AMENDMENTS

The purpose of this Part is to set out general requirements applicable to all solid waste disposal facilities regulated pursuant to 35 Ill. Adm. Code 811 through 815. Today's action would make conforming amendments to several of these requirements. Included is the applicability statement at Section 810.101. The proposed amendments also add a number of definitions relating to steel and foundry landfills and several new incorporations by reference.

Definitions (Section 810.103)

These definitions were originally proposed under 35 Ill. Adm. Code 817.102 but are today moved to Section 810.103. See discussion under Section 817.102 for the rationale behind the relocation. The terms proposed for addition are "beneficially usable waste," "foundry sand," "iron slag," "low risk waste," "potentially usable waste," "slag", and "steel slag."

A "beneficially usable waste" is defined as any solid waste from the steel and foundry industries that will not decompose biologically, burn, serve as food for vectors, form a gas, cause an odor, or form a leachate that contains constituents that exceed the limits for this type of waste as specified at 35 Ill. Adm. Code 817.105.

"Foundry sand" is defined as pure sand or a mixture of sand and any additives necessary for use of the sand in the foundry process, but does not include such foundry process by-products as air pollution control dust or refractories.

"Iron slag," "slag" or "steel slag" is defined as the fused agglomerate which separates in the iron and steel production and floats on the surface of the molten metal.

A "low risk waste" is defined as any solid waste from the steel and foundry industries that will not decompose biologically, burn, serve as food for vectors, form a gas, cause an odor, or form a leachate that contains constituents that exceed the limits for this type of waste as specified at 35 Ill. Adm. Code 817.105.

A "potentially usable waste" is defined as any solid waste from the steel and foundry industries that will not decompose biologically, burn, serve as food for vectors, form a gas, cause an odor, or form a leachate that contains constituents that exceed the limits for this type of waste as specified at 35 Ill. Adm. Code 817.105.

Incorporation by Reference (Section 810.104)

The amendments to Section 810.104 includes the incorporation by reference of two ASTM documents. The first document is entitled "Standard Test Method for Shake Extraction of Solid Waste with Water" (ASTM Method D3987-85), which specifies the procedure for leachate extraction. The second document is also an ASTM publication (ASTM Method D2234-76), which specifies procedures for collecting representative samples from waste streams for leachate analysis.

The proponents have not yet provided that Board with copies of the second ASTM document. The Board requests the SFG to submit copies of ASTM Method D2234-76 as soon as possible. Failure to do so may require that the incorporation, and sections that depend upon it, be deleted from the proposal for second notice.

DISCUSSION -- PARTS 807, 811, 812 and 813

The Board today proposes a number of minor changes to its existing regulations for solid waste management (Part 807), new solid waste landfills (Part 811), permit application informational requirements (Part 812), and permitting requirements (Part 813). These changes make the applicability provisions of the existing regulations compatible with the newly proposed part 817.

DISCUSSION -- PART 814 AMENDMENTS

This Part specifies standards applicable to all existing landfills, which include facilities that are not considered to be new as defined at 35 Ill. Adm. Code 810.103. The existing regulations under Part 814 prescribe standards for inert waste landfills, and chemical and putrescible waste landfills. Also, Part 814 provides that, based on an existing landfill's ability to meet interim standards, that initiation of closure could be required within two or seven years after the effective date of the existing regulations.

The proposed amendments to Part 814 adds three new Subparts, which specify standards for existing steel and foundry landfills. These amendments mirror the existing Part 814 regulations as they apply to inert waste, and chemical and putrescible waste landfills. That is, standards for LRW landfills mirror the chemical and putrescible regulations, and standards for PUW landfills parallel the existing inert waste regulations. The main difference is that existing regulations under Part 814 reference the standards specified in Part 811, whereas the proposed amendments cross-reference the standards proposed under Part 817. The Board finds this regulatory format acceptable since Part 817 specifies standards appropriate for steel and foundry landfills.

The Board notes that the SFG did not propose any changes or modifications to the existing regulations in Part 814. As proposed, the existing steel and foundry landfills would be subject to the general requirements specified in Part 814.Subpart A and the appropriate standards specified under the proposed Part 814.Subparts F, G, H, and I. Therefore, the Board will not discuss the existing regulations, except to note that all the time limitations specified in Part 814.Subpart A concerning filing of Agency notifications, permit applications, etc., start from the effective date of the proposed regulations for steel and foundry landfills. In this regard, the Board also notes that the interim period before initiation of closure of steel and foundry facilities (2 or 7 years) also starts from the effective date of the proposed amendments.

Before proceeding to the Section-by-Section discussion, the Board will address certain general issues associated with the proposed amendments to Part 814 regulations.

Upfront Determination of Existing Landfill Classification

Although the proposed amendments to Part 814 prescribe standards for landfills that accept PUW and LRW, they do not contain provisions for upfront determination of the landfill classification. The Board asked the proponents to comment on whether such provisions should be added to the proposed regulations. (Tr4. at 45.) In response, the SFG noted that even though classification requirements are not included in Part 814, they are specified in Sections 817.305(e) and 817.409(i). The Board notes these reclassification provisions would apply only after a landfill is classified as either a PUW landfill or a LRW landfill.

The Agency has also expressed concern regarding this aspect. The Agency states that all existing landfills must be classified pursuant to procedures of proposed Sections 817.104 and 817.105 by collecting a representative sample of undiluted and unattenuated landfill leachate in the same manner specified in proposed Section 817.103(b)(3), or, alternatively, collecting representative samples of in-situ landfill waste by means of a core sampling program. (PC. #20.)

The Board believes that it is necessary that the landfill classification be determined before deciding which standards are applicable. Especially, since the existing landfills were not classified on the basis of leachate quality prior to this rulemaking. Therefore, the Board has added a provision in Part 814.Subparts F, G, and I that requires upfront classification of the existing landfills.

Regulations for Continued Operation of Existing PUW Landfills

The Board notes that the proposed amendments do not specify standards for continued operation of PUW landfills. At the October 1, 1993 hearing, the Board requested the SFG to explain why standards were not proposed for PUW landfills. (Tr4. at 114.) The SFG explained that any existing source would be able to comply with the PUW landfill regulations under Part 817.Subpart C, so there was no reason to specify any regulations. (Tr4. at 114-115.) However, to address Board concerns the SFG submitted a new Subpart that prescribe the standards for operation of PUW landfills. (Exh. 63 at 2.) Today's proposal includes the additional requirements applicable to PUW landfills at Part 814.Subpart I.

Part 814.Subpart F: Standards for Low Risk Waste Landfills that May Remain Open for More than Seven Years

Scope and Applicability (Section 814.601)

The proposed standards of this Subpart are applicable to all existing LRW landfills, including those exempt from permit requirements in accordance with Section 21(d) of the Act, that have accepted or accept LRW. As discussed above, the Board has added in today's proposal a provision at Section 814.601(c) that requires an operator of an existing landfill to demonstrate that the landfill meets the classification criteria for LRW in order to be regulated under this Subpart. This additional requirement is consistent with the Agency's recommendations. Landfill units which are unable to comply with the LRW classification criteria will be subject to the chemical and putrescible waste regulations at Part 814.Subparts C, D, or E.

An existing landfill accepting LRW that meets the classification criteria for LRW is subject to the standards specified in this Subpart if: it remains open beyond seven years after the effective date of the proposed amendment, and is able to meet the requirements specified in Section 814.602. Landfill units that are unable to comply with the requirements of this Subpart are subject to the requirements of Part 814.Subpart G or H.

Applicable Standards (Section 814.602)

The LRW landfill units are required to meet the standards for new units proposed in 35 Ill. Adm. Code 817 except for the exemptions specified in Section 814.602(a). The major exemptions are location standards, foundation and mass stability analysis standards, the liner and leachate drainage and collection requirements of Part 817, final cover requirements, and the comprehensive hydrogeological site investigation requirements. However, the proposed regulations require hydrogeologic information sufficient to establish a groundwater monitoring program and to establish background concentrations. In addition,

the existing LRW units are subject to requirements specified at Section 817.602(b) relating to leachate management, protection against slope failure, and calculation of the design period for purposes of financial assurance.

As noted above, the proposed requirements under Subpart F mirrors those specified at 35 Ill. Adm. Code 814.Subpart C for existing chemical and putrescible waste landfill units, except for some changes regarding leachate management at Section 817.602(b)(1). The Board notes that the proposed regulations do not require a leachate collection and transport system if the facility provides "proof" that federal MCLs will not be exceeded at the compliance boundary.

The Board asked the proponents to explain why federal MCLs are used as benchmark instead of the applicable groundwater quality standards. Also, the Board requested the SFG to comment on whether a groundwater impact assessment would constitute the "proof" required by Section 814.602(b)(1). (Tr4. at 115.) In response, the SFG provided language changes to address Board concerns relating to the use of federal MCLs. (Ex. 63 at 1.) Regarding the "proof" required to demonstrate compliance with the applicable groundwater quality standards, the SFG stated that a groundwater impact assessment performed in accordance with the proposed regulations at 35 Ill. Adm. Code 817.413 would be appropriate. (Tr4. at 116.)

The Board has made changes in today's proposal to address the above concerns. Today's proposal also includes minor language changes at Section 817.602(a)(5), which clarify that background concentrations must be determined for the purpose of establishing maximum allowable predicted concentrations and not groundwater quality standards, as specified in the existing regulations.

Part 814.Subpart G: Standards for Low Risk Waste Landfills That Must Initiate Closure Within Seven Years

Scope and Applicability (Section 814.701)

The proposed standards of this Subpart are applicable to all existing LRW landfills, including those exempt from permit requirements in accordance with Section 21(d) of the Act, that remain open beyond 2 years but no longer than 7 years after the effective date of the proposed amendments. Again, the Board notes that it has added in today's proposal a provision at Section 814.701(c) that requires an operator of an existing landfill to demonstrate that the landfill meets the classification criteria for LRW in order to be regulated under this Subpart. This additional requirement is consistent with the Agency's recommendations. Landfill units which are unable to comply with the LRW classification criteria will be subject to

the chemical and putrescible waste regulations at Part 814.Subparts C, D, or E.

