RESPONSE TO COMMENTS ON

PROPOSED PARTS 807 THROUGH 815

R88-7

NONHAZARDOUS SOLID WASTE LANDFILL REGULATIONS

by

The Scientific/Technical Section,
Illinois Pollution Control Board

March 1, 1990

INTRODUCTION

This document addresses and responds to the comments received since the First Notice of February 25, 1988 on the Board's proposed Non-hazardous Solid Waste Landfill regulations in the R88-7 proceeding. In preparing this document, the R88-7 First Notice language and comments on the proposal have been reviewed section-by-section by the Scientific/Technical Section (STS) staff of the Illinois Pollution Control Board consisting of Dr. Harish G. Rao, STS Chief, Mr. Anand Rao and Mr. Morton Dorothy, STS staff scientists. The STS review was carried out with the help of consultants, Mr. Richard A. DiMambro (RAD), Dr. Robert K. Ham (RKH) and Dr. Aaron A. Jennings (AAJ). STS has provided recommendations and suggested language changes to reflect these recommendations. In some instances, STS has suggested optional language for Board consideration. Reference is made throughout this document to the Backgound Report, which is the report prepared by STS and included as Exhibit 1 in the R88-7 proceeding.

Other individuals or organizations that provided comments on the R88-7 proposal are identified by the following abbreviations list:

IPCB Illinois Pollution Control Board.

STS Scientific/Technical Section of the Illinois Pollution Control Board.

GT Mrs. Gisela (Gigi) Topolski

SCC Subcommittee of the St. Clair County Solid Waste Task Force.

STSCLStS Consultants, Ltd., Northbrook, IL, a consulting engineering firm.

JDL John Deere and Company.

CCL Tom Sintzel of Citizens for Controlled Landfills.

LLC Land and Lakes Company.

NSWMAIllinois Chapter of the National Solid Wastes Management Association.

IDOT Illinois Department of Transportation.

ISG Illinois Steel Group.

IERG Illinois Environmental Regulatory Group.

MCDMcHenry County Defenders and Citizens for a Better Environment.

UT Commonwealth Edison, Central Illinois Public Service Co., Central Illinois Light Co., Illinois Power Co., and City Water Light and Power.

ICMA Illinois Cast Metals Association.

WMI Waste Management Inc.

JSC John Sexton Contractors, Inc.

BFEA Bert Fowler, Engineer and Architect, Richton Park, IL.

PART 807
SOLID WASTES

SUBPART A: GENERAL PROVISIONS

Section 807.105 Relation to Other Parts

1. The effect of this section is not clear. An explanation would be helpful. For example, the lead-in phrases, "unless otherwise expressly stated" should be deleted unless, in fact, the regulations do otherwise expressly state, and if they do, the Board should so designate somewhere in the opinion. We do not find anywhere in the proposed regulations where, for example, RCRA-regulated facilities are subject to the requirements of Parts 807 or Part 811-815. (NSWMA)

2. The effect of this section is not entirely clear. An explanation would be helpful. (WMI)

3. The Agency finds the proposed language unclear for several reasons. First, when read in conjunction with Section 700.102(a) of the Board's RCRA regulations, the section provides for a confusing "double exception" (i.e., both of these sections begin with the reservation clause, "unless otherwise expressly stated") leaving the reader to wonder whether he or she is "in" or "out" with regards to the enumerated parts. Second, the proposal could be construed as meaning that a non-hazardous waste unit within a RCRA facility would not be subject to these (solid waste) rules; if that is the Board's intent, it must clearly so state and must spell out which rules apply to facilities containing two or more different types of waste-handling units. The Agency continues to favor strongly the concept tht (sic) these rules should represent minimum waste handling requirements in Illinois, applicable to all wastes, including hazardous wastes except in case of conflict with RCRA requirements. (IEPA)

Response:

STS agrees that this section needs to be clarified. Since Section 700.102(a) already contains the reservation clause, "unless otherwise expressly stated", the use of this phrase can be deleted in this subsection, 807.105 (a); this subsection needs to be modified to expressly state when the numbers in the 800 series are applicable. STS believes that facilities subject to the RCRA hazardous waste regulations (Parts 700-749) should not be subject to these proposed non-hazardous solid waste regulations unless such hazardous waste facilities contain one or more units which are specifically used for the disposal of non-hazardous waste. Parts 700-749.

In a similar vein, subsection (b) needs to be modified to expressly indicate its relationship to other Board regulations. STS recommends the following language for 35 Ill. Adm. Code 807.105 (a) and (b):

a)~~Unless otherwise expressly stated, p~~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~~, 812, 813, 814 or~~through 815; however if such a facility contains one or more units used primarily for the disposal of solid wastes as defined in Section 810.103, such units are subject to such requirements.

b)~~Unless otherwise expressly stated, p~~Persons and facilities subject to 35 Ill. Adm. Code 807, 809~~,~~ or 811~~, 812, 813, 814 and~~ through 815 may be subject to other ~~Board regulations~~ Parts of 35 Ill. Adm. Code based on the language in those other Parts. Specific examples of such applicability are provided as explained at 35 Ill. Adm. Code 700.102.