An existing LRW landfill that meets the classification criteria for LRW would be subject to the standards specified in this Subpart if: it remains open beyond 2 years but no longer than 7 years after the effective date of the proposed amendments, and is able to meet the requirements specified in Section 814.702. Landfill units that are unable to comply with the requirements of this Subpart are subject to the requirements of Part 814.Subpart H.

Applicable Standards (Section 814.702)

The LRW landfill units are required to meet the standards for new units proposed in 35 Ill. Adm. Code 817, except for the exemptions specified in Section 814.702(a). The major exemptions are location standards, foundation and mass stability analysis standards, the liner and leachate drainage and collection requirements, the hydrogeological site investigation requirements, the groundwater impact assessment standards, the groundwater monitoring requirements, and the groundwater quality standards of 35 Ill. Adm. Code 817.416. In addition, the existing LRW units are subject to requirements specified at Section 817.702(b), which include prohibition against expansion of the facility or accepting new special wastes, groundwater standards as specified in Section 814.702(b)(3), and calculation of the design period for purposes of financial assurance.

As noted above, the proposed requirements under Subpart G mirror those specified at 35 Ill. Adm. Code 814.Subpart D for existing chemical and putrescible waste landfill units, except for the change concerning acceptance of new special wastes. Section 814.702(b)(2) allows a unit to apply for supplemental waste stream permits to accept additional waste streams only as long as the wastes are similar or have compatible chemical makeup to the wastes previously disposed in the unit. Waste Management, Inc. (WMI) states that no new supplemental waste stream should be allowed, so as to be consistent with the existing regulations at Part 814.Subpart D for units that must initiate closure within seven years. (PC. 18.)

The Board agrees with WMI. The Board notes that the SFG has not provided any justification for allowing the acceptance of new special waste streams at units that are required to close within seven years. Further, proposed Section 814.702(b)(2) is not clear. There is no criteria to determine that additional waste streams are of a "similar and compatible makeup" to wastes previously disposed in the unit. In view of this the Board has made changes to today's proposal at Section 814.702(b)(2) that prohibits an operator from applying for supplemental waste stream permits. The Board has also corrected a typographical error at Section 814.702(a)(1).

Part 814.Subpart H: Standards for PUW Landfills and Low Risk Waste Landfills That Must Initiate Closure Within Seven Years

The proposed standards of this Subpart are applicable to all existing PUW and LRW landfill units, including those exempt from permit requirements in accordance with Section 21(d) of the Act, that are unable to meet the requirements of Part 814.Subparts F, G or I, or are scheduled to begin closure within two years of the effective date of this Section. These units are subject to the existing Part 807 standards for operation and closure of landfill facilities.

The requirements proposed in this Subpart parallel those specified at Part 814.Subpart E. The Board retains the proposed regulations under Subpart H with minor clarifying changes to the Subpart heading.

Part 814.Subpart I: Standards for PUW Landfills That May Remain Open for More Than Two Years

Scope and Applicability (Section 814.901)

The proposed standards of this Subpart are applicable to existing PUW landfills, including those exempt from permit requirements in accordance with Section 21(d) of the Act, that remain open beyond 2 years. The Board has added in today's proposal two additional requirements to the language proposed by the SFG to clarify the applicability of the proposed Part 814.Subpart I.

Section 814.901(b) clarifies that landfill units which are unable to comply with the standards of this Subpart must initiate closure in accordance with the requirements of Part 814.Subpart H.

Section 814.901(c) requires an operator of an existing landfill to demonstrate that the landfill meets the classification criteria for LRW in order to be regulated under this Subpart. This additional requirement is consistent with the Agency's recommendations. Landfill units that are unable to meet the PUW classification criteria will be subject, depending on the leachate concentrations, to either the LRW landfill regulations, or the chemical and putrescible waste landfill regulations.

Applicable Standards (Section 814.902)

An existing facility accepting PUW is subject to all the requirements proposed for a new PUW landfill at 35 Ill. Adm. Code 817.Subpart C. The Board notes that the proposed standards mirror those specified for inert waste regulations at Part

814.Subpart B. The only exception is that the proposed regulations at Section 814.902(b) allow the use of leachate extracted from core waste samples obtained from the unit, if it is not possible to obtain actual leachate samples.

DISCUSSION -- PART 815 AMENDMENTS

This Part sets forth the informational requirements for landfills exempt from permits pursuant to Section 21(d) of the Act. The SFG recommends and the Board accepts amendments to certain Sections in this Part to make the requirements of this Part applicable to steel and foundry landfills. The proposed amendments affect Sections 815.202 and 815.401.

The Board notes that the first notice language at Section 815.202, which specifies the filing deadline, had some ambiguity. The proposed language changes are intended to: distinguish between the existing steel/foundry landfills and the currently regulated nonhazardous waste landfills; and specify a filing deadline for the existing steel and foundry landfills. However, the proposed language changes do not reflect the proposed intent. In this regard, the Board notes that existing facilities are referred Sections 815.202 (a) and (b) as "existing 35 Ill. Adm. Code 811 facilities" and "existing 35 Ill. Adm. Code 817 facilities." But, both Parts 811 and 817 apply to new facilities, which are covered by Section 815.202(c). The Board has made changes to Section 815.202 in today's proposal to clarify the proposed intent.

DISCUSSION -- PART 817

PART 817.Subpart A: General Requirements

Scope and Applicability (Section 817.101[4])

The proposed regulations are intended to regulate the disposal of nonputrescible waste from the steel and foundry industries. Section 817.101 identifies the waste streams covered by the proposed regulations, and sets forth certain exemptions relating to the beneficial use of the steel and foundry wastes.

The second first notice proposal limited the applicability of Part 817 to the steel and foundry industries covered by SIC (Standard Industrial Classification) codes 331 and 332, with the exception of those industries identified by SIC code 3313. (Section 817.101(a).)

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[4] The Section numbers refer to the text of today's supplemental rule, not the rule as first noticed.

At the November 19, 1993 hearing and in subsequent public comment, Beloit Corporation (Beloit) expressed concerns regarding the use of the SIC codes to define the scope of the proposed regulations. (Tr5. at 56-58 and PC. #21.) Specifically, Beloit observes that limiting the applicability of the proposed regulations only to those industries covered by SIC codes 331 or 332 cause "captive foundries"[5] to be excluded from the rule.

Beloit states that a foundry operated by one of its divisions would not be covered by the proposed regulations since the foundry does not possess a separate SIC code, but operates under an SIC code given to the parent company (Beloit Corporation) that covers manufacturing operations. (PC. #21, Attachment A.) Beloit contends that captive foundries must be included in this rulemaking because the process operations and the wastes generated at such foundries are the same as at any independent jobbing foundries. (PC. #21 at 2.) Also, Beloit estimates that roughly 15 percent of the Illinois foundries are captive foundries. (PC. #21, Attachment A.)

Based on a review of the information provided by Beloit, the Agency supports the inclusion of captive foundries in the proposed rulemaking. (PC. #20 at 1.) However, the Agency suggests that the Board retain a reference to SIC Code 331 and retain the exclusion for those industries identified by SIC Code 3313.

Upon review of Beloit's comments and the Agency's response, the Board agrees that captive foundries should be covered by the proposed regulations. The Board today accordingly proposes a modification at Section 817.101(a) that makes the instant proposed regulations applicable to wastes generated by captive foundry processes at business operations whose primary SIC Code is not included within the SIC Codes 331 and 332.

Except for the use of steel and foundry industry wastes for land reclamation, the proposed regulations at subsections 817.101(c) and (d) exempt the beneficial use of such wastes from the requirements of Part 817. An Agency approval is required to use the steel and foundry industry wastes for land reclamation. The proposed Section 817.101(e) required the Agency's approval to be based on a determination that such uses do not pose a threat to the public health and environment.

The Board had expressed concern regarding this provision. Specifically, the Board noted the lack of specific criteria for the Agency determination, and requested the SFG to clarify the proposed language at subsection (e). (Tr3. at 84-85.) In

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[5] A foundry operation within a diversified manufacturing company, which operates under a general manufacturing SIC code, is termed a "captive foundry".

response, the SFG proposed language changes to Section 817.101(e) that require the Agency's determination to be based on compliance with the applicable groundwater quality standards of Part 620. (Exh. 63 at 2.) The Board accepts the changes proposed by the SFG with minor modifications. In order to obtain the Agency's approval to use the steel and foundry wastes for land reclamation, the instant proposal at Section 817.101(e) requires an owner or operator to demonstrate that such use will not cause an exceedence of the applicable groundwater quality standards.

Definitions

Part 810 contains definitions of terms pertaining to the Board's nonhazardous solid waste landfill regulations found at 35 Ill. Adm. Code 811 through 815. In the second first notice proposal the Board expanded the applicability of the existing Part 810 to include new Part 817.

The terms that are proposed for addition today are "foundry sand", "iron slag", "steel slag", "beneficially usable waste", "low risk waste", and "potentially usable waste". The Board requested that the proponents provide definitions of these terms. The SFG submitted the appropriate definitions on October 22, 1993. By a Correction Order issued on December 2, 1993 the Board amended the second first notice proposal to include the definitions.

The Board initially placed the definitions of the terms "beneficially usable waste", "low risk waste", and "potentially usable waste" at proposed Section 817.102, under the impression that their use was unique to Part 817. The remaining definitions were included in the general definitions applicable to the Board's waste regulations at Section 810.103. However, upon further review it has come to the Board's attention that the terms defined in Section 817.102 are also referenced in Part 814. In order to avoid repeating the definitions in Part 814, the Board has moved the definitions from Section 817.102 to 35 Ill. Adm. Code 810.103. Thus, the instant proposal includes all the new definitions under Section 810.103.

Since it is now unnecessary, Section 817.102 is also proposed today to be deleted.

In its final comments the Agency requested that the Board consider incorporating the definition of "qualified groundwater scientist" in this rulemaking. (PC. #20.) The definition defines certain requirements for individuals representing themselves as being qualified to make decisions on groundwater investigations and contaminant transport processes. The Agency states that the definition is included in federal programs and does not require a state certification, but does require that the individual performing the work possess the education and training in this area of environmental work. (PC. #20.)

The Board notes that the definition of "qualified groundwater scientist" was included in the Board regulations at Section 811.326 in the Subtitle D identical in substance rulemaking (Docket R93-10). However, the Subtitle D amendments limited the applicability of the definition of the term "qualified groundwater scientist" to Section 811.326, which applies only to Subtitle D facilities. Even though the Board appreciates the Agency's intent, the Board is reluctant to include the definition under Part 810 at this time since the regulated community has not had an opportunity to comment on the merits of such an inclusion.

Determination of Waste Status (Section 817.103)

This Section sets forth the test methods for obtaining representative waste samples and extracting leachate from each waste stream for waste characterization purposes. The proposed regulations prescribe ASTM Methods D2234-76 and D3987-85 for sample collection and leachate extraction, respectively. The proposed regulations also provide that in some circumstances the samples may be obtained from other, similar landfills.

WMI questioned the use of the ASTM Method D3987-85 for leachate extraction instead of the Toxicity Characteristics Leaching Procedure (TCLP). (PC. #18.) WMI believes that the proposed test method is less aggressive than the TCLP test. WMI's comments request the Board to explain the basis for the usage of the proposed procedure.

The Board notes that the SFG discussed the issue of appropriateness of the proposed test method during the initial hearings. (Tr1. at 96-106 and Exh. 5 at 1-4.) The SFG stated that the main difference between the ASTM test method and the TCLP is the leaching solution. An acidic solution is used in the TCLP, while distilled water is used in the ASTM test. The SFG admitted that the TCLP is more aggressive than the ASTM test method, particularly for primary metals. (Tr1. at 105.) However, the SFG stated that the ASTM method is more appropriate for steel and foundry waste landfills. The SFG noted that in monofills containing nonputrescible wastes (steel and foundry wastes), acids that lower the leachate Ph are not generated as they are in municipal solid waste landfills. (Exh. 15 at 3.) Thus, the SFG contends that a water leaching test is a more realistic model of Ph controlling factors in steel and foundry landfills, and recommends the use of a water leaching test.

The Board had previously addressed the issue of the leachate extraction procedure in adopting the existing landfill regulations. 35 Ill Adm. Code 811.202 requires leachate extraction and analysis to determine leachate characteristics. In that rulemaking, the Board specified performance standards for selecting an appropriate leachate extraction procedure instead of specifying a specific test method. The standards are that the

procedure must closely reproduce expected field conditions, and utilize an extraction solution representative of the physical and chemical characteristics of the liquid expected to infiltrate through the waste. In adopting these standards, the Board recognized that any one particular test method may not be suitable for all situations.

The Board has applied the Part 811 performance standards to evaluate the suitability of the test method proposed by the SFG and finds that the ASTM leach test is an acceptable leachate extraction procedure for steel and foundry wastes.

Sampling Frequency (Section 817.104)

The proposed regulations at Section 817.104 require the testing of all individual waste streams on an annual basis. Additional testing of individual waste streams is required whenever there is: a change in raw materials that could result in a change in the wastes' classification; a process modification that could significantly affect the wastes' leaching characteristics; or an addition of a new process which may generate a new waste material.

At the October 1, 1993 hearing the Board noted that the condition relating to process modification at Section 817.104(b)(2) was ambiguous. Specifically, the Board requested the SFG to clarify what "significantly affect the wastes' concentration" means. (Tr4. at 89.) The SFG submitted language changes to Section 817.104(b)(2) that clarify the proposed intent. (Exh. 57.) Essentially, the proposed changes would require additional testing whenever a process modification results in a change in the waste's leaching characteristics. Today's proposal at Section 817.104(b)(2) reflects the changes proposed by the SFG.

Waste Classification (Sections 817.105 and 817.106)

The proposed regulations classify the steel and foundry wastes as "beneficially usable waste" (BUW), "potentially usable waste" (PUW), and "low risk waste" (LRW), based on the leachate concentration levels. For each class of waste, the SFG has proposed maximum allowable leachate concentrations (MALCs) for a selected list of chemical constituents. The list of constituents are classified into two groups, namely, primary standards and secondary standards. The constituents listed under primary standards are the ones that have health-related concerns. The "secondary" constituents are the ones that have aesthetic rather than health-related concerns.

The MALCs were revised in the second revised proposal. The amendments included the revision of MALCs of primary inorganic constituents to comport with the Illinois groundwater standards, and the addition of a number of organic compounds to the list of

primary constituents. The SFG noted that the organic constituents were added to address the Agency's concerns with the organics used as binders in foundry molds. (Exh. 53 at 2.)

BUW. The MALCs for all the primary constituents correspond to the Class I groundwater quality standards at 35 Ill. Adm. Code 620.410, except for barium and lead. The SFG stated that the Part 620 standards were chosen as the benchmark for BUW since they are recognized by Illinois as the appropriate groundwater standards. (Exh. 53 at 2.) However, it appears that due to an oversight the SFG did not update the MALCs for barium and lead. WMI's comments also note the differences between the proposed MALCs and the Class I groundwater quality standards. (PC. #18.) The proposed MALC for barium is 1.0 mg/l and for lead the MALC is 0.05 mg/l, while the applicable Class I groundwater quality standards for barium and lead are 2.0 mg/l and 0.0075 mg/l, respectively. The Board has corrected this oversight in the instant proposal.

For secondary constituents, the MALCs are based on secondary MCLs[6] (SMCLs) and the groundwater quality standards[7]. WMI has questioned the technical basis for the MALCs, particularly for those set at higher than the Class I groundwater quality standards. Among the secondary constituents, only the proposed MALCs for chloride and copper are higher than the Class I groundwater quality standards[8]. The SFG states the secondary MALCs are based on an estimation of the accuracy of the test for predicting concentrations of constituents, and the likelihood of the selected constituents being present in the leachate. (Exh. 5 at 5.)

The Board recognizes that the higher MALCs for chloride and copper may pose a potential threat to groundwater contamination. However, the Board will retain the proposed MALCs in the instant proposal given the nature of the secondary constituents.

PUW. The MALCs for most of the primary constituents, including the organic constituents are set at twice the level of MALCs for BUW. Exceptions are selenium, fluoride, and total xylenes for which the MALCs are set at the same level as the MALCs for BUW. In this regard, the Board notes that the MALCs for PUW were set at the same level as those for BUW for all

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[6] Chloride - SMCL; manganese - 3 times SMCL; and copper - 5 times SMCL.

[7] The following secondary constituents are set at the Class I groundwater quality standards: iron, sulfates, zinc, and TDS.

[8] MALC for chloride - 1.25 times the Class I groundwater quality standard; and MALC for copper - 8.8 times the Class I groundwater quality standard.

primary constituents in the SFG's initial proposal (2-4-90). The SFG did not provide any justification for the revised MALCs for PUW. WMI also expressed serious concern regarding the proposed MALCs for PUW. The Board here discusses the implications of the SFG's revision of PUW levels under the disposal standards for PUW landfills.

Except for manganese and zinc, the PUW MALCs for the secondary constituents are set at the same levels as the MALCs of BUW. The MALCs for manganese and zinc are set at five times and two times the BUW-level, respectively. The SFG stated that some waste streams have higher manganese and zinc concentrations than the MCLs. (Exh. 15 at 1.) Further, the SFG noted that having classification criteria for these constituents above the secondary drinking water criteria is not likely to have a deleterious environmental impact, since the constituents are commonly found in shallow groundwater and are of concern principally for aesthetic reasons. (Exh. 5 at 6.)

LRW. For the most part, the MALCs for primary constituents are set at five times the MALCs for BUW[9]. The exceptions are cadmium (10 x BUW), chromium (2.5 x BUW), nitrate (3 x BUW), and 1,2-dichloroethane (3.4 x BUW). The SFG states "that the proposed criteria for LRW are intended to be conservative, particularly since the Ham study found that leaching tests tend to overestimate the release of primary drinking water parameters from foundry wastes". (Exh. 5 at 5.) The MALCs for the secondary constituents are set at 2 to 25 times the MALCs for BUW.

The Board notes that under the proposed Section 817.106(b) the Agency could, pursuant to a permit, allow exceedences of any secondary standard provided that the permit applicant shows that such increases would not adversely affect human health or the environment. The Board expressed concern regarding this proposed provision. (Tr5. at 48.) The Board wanted to know whether this provision was intended to be applicable to only permitted facilities. Also, the Board requested the SFG to comment on whether a groundwater impact assessment performed pursuant to proposed Section 817.413 was intended to constitute an adequate showing required by subsection (b). Roy F. Weston, Inc. (Weston) also requested clarification regarding applicability of Section 817.106(b). (PC. #17.)

The SFG submitted language changes to address the Board's concerns. (Exh. 65.) These changes clarify that the proposed provision is applicable to both permitted and unpermitted facilities, and incorporate the Board's suggestion concerning the groundwater impact assessment. The Board accepts the SFG's

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[9] The comparison does not reflect the changes made by the Board in today's proposal.

revisions with minor changes, which clarify the applicable groundwater quality standards. Today's proposal reflects the language changes at Section 817.106(b).

Waste Mining (Section 817.107)

The instant proposed regulations at Section 817.107 specify the requirements for waste mining at landfills covered by Part 817, including previously abandoned or closed units. The SFG stated that the waste mining requirements were proposed in response to the Agency's suggestion to provide for a continuation of current practice. (Exh. 53 at 2.)

In outline, Section 817.107 requires an owner or operator intending to mine steel and foundry waste to: develop a closure plan for the mining area prior to initiating mining activities; amend the closure plan if wastes are discovered in the landfill that exceed the MALCs for low risk wastes; initiate closure if no waste is removed over a period of one year; and complete closure of disturbed areas in accordance with the closure plan. The proposed regulations prohibit the disposal of new wastes in mined areas of a landfill during or after the mining operation unless the closure plan allows such disposal.

The Board has made minor non-substantive changes in today's proposal at Section 817.107. These changes clarify that the person or entity responsible for complying with the mining requirements is the owner or operator of the landfill. The Board notes that these changes are consistent with the clarification provided by the SFG concerning the responsible party. (Tr4. at 93.)

Also, the Board has made clarifying changes to subsections 817.107(b) and (c) that require the owner or operator to submit the closure plan to the Agency. In this regard, the Board notes that the proposed language did not state to whom the owner or operator must submit the closure plan.

PART 817.Subpart B: Standards for Management of Beneficially Usable Steel and Foundry Wastes

This Subpart sets forth limitations on use of BUW and requirements relating to notification and long-term storage of BUW. The standards of this Subpart along with 35 Ill. Adm. Code 811.101 and 811.102 apply to all steel and foundry wastes not exempt under Section 817.101 that meet the MALCs for BUW.

WMI states that the standards for management of BUW must include all the general standards specified under 35 Ill. Adm. Code 811.Subpart A, not just Sections 811.101 and 811.102. (PC. #18.) Part 811.Subpart A includes standards for surface water drainage, survey controls, compaction, daily cover, operating standards, etc., which are appropriate for a disposal site.

However, Part 817.Subpart A standards deal with the management of BUW, which include use and storage and not disposal. The Board believes that the proposed regulations adequately address the management of BUW. Further, the Board notes that proposed Section 817.204, which requires inactive storage areas to be closed in accordance with Part 817.Subpart C, addresses WMI's concerns regarding disposal of BUW.

Limitations on Use (Section 817.202)

Section 817.202 sets forth restrictions on use of BUW. Mainly, the proposal allows BUW to be used only as a substitute for commercially available materials, including soil used for land reclamation. Any person who stores BUW is required to take all necessary actions to ensure that waste piles do not present nuisance problems.

As proposed, Section 817.202(c) required the open face of the "unit" and all other areas within the facility boundary to be restricted to prevent unauthorized entry. The Board expressed concern regarding the use of the term "unit" to describe a storage pile, since the existing definition of "unit" refers to disposal. (Tr4. at 96.) The SFG submitted changes to clarify subsection (c) to address Board concerns. (Exh. 57.) Today's proposal reflects the changes submitted by the SFG.

Notification (Section 817.203)

Today's proposal requires a generator of wastes regulated by Section 817.Subpart B, and persons conducting waste mining under Section 817.107, to certify that waste sent to an off-site beneficial use meets the MALCs for BUW. A copy of the certification must be provided with each shipment. In addition, a generator of waste must submit to the Agency for each new recipient of the waste and each new use location the following information: a description of the waste generating process; a demonstration that material handling activity will not cause a release or threat of release of contaminants to the air or water to cause violation of Board standards; physical description of the waste stream; results of leachate analysis; physical analysis of the waste; ground monitoring data, if available; and a description of the proposed use.

Long-term Storage (Section 817.204)

This Section sets forth requirements for storage piles regulated under Part 817.Subpart B. As proposed, any storage pile that has not had waste added to or removed from the pile for more than one year must be closed as a landfill in accordance with the provisions of Part 817.Subpart C.

The Board has expressed concern regarding the proposed storage requirements. (Tr4. at 58-65.) Mainly, the Board noted

that the proposed language did not clearly reflect the SFG's intent. The Board suggested that the SFG consider the existing definition of "waste pile" under Part 810 in articulating storage requirements for BUW (Tr4. at 65), and the SFG submitted language changes based on the definition of "waste pile" (Exh. 63 at 3). These changes require an owner or operator to demonstrate that the waste is being added to or removed from the pile in order to keep the storage pile open beyond one year.

The storage requirements also allow an owner or operator to obtain an extension of the closure requirement for up to six months. WMI's comments express concern regarding this provision. Specifically, WMI states that the proposed language that allows for a "request for quotations or similar evidence" to be used as proof that a specific market exists for the material is vague and should not be the basis for a closure extension. (PC. #18.) WMI believes that an extension of closure should be based on a legally binding document, such as an executed sales contract. The Board finds that WMI's concerns are valid and deletes references to "request for quotation" in the instant proposal.

Part 817.Subpart C: Standards for Potentially Usable Waste Landfills

The PUW landfill standards are proposed to be the same as the standards for inert waste landfills in the existing Board regulations at 35 Ill. Adm. Code 811.Subpart B. However, the proposed maximum allowable leachate concentrations (MALCs) for PUW at Section 817.106 are set at twice the allowable leachate levels for inert waste landfills under Section 811.202.

The Board expressed concern regarding the proposed standards for PUW landfills at the hearings held on October 1, and November 19, 1993. (Tr4. at 67-70 and Tr5. at 35-43). Mainly, the Board questioned the adequacy of the proposed PUW landfill standards to protect against groundwater contamination in the absence of safeguards such as location restrictions based on geologic setting, leachate containment systems, and groundwater monitoring.

In response, the SFG submitted additional location standards for PUW landfills. (PC. #19 at 7-9.) As noted earlier in this opinion, the Board will be considering the merits of the new requirements in Docket B. However, the remaining portion of proposed standards for PUW landfills are discussed in the following sections. The Board notes that it does not discuss those Sections of the proposed regulations that are identical to the Board's inert waste landfill regulations.

Scope and Applicability (Section 817.301)

As proposed, the standards of Part 817.Subpart C and the requirements of 35 Ill. Adm. Code 811.Subpart A apply to all

landfills accepting only PUW. The Board notes that Part 811.Subpart A contains general standards for all landfills. These standards relate to location, surface water drainage, survey controls, compaction, daily cover, operation, closure, and postclosure care.

In the instant proposal, the Board has made a minor change in Section 817.301 that clarifies that a landfill regulated pursuant to this Subpart may accept BUW for disposal. In this regard, the Board notes that the proposed long-term storage requirements for BUW at Section 817.204 specifies that BUW storage sites must be closed in accordance with the requirements of Part 817.Subpart C if certain conditions are not met. Also, the new location standards submitted by the SFG prescribe less stringent location restrictions for PUW landfills accepting only BUW. (PC. #19 at 8.) Therefore, the Board believes that the clarification of applicability is consistent with the proposed intent.

Design Period (Section 817.302)

The proposed design period for PUW landfills is the same as that specified for inert waste landfills at 35 Ill. Adm. Code 811.203.

Final Cover (Section 817.303)

The proposed regulations require a minimum of 0.46 meters (1.5 feet) of soil material to be applied over all disturbed areas as final cover unless otherwise specified in a permit or other written Agency approval. The soil material must be capable of supporting vegetation that prevents or minimizes erosion. The Board notes that the proposed final cover thickness is half the thickness required for inert waste landfills under 35 Ill. Adm. Code 811.204.

The Board has questioned the specification of the reduced final cover thickness. (Tr4. at 97-98.) The SFG stated that the proposed thickness is based on the results of a study that found that the maximum root penetration depth of cover materials at a landfill was 18 inches. (Exh. 3 at 4.) Therefore, the SFG contends that the proposed thickness is adequate to support vegetation and minimize potential for root penetration. The Board accepts SFG's arguments and retains the proposed final cover thickness.

Final Slope and Stabilization (Section 817.304)

The proposed standards are the same as those specified for inert waste landfills at 35 Ill. Adm. Code 811.205.

Leachate Sampling (Section 817.305)

The requirements of this Section parallel the leachate sampling requirements for inert waste landfills under 35 Ill. Adm. Code 811.206. However, the proposed regulations specify some additional requirements regarding steps to be taken by an owner or operator in the event of an exceedence of any PUW MALC.

All PUW landfills are required to be designed to include a leachate monitoring system capable of collecting representative samples of leachate generated by the waste. Every six months leachate samples must be collected and analyzed for all constituents listed in Section 817.106 to determine whether the MALCs for PUW have been exceeded. The proposed regulations at Section 817.305(c) allow the frequency of leachate testing for organic chemicals to be reduced to once every two years if the results of testing indicate that the MALCs for organic chemical constituents for PUW have not been exceeded for four consecutive sampling periods.

Section 817.305(c) sets forth the steps to be taken by an operator if the leachate testing confirms an exceedence of PUW MALCs. The operator is required to notify the Agency within 10 days following the finding. Further, the operator must determine the cause of the exceedence, and whether the exceedence is attributable to the facility. Upon determination that the facility leachate exceeds the MALCs for PUW, the facility will be immediately subject to the LRW landfill requirements under 35 Ill. Adm. Code 814.602. If the facility leachate exceeds the MALCs for LRW, then the facility is required to cease accepting waste and close in accordance with Part 811. The results of the leachate analysis must be included in the quarterly groundwater reports submitted to the Agency in accordance with Part 813 for permitted facilities or Part 815 for unpermitted facilities.

Load Checking (Section 817.306)

The proposed load checking requirements are essentially the same as those specified for inert waste landfills at 35 Ill. Adm. Code 811.207.

Closure and Nuisance Precautions (Sections 817.307 and 817.308)

As suggested by the SFG, the Board today deletes the proposed closure and nuisance requirements since they are covered by Part 811.Subpart A, which is applicable to all PUW landfills. (Tr4. at 33 and Exh. 63 at 4.)

Part 817.Subpart D: Standards for Low Risk Waste landfills

The proposed regulations require LRW landfills to be designed and operated in accordance with standards similar in scope to those specified for the putrescible and chemical waste landfills at 35 Ill. Adm. Code 811.Subpart C. For the most part,

the proposed standards mirror the existing regulations. However, certain requirements in the existing regulations have been either relaxed or changed.

The SFG has stated that the reduced standards are justified since the LRWs present a relatively lower risk of harm to the environment. (Statement of Reasons at 4.) The Board notes that major substantive changes and modifications to the existing regulations relate to liner and final cover thickness, operation of the leachate collection system, groundwater impact assessment, design period, groundwater monitoring period, and groundwater quality standards.

The Board notes that the SFG has made a number of substantive changes to the proposed LRW landfill standards since the filing of the initial proposal in December 1990. The SFG made these changes to address both the Board's and the Agency's concerns. Even though the Board still has some concerns regarding certain requirements, the Board believes that the proposed LRW landfill standards plus the additional changes submitted by the SFG at the recent hearings are protective of human health and the environment.

In the following discussion, the Board will address only those requirements which have been derived by modifying or changing the existing landfill regulations. A discussion of the remaining standards, which are essentially the same as those for chemical and putrescible waste landfills, may be found in Board opinions adopted in Docket R88-7[10].

Scope and Applicability (Section 817.401)

This Section is essentially the same as 35 Ill. Adm. Code 811.301 except for changes that reflect the applicability of this Subpart to LRW landfills instead of putrescible and chemical waste landfills.

Facility Location (Section 817.402)

This Section is same as 35 Ill. Adm. Code 811.302.

Design Period (Section 817.403)

The design period is the period of time for which a structure at a landfill must be designed to perform properly. All environmental control structures such as liners, leachate collection systems, etc., must consist of materials and equipment that can function over the entire design period. The proposed design period for LRW disposal units is the operating life plus 20 years of postclosure care.

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[10] See preceding footnote.

The 20-year postclosure care period is less than the 30-year postclosure care period specified for chemical waste landfills at 35 Ill. Adm. Code 811.303. This issue was considered at hearing. (Exh. 13 at 6.) In this regard, the Board notes that the existing regulations do not allow the reduction of design period for chemical waste landfills because biodegradation is not expected to occur in such landfills. (Board's Final Opinion in R88-7, Appendix 1 at 29-30.) In other words, chemical waste landfills tend to generate contaminated leachate over a longer time period.

The SFG argues that the leachate quality from LRW landfills will tend to remain very consistent with time during the operating life of the site. Further, SFG states that once the site is closed the wastes will tend to stabilize, and a reduction in leachate strength will occur. (Exh. 3 at 5-6.) In view of this, the SFG believes that a design period which includes the operating life of the site plus 20 years should be adequate for the design of liners and leachate collection systems for LRW landfills. The SFG submitted a number of technical reports concerning the impact of foundry waste leachate on groundwater to support its position. (Exh. 7b, 7c, 8, and 26.)

After a review of the technical information submitted by the SFG, the Board finds that the proposed design period is adequate for the design and construction of LRW landfills. Even though the design period seemingly limits the postclosure care period to 20 years, the Board notes that the termination of certain postclosure care requirements such as groundwater monitoring, leachate monitoring, etc., would be determined by other criteria. For example, under the proposed regulations, groundwater monitoring may be terminated only if the conditions of Section 817.415(a)(1)(C) are met. Thus, compliance with certain requirements that ensure protection of human health and the environment may have to be continued beyond the design period.

Foundation and Mass Stability Analysis (Section 817.404)

The requirements proposed in this Section are essentially the same as those specified at 35 Ill. Adm. Code 811.304, except for language changes at Sections 817.404(a) and 817.404(b) relating to leachate collection systems.

The Board notes that the existing regulations specify foundation and mass stability standards for the protection of the "liner leachate collection system". However, the SFG proposal contained no reference to the leachate collection system in the foundation and mass stability standards proposed for Sections 817.404(a) and 817.404(b). The Board has added a reference to the "leachate collection system" at the appropriate subsections. The Board believes that this addition is consistent with the proposed liner requirements, which include the leachate collection system.

Foundation Construction (Section 817.405)

This Section is essentially the same as 35 Ill. Adm. Code 811.305 except for the changes that reflect the applicability of the proposed requirements to LRW landfills instead of putrescible and chemical waste landfills.

Liner Systems (Section 817.406)

The standards for liner systems proposed in this Section are essentially the same as the liner requirements specified at 35 Ill. Adm. Code 811.306, except for the thickness of the compacted earth liner. The minimum thickness of the compacted earth liner proposed at Section 817.406 (d)(1) has been reduced from 5 feet to 3 feet. The Board notes that the SFG had initially proposed a thickness of 2.5 feet, which was later increased to 3 feet in the revised proposal. The SFG submitted technical testimony in support of the proposed three-foot liner. According to the SFG's expert, a minimum of two feet would be sufficient to provide a maximum permeability of 1 X 10^{-7} cm/sec. (Exh. 3 at 2.) Further, the SFG notes that physical characteristics of the wastes and the chemical characteristics of the leachate tend to minimize potential for liner damage. Thus, SFG contends that the proposed three feet is adequate for LRW landfills.

The Board notes that the existing 5-foot liner standard at 35 Ill. Adm. Code 811.306 was adopted on the basis of extensive technical testimony, which supports that a minimum earth liner of three feet would provide an adequate margin of safety, considering that the unit would be subject to performance standards, requirements for construction quality assurance, hydrogeological investigations, liner construction and foundation, leachate collection, etc. The Board required an extra two feet to guard against "unanticipated potential for error in implementing the regulations that might be sufficient to cause more reliance on the liner than was intended" (In re: Development, Operating and Reporting Requirements for Non-Hazardous Waste Landfills, R88-7, second first notice opinion, March 1, 1990, 109 PCB 01, 41).

In the present context, the Board finds that a three-foot liner would provide an adequate margin of safety for the following reasons: the LRW landfills are subject to performance standards, construction quality assurance, foundation, etc. that are comparable to the existing standards for chemical waste landfills; and, due to nature of the waste there is no significant need to allow for potential physical and chemical damage to the liner.

Today's proposal also reflects a minor language addition at Section 817.406(e)(2) that corrects a typographical oversight. The Board has added the term "hydraulic" between the words

"continuous" and "connection". This correction is consistent with the language changes submitted by the SFG. (Exh. 63 at 5.)

Leachate Management System (Sections 817.407, 817.408, and 817.409)

The proposed regulations prescribe standards for leachate management at LRW landfills. These include drainage, collection, and treatment and disposal standards. These standards are essentially the same as those specified in the Board's existing regulations at 35 Ill. Adm. Code 811.307, 811.308, and 811.309, except for certain changes relating to operation of the leachate collection system and leachate monitoring.

The major operational change proposed by the SFG allows the use of leachate drainage and collection systems for the purpose of storing leachate. As proposed at Section 817.409(a), leachate must be removed from the drainage and collection system when the leachate level interferes with the landfill operation. In contrast, the Board's existing regulations prohibit storage of leachate in the drainage and collection systems. 35 Ill. Adm. Code 811.309 requires leachate to be allowed to flow freely from the drainage and collection system. Also, existing regulations at 35 Ill. Adm. Code 811.307 require that the leachate drainage system to be designed to maintain a maximum leachate head of one foot above the liner.

The SFG stated that because of the nature and characteristics of foundry and steel wastes, and the lack of significant environmental impacts associated with the existing disposal facilities which contain these wastes, a leachate collection system designed for a new monofill should not have to function like a conventional municipal solid waste landfill collection system. (Exh. 3 at 5.) According to the SFG, the basic purpose of the proposed leachate collection system is to provide a mechanism for periodic head reduction in those instances where leachate level interferes with site operation. In addition, the SFG also stated that routine leachate removal would result in economic problems. (Tr4. at 73 and 75.)

Both, the Board and the Agency expressed concerns regarding the allowable leachate head within the landfill unit. (Tr4. at 71-72 and 77-79.) In response, the SFG submitted language changes to Section 817.409(a), which limit the leachate head within the landfill unit to 10 feet. (Exh. 63 at 5.) The SFG's expert stated that the ten-foot head is reasonable since to sustain such a head, recharge must be in the range of six inches per year, which is a fairly conservative number. (Tr4. at 79.) The SFG's expert also stated that the groundwater contaminant transport modeling results were not particularly sensitive to leachate head in the range of 1 to 10 feet. (Tr4. at 74.)

One of the Board's main concerns regarding the proposed operational change, i.e. removing leachate only when the head exceeds 10 feet, is leakage of leachate through the liner. WMI has expressed similar concern regarding the proposed leachate management standards. (PC. #18.) In this regard, the Board notes that existing regulations require leachate head to be maintained at one foot mainly to minimize the leakage of leachate through the liner. (Board's final notice opinion, Appendix A1 at 38.) However, the Board believes that a higher operating leachate head may be appropriate for LRW landfills, principally because of the physical and chemical characteristics of the wastes. Also, studies (Exh. 7b and 8) submitted by the SFG indicate that LRW does not pose a significant threat to groundwater contamination.

Even though continuous leachate collection is not required during normal operations, the Board believes that the leachate management system must operate on a routine basis if there is any indication of groundwater contamination or threat to the liner. The Board notes that the SFG agrees with this position. Specifically, the SFG states that following closure, the leachate heads in the monofill must be monitored to determine whether or not an equilibrium level has been achieved. (Exh. 3 at 5.) Further, the SFG continues that if leachate levels rise to a point where integrity of the liner is jeopardized, the leachate collection system must be operated to reduce leachate head.

Nevertheless, the SFG version of the proposed regulations did not explicitly require monitoring of leachate head within a landfill unit. The Board accordingly has added in today's proposal a provision under Section 817.409(f) that requires monitoring of leachate head. Today's proposal also includes a minimum time period for operation of the leachate management system at Section 817.409(g)(1). The five-year period is the same as that required for leachate management systems at chemical waste landfills under 35 Ill. Adm. Code 811.309(h).

Regarding the issue of groundwater contamination, the SFG stated that the proposed regulations require the leachate collection system to be operated at maximum efficiency if there are any potential groundwater problems. Due to some inadvertent oversight such a requirement has not been proposed either under leachate management systems or groundwater monitoring requirements. The Board believes that an appropriate trigger for continuous operation of a leachate management system would be when the facility is in assessment monitoring, which is initiated whenever there is an indication of potential groundwater problems. In view of this, the Board has amended Section 817.415(b) in today's proposal to require continuous operation of leachate management during assessment monitoring.

The Board has included the language changes submitted by the SFG concerning the leachate management system in today's proposal

at Section 817.409(a) with a minor addition, which reflects the changes discussed above regarding assessment monitoring.

The Board notes that the proposed leachate monitoring requirements at Section 817.409(f) require annual monitoring of all constituents for which MALCs are specified at Section 817.106. The Board notes that this requirement is in addition to the monitoring requirements specified in the existing regulations for chemical waste landfills as specified at 35 Ill. Adm. Code 811.309(g). Section 817.409(h) sets forth the steps to be taken by an operator if the leachate testing confirms an exceedence of LRW MALCs. The operator is required to notify the Agency within 10 days following the finding. Further, the operator must determine the cause of the exceedence, and whether the exceedence is attributable to the facility. Upon determination that the facility leachate exceeds the MALCs for LRW, the facility will be immediately subject to the chemical waste landfill requirements under 35 Ill. Adm. Code 814.302. If the facility leachate exceeds the MALCs for LRW, then the facility is required to cease accepting waste and close in accordance with Part 811.

Final Cover (Section 817.410)

The requirements of this Section mirror the final cover standards specified in the Board's existing regulations at 35 Ill. Adm. Code 811.314, except for the changes relating to the thickness of the low permeability layer and the final protective layer. Section 817.407 (b)(3)(A)(i) requires the compacted earth liner to be at least 2 feet thick instead of the 3 feet required under Part 811 standards. The minimum thickness of the final protective layer at Section 817.409(c)(2) has been reduced from 3 feet to 1.5 feet.

The Board requested the SFG to explain the rationale for the proposed final cover requirements. (Tr4. at 102-104.) In response the SFG referred to expert testimony presented at the May 29, 1991 hearing. In that testimony the SFG states that a low permeability layer of at least 2 feet thickness would be suitable for achieving an effective hydraulic conductivity of 1 x 10^{-7} cm/sec. (Exh. 3 at 3.) Further, the SFG states that the physical characteristics of the steel/foundry waste make the waste ideally suited for base construction of a low permeability layer. (Exh. 3 at 4.)

Regarding the final protective layer, the SFG stated that the proposed thickness is based on the results of a study that found that the maximum root penetration depth of cover materials at landfill was 18 inches. (Exh. 3 at 4.) Therefore, the SFG contends that the proposed thickness is adequate to support vegetation and minimize potential for root penetration.

The Board accepts SFG's arguments and retains the proposed final cover requirements.

Hydrogeologic Site Investigation (Section 817.411)

The requirements proposed in this Section are essentially the same as those specified in the existing regulations at 35 Ill. Adm. Code 811.315.

Plugging and Sealing of Drill Holes (Section 817.412)

The requirements of this Section are essentially the same as those specified in the existing regulations at 35 Ill. Adm. Code 811.316.

Groundwater Impact Assessment (Section 817.413)

The proposed groundwater impact assessment standards require determination of impacts of seepage of leachate from the unit. The requirements relating to the design assumptions and determination of leachate characteristics are the same as those specified for chemical and putrescible waste landfills under 35 Ill. Adm. Code 811.317. However, the proposed regulations do not require the use of a groundwater contaminant transport (GCT) model to estimate the concentrations of the leachate constituents over time and space. Instead, an operator is required to estimate the capability of the geology and hydrogeology beneath the unit to meet the groundwater quality standards.

The Board expressed concerns regarding the proposed requirements to estimate the groundwater impact. (Tr4. at 105.) In response, SFG submitted a specific procedure to assess groundwater impacts. (Exh. 63 at 8.) This procedure first requires the determination of the aquifer hydraulic conductivity and gradient. If the hydraulic conductivity is 1 x 10^{-5} cm/sec or less, no further study of the groundwater impact is required. If the hydraulic conductivity is higher than 1 x 10^{-5} cm/sec, then the operator must determine the MALC value required to achieve compliance with the applicable groundwater quality standards. In order to do so, the operator must develop a conceptual groundwater flow model using the information collected during hydrogeologic site investigation, determine organic carbon content for soil units through which the leachate migrates, and determine the retardation factor for constituents of interest based on traditional hydrogeologic methods.

The Board notes that the SFG performed a generic groundwater impact assessment utilizing an analytical model simulating contaminant flow from the unit to the compliance boundary. (Exh. 54.) The results of the modeling indicates that compliance can be achieved under the assumed hydraulic conditions, which include an aquifer hydraulic conductivity of 1 X 10^{-5} cm/sec. Based on this finding, the SFG avers that no groundwater impact assessment is required at sites located on aquifers with hydraulic conductivity less than 1 x 10^{-5} cm/sec. (Tr5. at 23.) If the hydraulic conductivity is higher than 1 x 10^{-5} cm/sec, then the

SFG's proposal requires the use of a simplified analytical procedure to determine the MALC values required to achieve compliance with the applicable groundwater quality standards. Further, the SFG notes that in situations where the aquifer hydraulic conductivity is in the range of 1×10^{-3} cm/sec, the use of a numerical model would not make a significant difference.

Also, the Board notes that the SFG stated that the cost of developing the data and running a contaminant transport model vary widely. The SFG stated that a reasonable estimate would be in the range of $15,000 to $30,000. (Exh. 4 at 7.)

The Board accepts the procedure proposed by the SFG with minor clarifying changes and an additional provision, which defines what acceptable groundwater impact means. The Board notes that the additional provision is consistent with the SFG position that groundwater impact would not be acceptable when the modeling results are higher than the MALCs. (Tr5. at 28.)

Design, Construction and Operation of Groundwater Monitoring Systems (Section 817.414)

The requirements proposed in this Section are essentially the same as those specified at 35 Ill. Adm. Code 811.318, except for changes relating to location of monitoring points and establishment of maximum allowable predicted concentrations (MAPC).

In the SFG proposal there occurred at Section 817.414(b)(2) a requirement that the groundwater monitoring network include at least one monitoring well upgradient of the potential source, so as to provide background groundwater quality data. The SFG noted that this requirement was added at the Agency's request. (Exh. 53 at 5.) The Board notes that this provision is redundant since the proposed regulations at Section 817.416(d)(2) specify the procedures for establishing background concentrations of constituents in groundwater. In view of this, the Board has deleted the upgradient provision in Section 817.414, and renumbered the remaining subsections accordingly.

The proposed regulations at Section 817.414(c) sets forth a new procedure for establishing MAPCs, which serve as triggers for early response to potential groundwater contamination. For those constituents with a MALC, Section 817.414(c) specifies the MAPC as: background plus 10 percent of the MALC for primary constituents; and background plus 50 percent of the MALC for secondary constituents. For those constituents listed in Section 817.Appendix A, the MAPC is the practical quantitation limit (PQL), or, if the background concentration exceeds the PQL, the MAPC is the constituent's background concentration.

The Board notes that this procedure is very different from the one specified in the existing regulations at 35 Ill. Adm.

Code 811.318(c), which requires MAPCs to be established by modeling the constituent's concentration over time and space using a GCT model. The SFG noted that the proposed procedure is similar to the "preventive action limit" (PAL) used in Wisconsin for groundwater protection. (Exh. 4 at 8.) Further, the SFG avers that the procedure of establishing MAPCs under the existing regulations is not warranted for steel and foundry industry landfills. The Board accepts this proposed procedure with minor nonsubstantive language changes which clarify the proposed intent.

Groundwater Monitoring Program (Section 817.415)

The proposed groundwater monitoring requirements mirror those specified in the existing regulations at 35 Ill. Adm. Code 811.319, except for certain changes concerning the monitoring period, organic chemicals monitoring, and assessment of potential groundwater impact.

The proposed regulations at Section 817.415(a)(1)(A) specify that groundwater monitoring must be continued for a period of 15 years. The Board notes that the SFG's initial proposal specified the 15-year period as a minimum, as required by the existing regulations under 35 Ill. Adm. Code 811.319. The SFG contends that 15 years of postclosure monitoring would provide adequate protection. (Exh. 53 at 6.) The SFG asserts that due to the nature of the wastes, the impact on the leachate and groundwater would wane within the first several years after closure.

The Board believes that termination of groundwater monitoring must be based on the results of actual groundwater monitoring at a particular site, as proposed at Section 817.415(a)(1)(C). Monitoring may be discontinued if the monitoring data at the site indicates that the impact of leachate on groundwater is not significant. On the other hand, if the unit continues to impact groundwater, monitoring must be continued until such impacts subside. Therefore, the Board has made changes in today's proposal that specify a minimum groundwater monitoring period. Section 817.415(a)(1)(A) requires groundwater to be monitored for a minimum monitoring period of 5 years after closure, or, in the case of landfills other than those used exclusively for disposing of waste generated at the site, a minimum period of 15 years after closure.

The Board has also made a change in today's proposal at Section 817.415(a)(1)(C) as it relates to sites other than those used exclusively for disposing of wastes generated at the site. This change reflects that monitoring may be discontinued after a minimum period of 15 years after closure instead of a minimum period of 10 years, as proposed. The Board notes that changes in today's proposal are consistent with statutory requirements at Section 22.17 of the Act, which require groundwater to be

monitored for a minimum period of 15 years at sanitary landfills[11].

The proposed organic chemical monitoring requirements at Section 817.415(a)(3) specify a list of organic constituents that must be monitored on a biennial basis. The Board notes that the list included in today's proposal at Section 817.Appendix A contains 64 organic chemical constituents. According to the SFG, the list represents all organic chemicals known to have been used in foundry sand binders. (Ex. 53 at 6.) The Board accepts the proposed list without any changes or additions in lieu of the organic chemical list specified in the existing regulations.

The proposed regulations at Section 817.415(c) require an operator to assess the potential groundwater impact by utilizing a groundwater contaminant transport (GCT) model meeting the standards of 35 Ill. Adm. Code 811.317. The Board notes that the parallel step in the existing regulations under Part 811 requires an operator to re-calibrate the GCT model used for the initial groundwater impact assessment. However, the Board notes that the proposed requirement is consistent with the groundwater impact assessment requirements at Section 817.413, which do not require a full assessment utilizing a GCT model.

Groundwater Quality Standards (Section 817.416)

The Agency supports the use of the Part 620 standards as a compliance standard as opposed to the nondegradation:

The proposed groundwater quality standards at Section 817.416 are essentially the same as those specified for chemical and putrescible waste landfills at 35 Ill. Adm. Code 811.320. However, the SFG's testimony at the November 19, 1993 hearing raised questions regarding the applicable groundwater quality standards. (Tr5. 31-32 and 48-51.) The SFG made some conflicting statements regarding the applicable groundwater quality standards. Specifically, the SFG stated that the proposed groundwater impact assessment standards require compliance with the numeric groundwater quality standards of Part 620. The Board notes that the Part 620 standards are not the same as the groundwater quality standards proposed at Section 817.416, which are essentially background concentrations of monitored constituents.

In order to avoid any confusion regarding the applicable groundwater standards, the Board urged both the SFG and the Agency to carefully review the Board opinions issued in the groundwater quality standards rulemaking and clarify the

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[11] The definition of "sanitary landfill" covers permitted chemical waste landfills, including steel and foundry waste landfills.

applicable standards. The issue of applicable groundwater quality standards was addressed by both the Agency and the SFG in their final comments. (PC. #19 and 20.) The SFG states that the groundwater quality standards proposed at Section 817.416, which are the same as the current standards under Part 811 are inappropriate for landfills covered by this rulemaking. (PC. #19 at 2.) The SFG believes compliance with the Part 620 standards is fully protective of human health and the environment and these standards should be used in place of the nondegradation standard.

The SFG notes that the factors considered in the R89-14 rulemaking resulted in a rule that protects groundwater uses, both existing and future, rather than groundwater quality. (PC. #19 at 2.) Further, the commenters note that the Board agreed that there was no information base to develop any new nondegradation provisions for Illinois groundwaters. (PC. #19 at 3.) The SFG contends that it is not entirely logical to have a "two-tiered groundwater protection scheme" in the State: standards that are protective of human health and the environment (Part 620); and those that require a major step beyond what is economically reasonable and technically feasible. In this regard, the SFG states that a higher standard may be fitting when applied to general purpose landfills since there is a wide range of materials disposed of in such landfills. (PC. #19 at 4.) In contrast, the potential contaminants from the steel and foundry landfills will be limited to a specific set of compounds.

In addition, SFG states that the Part 811 standards are difficult to enforce because background concentration does not always provide an absolute limit for determination of violation. (PC. #19 at 4.) Also, the SFG expresses concern regarding a standard based on statistically significant changes from existing quality.

The Agency supports the use of the Part 620 standards as a compliance standard as opposed to the nondegradation standards of Part 811. The Agency states that the constituents are limited to a known set of parameters, many of which are naturally occurring. (PC. #20.) Further, the Agency notes that the regulations for existing landfills at 35 Ill. Adm. Code 814.402(b) already allow the use of promulgated numerical standards.

The Board has carefully reviewed both he Agency's and SFG's comments regarding the applicable groundwater quality standards. At the outset, the Board notes that it will not discuss the issues concerning the technical feasibility and economic reasonableness of implementing nondegradation standards in this rulemaking. These issues were discussed extensively in Dockets R88-7 and R84-17. The Board found that it is technically feasible and economically reasonable to implement nondegradation standards based on the available information relating to hydrogeology, groundwater chemistry, and statistical techniques. Further, regarding the issue of a "two-tiered groundwater

protection scheme" the Board emphasized its intention of providing for different nondegradation provisions, including more stringent provisions in the groundwater quality standards rulemaking. (Final Opinion and Order, R89-14(B) at 16.)

Therefore, the Board notes that the issue at hand is to determine what standard is appropriate for the landfills covered by this rulemaking based on: the waste characteristics; impact on groundwater; and whether the Board has adopted numeric groundwater quality standards for constituents of concern.

Regarding the waste characteristics, the Board notes that the information in the record indicates that even though certain organic constituents are associated with the steel and foundry wastes, the main constituents of concern are inorganic constituents such as chloride, zinc, sulfates, iron, copper and manganese. These inorganic constituents pose aesthetic rather than health concerns. The next factor considered by the Board is the impact on groundwater. The Board finds that since most of the constituents of concern are naturally occurring, the steel and foundry landfills will not have a significant impact on groundwater as long as the applicable groundwater quality standards are met. This finding is supported by the groundwater monitoring information in the record.

The last factor considered by the Board is whether Part 620 specifies numeric standards for all monitored constituents, which include those constituents listed in Section 817.106 plus those listed in Section 817.Appendix A. A review of the current groundwater quality standards regulations indicated that numeric standards have not been established for a number of organic constituents listed in Section 817.Appendix A. The record indicates that these chemical constituents represent organic binder additives used in foundry processes.

Based on the above discussion, the Board finds that numeric groundwater quality standards of Part 620 are appropriate for steel and foundry landfills. However, the Board believes that for those constituents for which there are no numeric standards under Part 620, the applicable standards must be based on background concentrations. In this regard, the Board notes that the SFG's proposed changes do not address constituents that are not covered in Part 620. Since organic constituents listed in Section 817.Appendix A are associated with steel and foundry wastes, the Board believes that groundwater quality standards must be established at background concentrations, as proposed in Section 817.416. In view of this, the Board accepts the changes submitted by the SFG with certain modifications.

Waste Placement (Section 817.417)

The requirements proposed in this Section are the same as those specified at 35 Ill. Adm. Code 811.321, except for certain

changes relating to phasing of operations and initial waste placement.

The SFG has proposed an additional requirement under Section 817.417(a)(2), which allows waste disposal in areas other than those specified by Section 817.417(a)(1) when equipment for waste placement is temporarily unavailable. The Board notes that the proposed exception appears to be in conflict with the operating standards at 35 Ill. Adm. Code 811.107(d), which is applicable to LRW landfills. Section 811.107(d) requires equipment to be maintained and available for use at the site during all hours of operation so as to achieve and maintain compliance. WMI has expressed similar concerns regarding the proposed exception. (PC. #18.) In order to avoid any potential conflicts, the Board deletes Section 817.417(a)(2)(D) in today's proposal.

Also, the Board has added the additional waste placement requirements submitted by the SFG (Exh. 63 at 6.) in today's proposal under Section 817.417(b). These requirements address the protection of leachate drainage and collection systems during initial waste placement. The Board notes that the additional requirements are consistent with those specified under Part 811.

Final Slope and Stabilization (Section 817.418)

The proposed standards in this Section are essentially the same as 35 Ill. Adm. Code 811.322, except that Section 817.418(d) does not require structures constructed over the closed units to be designed to vent gases from the interior. The Board notes that gas management structures are not required for steel and foundry waste landfills because such wastes are nonputrescible.

Load Checking (Section 817.419)

This Section is essentially the same as 35 Ill. Adm. Code 811.323 except that the term "program" has been removed from the Section heading.

Closure and Postclosure Care (Sections 817.420 and 817.421)

As suggested by the SFG, the Board today deletes the proposed closure and nuisance requirements since they are covered by Part 811.Subpart A, which is applicable to all LRW landfills. (Tr4. at 33 and Exh. 63 at 6-7.)

Construction Quality Assurance (Section 817.501)

The proposed regulations require all structures necessary to comply with the requirements of Part 817 to be constructed according to a construction quality program that meets the standards of 35 Ill. Adm. Code 811.Subpart E.

PROPOSED RULE

Following is the full text of the rule as today proposed. The Board notes that all provisions that are modified with respect to the second first notice proposal are indicated by redlining.

Underlining and strikeouts are employed in the conventional manner. That is, underlining signifies text that is being proposed for addition to existing text; strikeouts indicate existing text that is being proposed for deletion. Since Part 817 is entirely new, it contains neither underlining or strikeouts.

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

SUBPART A: GENERAL PROVISIONS

SUBPART B: SOLID WASTE PERMITS

SUBPART C: SANITARY LANDFILLS

SUBPART E: CLOSURE AND POST-CLOSURE CARE

SUBPART F: FINANCIAL ASSURANCE FOR CLOSURE AND POSTCLOSURE CARE

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
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. 1989~~1~~, ch. 111½, 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.

"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.

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

"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.

"Beneficially usable waste" means any solid waste from the steel and foundry industries that will not decompose biologically, burn, serve as food for vectors, form a gas, cause an odor, or form a leachate that contains constituents that exceed the limits for this type of waste as specified at 35 Ill. Adm. Code 817.106.

"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" means pure sand or a mixture of sand and any additives necessary for use of the sand in the foundry process, but does not include such foundry process by-products as air pollution control dust or refractories.

"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" means slag.

"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.

"Low risk waste" means any solid waste from the steel and foundry industries that will not decompose biologically, burn, serve as food for vectors, form a gas, cause an odor, or form a leachate that contains constituents that exceed the limits for this type of waste as specified at 35 Ill. Adm. Code 817.106.

"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.)

"Potentially usable waste" means any solid waste from the steel and foundry industries that will not decompose biologically, burn, serve as food for vectors, form a gas, cause an odor, or form a leachate that contains constituents that exceed the limits for this type of waste as specified at 35 Ill. Adm. Code §17.106.

"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 th 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.

"Slag" means the fused agglomerate which seperates in the iron and steel production and floats on the surface of the molten metal.

"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" means 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, Standard Test Method for Shake Extraction of Solid Waste with Water.

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

SUBPART B: INERT WASTE LANDFILLS

SUBPART C: PUTRESCIBLE AND CHEMICAL WASTE LANDFILLS

SUBPART D: MANAGEMENT OF SPECIAL WASTES AT LANDFILLS

Section

SUBPART E: CONSTRUCTION QUALITY ASSURANCE PROGRAMS

Section

SUBPART G: FINANCIAL ASSURANCE

Section

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

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

Section

SUBPART C: ADDITIONAL PROCEDURES FOR THE RENEWAL OF PERMITS

Section

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

Section

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 ONLY POTENTIALLY USABLE STEEL OR FOUNDRY INDUSTRY WASTE, 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

SUBPART I: STANDARDS FOR EXISTING UNITS ACCEPTING ONLY POTENTIALLY USABLE STEEL OR FOUNDRY INDUSTRY WASTE THAT PLAN TO STAY OPEN FOR MORE THAN TWO YEARS

Section
814.901 Scope and Applicability

814.902 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 and

are classified as low risk waste landfill in accordance with subsection (c), below. 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.

c) An owner or operator shall demonstrate that the existing landfill unit is a low risk waste landfill unit pursuant to 35 Ill. Adm. Code 817.105 and 817.106 as follows:

1) Collecting a representative sample of undiluted and unattenuated landfill leachate obtained in accordance 35 Ill. Adm. Code 817.103(b)(3); or

2) Extracting leachate from representative core samples obtained from the existing unit. The core samples shall be individually extracted by using the procedure specified in 35 Ill. Adm. Code 817.103(a) and the resulting leachate shall be used for waste classification purposes.

(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 maximum allowable predicted concentrations pursuant to 35 Ill. Adm. Code 817.414.

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 applicable groundwater quality standards, as provided at 35 Ill. Adm. Code 817.416(a)(1), will not be exceeded at the compliance boundary, no leachate collection or transport system shall be required. At a minimum, such proof shall include a groundwater impact assessment performed in accordance with 35 Ill. Adm. Code 817.413;

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 x 3 = 9 years is less than the 15 year minimum specified in subsection (b) (3) (A); or 20 years since 3 x 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 and are classified as low risk waste landfill in accordance with subsection (c), below.. 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.

c) An owner or operator shall demonstrate that the existing landfill unit is a low risk waste landfill unit pursuant to 35 Ill. Adm. Code 817.105 and 817.106 as follows:

1) Collecting a representative sample of undiluted and unattenuated landfill leachate obtained in accordance 35 Ill. Adm. Code 817.103(b)(3); or

2) Extracting leachate from representative core samples obtained from the existing unit. The core samples shall be individually extracted by using the procedure specified in 35 Ill. Adm. Code 817.103(a) and the resulting leachate shall be used for waste classification purposes.

(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), 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 817.407 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 not apply for supplemental waste stream permits to accept new special wastes. However, the unit may continue to accept special waste under permits existing prior to the effective date of this Section and may renew those permits as necessary.

3) 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 groundwater 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 x 3.)

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

SUBPART H: STANDARDS FOR EXISTING UNITS ACCEPTING ONLY POTENTIALLY USABLE STEEL OR FOUNDRY INDUSTRY WASTE, OR ACCEPTING ONLY 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 usable 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 _____ _____)

SUBPART I: STANDARDS FOR EXISTING UNITS ACCEPTING ONLY POTENTIALLY USABLE STEEL OR FOUNDRY INDUSTRY WASTE THAT PLAN TO STAY OPEN FOR MORE THAN TWO YEARS

Section 814.901 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 only potentially usable waste and are classified as potentially usable waste landfills in accordance with subsection (c), below. 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 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.

c) An owner or operator shall demonstrate that the existing landfill unit is a low risk waste landfill unit pursuant to 35 Ill. Adm. Code 817.105 and 817.106 as follows:

1) Collecting a representative sample of undiluted and unattenuated landfill leachate obtained in accordance 35 Ill. Adm. Code 817.103(b)(3); or

2) Extracting leachate from representative core samples obtained from the existing unit. The core samples shall be individually extracted by using the procedure specified in 35 Ill. Adm. Code 817.103(a) and the resulting leachate shall be used for waste classification purposes.

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

Section 814.902 Standards for Operation and Closure

a) All units regulated in this Subpart are subject to all requirements in 35 Ill. Adm. Code 817.Subpart C.

b) If an owner or operator of unit regulated under this Subpart is unable to obtain the representative leacahte samples required pursuant to 35 Ill. Adm. Code 817.305(a), representative core samples shall be taken at appropriate locations in the unit. Each sample shall be individually subjected to the extraction procedure prescribed in 35 Ill. Adm. Code 817.103(a). The resulting leachate from the extraction procedure shall be substituted for that to be collected pursuant 35 Ill. Adm. Code 817.305(a).

(Source: Added 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 815
PROCEDURAL REQUIREMENTS FOR ALL LANDFILLS EXEMPT FROM PERMITS

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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 Facilities

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

b) Existing steel and foundry landfills regulated pursuant to 35 Ill. Adm. Code 814.Subparts F, G, H, and I

An amended initial facility report shall be filed 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.

(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 817
REQUIREMENTS FOR NEW STEEL AND FOUNDRY INDUSTRY WASTES LANDFILLS

SUBPART A: GENERAL REQUIREMENTS

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

SUBPART C: STEEL AND FOUNDRY INDUSTRY POTENTIALLY USABLE WASTE LANDFILLS

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

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 the non-putrescible wastes produced by the following processes:

1) The steel and foundry processes covered by SIC Codess 331 and 332 with the exception of those industries identified by SIC code 3313; and

2) The steel and foundry processes at business operations whose primary SIC Code is not included within the SIC Codes 331 and 332.

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 Agency may approve the use of iron and steelmaking slags and foundry sands for land reclamation purposes upon a demonstration by the owner or operator that such uses will not cause an exceedance of the applicable groundwater quality standards specified at 35 Ill. Adm. Code 620.

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 817.103 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 that could result in a change in the waste's 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	2.0	2.0	5.0
Cadmium	0.005	0.01	0.05
Chromium	0.1	0.2	0.25

Lead	0.0075	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, upon application by an owner or operator, may allow exceedences of any secondary standard provided that the applicant can make an adequate showing, using the groundwater imapcat assessment procedures of Section 817.413, that the limit increase will not result in an exceedence of the groundwater quality standards specified at Section 817.416.

Section 817.107 Waste Mining

a) Owner or operator may mine landfills covered by this Part, including previously abandoned or closed units to recover useable materials, in accordance with this Section. The handling, storage, and ultimate use of the mined wastes shall conform with the requirements of this Part.

b) Owner or operator shall develop a closure plan for the mined area. The closure plan shall be consistent with the closure requirements of Subpart C of this Part. The closure plan shall be submitted to the Agency prior to initiating mining activity.

c) If the facility is conducting mining operations on the effective date of this rule, the owner or operator shall submit a closure plan to the Agency 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 MALCs for low risk wastes, the owner or operator shall amend the closure plan 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 owner or operator shall initiate closure.

f) Following completion of the mining activity, those portions of the landfill that were disturbed and that still contain waste shall 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 beneficially usable waste storage area 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

a) A storage pile that is regulated by this subpart shall be closed as a landfill pursuant to the provisions of Subpart C of this Part unless the owner or operator can demonstrate that wastes have either been added to or removed from the unit within the preceding year. At a minimum, such demonstration shall include photographs, records or other observable or discernable information.

b) An owner or operator of a storage pile may obtain up to a six month extension of the closure requirement from the Agency upon providing proof, in the form of a past or present sales contract or similar evidence, that a specific market for the material exists.

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. The landfills regulated by this Subpart may accept beneficially usable waste for disposal

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 $1x10^{-7}$ 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 $1x10^{-7}$ 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 hydraulic 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 $1x10^{-3}$ 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 or exceeds ten feet, or when the unit is subject to assessment monitoring in accordance with Section 817.415(b). 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.

3) The operator shall also monitor the leachate head within each unit.

g) Time of operation of the leachate management system:

1) The operator shall collect and dispose of leachate for a minimum period of 5 years after closure until treatment is no longer necessary.

2) Treatment is no longer necessary if the leachate constituents do not exceed the wastewater effluer

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 $1x10^{-7}$ 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 t 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 extend 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 made in accordance with the following:

A) Determine the aquifer conductivity and gradient using the hydrogeologic information collected pursuant Section 817.411. If the aquifer conductivity is 1 x 10^{-5} cm/sec or less, no furthergroundwater imapct assessment is required;

B) Develop a conceptual groundwater flow model of the site to determine the soil units through which leachate constituents may migrate;

C) Determine the organic carbon content for soil units through which the leachate constituents may migrate;

D) Determine the retardation factor for constituents of interest based on traditional hydrogeological methods;

E) Determine MALC values for constituents of interest required to achieve compliance with the applicable groundwater quality standards specified at Section 817.416;

F) Compare the calculated MALC values to the leachate values for the expected waste streams to determine whether compliance with groundwater standards can be met.

b) Acceptable groundwater impact assessment. The groundwater impact shall be considered acceptable if the leachate values for the expected waste streams are less than the MALC values calculated in accordance with subsection 817.413(a)(3)(F).

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) Monitoring wells shall be located in stratigraphic horizons that could serve as contaminant migration pathways.

3) 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.

4) 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.

5) 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) MAPCs for those constituents with an MALC identified as a primary standard shall be background plus 10 percent of the MALC. MAPCs 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 practical quanitation limit (PQL) or, if the constituent's background concentration exceeds the PQL, 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 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 minimum period of five years after closure or, in the case of landfills, other than those used exclusively for disposing waste genrated at the site, a minimum 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 fifteen 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)(4)(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 applicable groundwater quality standard at or beyond the zone of attenuation. The applicable groundwater quality standard established for any constituent shall be:

A) The Board established standard;

B) The Board-established standard adjusted by the Board in accordance with the justification procedure of subsection (b) below; or

C) For those constituents where no Board established standard exists, the applicable standard is the background concentration.

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:

A) "Background concentration" means that concentration of a constituent that is established as the background in acccordance with subsection (d).

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 do not meet the standards of 35 Ill. Adm. Code 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 non-parametric 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) Construction, compaction and earth moving equipment shall be prohibited from operating directly on the leachate collection piping system until a minimum of five feet of waste has been placed over the system.

2) Construction, compaction and earth moving equipment shall be prohibited from operating directly on the leachate drainage blanket. Waste disposal operations shall begin at the edge of the drainage layer by carefully pushing waste out over the drainage layer.

3) 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.

4) 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.

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

ORDER

The Board hereby opens Docket B in this matter, consistent with the purposes expressed in the opinion in this matter.

IT IS SO ORDERED.

Member Emmett E. Dunham, II abstains.

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 31st day of March, 1994, by a vote of 4-0.

Dorothy M. Gunn

Dorothy M. Gunn, Clerk
Illinois Pollution Control Board