PART 810
GENERAL PROVISIONS

Section 810.103 Definitions

1.Where a term is defined differently in Part 810 than in Part 807 (e.g., "facility" or "leachate") is it the Board's intent to eliminate the older definition with respect to matters not related solely to "disposal", at least until the Board has adopted sufficient Parts to fully supersede Part 807? For example, does the definition of "facility" in Part 807 still apply to solid waste storage or treatment operations? finally, since Part 810 definitions would supersede Part 807 definitions as regards solid waste disposal operations, would the disposal-related definitions of Part 807 not found in Part 810 (e.g., "cover material", "lift", and "working face") be likewise eliminated? If so, why? (IEPA)

Response:

Yes, the definitions in Part 810 are intended to supersede those in Part 807. The definition of "facility" in Part 807 will apply to facilities subject to existing Part 807.

As stated in the STS Background Report, "[m]any definitions have been eliminated because the terms are redundant, obvious from context, outdated, unnecessary, or no different than a 'dictionary' definition." Throughout this Part, definitions included in Part 807 as well as definitions for new terms that are necessary for understanding the applicability of these

proposed rules have been included based on comments and review of the proposal. However, if strong reasons are provided for the inclusion of any other definitions in existing Part 807 which are not included in Part 810, STS would certainly consider it.

"Aquifer"

1.AAJ has suggested that the definition convey that an aquifer is a distinct, i.e. identifiable and mappable, geological unit. (AAJ)

Response:

As stated in STS's background document, the definition contained in the Groundwater Protection Act is used in this proposal. Comments pertaining to this definition are also contained in Exs. 4 and 9 of R84-17D. STS suggests for consideration the following addition to the present definition:

"AQUIFER" MEANS SATURATED (WITH GROUNDWATER) SOILS AND GEOLOGIC MATERIALS WIICH 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.

"Chemical Waste"

1a.Does the Board intend that this class of waste should include only those wastes which cannot, to any degree, be made to degrade by biological process? Are there examples of biodegradable solid wastes which will form contaminated leachates "only by chemical or physical processes"? Would a waste substance such as creosote be considered a "chemical waste"? The Agency requests Board clarification of these issues; in part, the Agency's confusion is caused by the Board's use of absolute terms, such as "nonbiodegradable" and "only". Do these terms accurately reflect the Board's intent? (IEPA)

1b.Comment on page 3 of Public Comment #21 stating that "...the Agency does not believe it makes much sense to be trying to make distinctions between 'chemical waste landfills' and 'putrescible waste landfills.' The Agency believes that the Board should eliminate this distinction and combine the two into one category -- 'general waste' which would comprise any waste other than an inert waste...The Agency believes it is more appropriate to require all non-inert landfills to at least monitor landfill gas rather than establish an arbitrary and non-meaningful definition of "chemical waste"." (IEPA)

2.The words "Chemical Waste" should be deleted. This section (referring to Subpart C) should apply only to putresicible (sic) waste. (CCL)

Response:

This category of solid wastes is intended to identify those wastes which form a contaminated leachate primarily through physical or chemical means and where byproducts of biodegradation is not expected. Examples of such wastes are inorganic chemicals or flyash which does not pass the inert waste test. It is recognized that most substances, including "chemical wastes" may be subject to biodegradation if exposed to the right organisms and under the right conditions. Creosote is listed as a toxic hazardous waste (U051) under 35 Ill Adm. Code 721.133 (f).

The CCL semms to have missed the intent of the chemical waste category and confused it with hazardous waste. In any case, STS does not agree with CCL or with the Agency that the term, "chemical waste" should be deleted. Comments were also provided earlier in Ex. 4, R84-17D. The definition of "Chemical waste" is based on those non-biodegradative characteristics of the waste which may result in the formation of a contaminated leachate. STS suggests the following clarifying changes to the definition:

"Chemical waste" means a ~~nonbiodegradable~~ solid waste where no gas is expected to be formed through biodegradation and whose characteristics are such that it will be expected to form a contaminated leachate ~~only by~~ through chemical or physical processes~~, no gas is expected to be formed~~.

"Design Period"

1.We note the possible need for a definition of "design period." The term appears to be used primarily as a means of describing the reduced requirements applicable to facilities which recycle leachate or shred wastes. As noted in testimony in R84-17, operating experience has led WMI to abandon leachate recycling and to prohibit the addition of any liquids to the waste. We are unaware of any evidence that facilities using recycling pose less risk than conventional landfills. When recycling fails there can quickly be a very large quantity of leachate to deal with. See R84-17, R. 1756-57. We are concerned about the safety and manageability of leachate recycling and believe that the practice should not be allowed. (WMI)

Response:

As noted in earlier comments, the definition was thought to be clear as used in context. WMI's comment that the design period

is used primarily to describe reduced requirements of facilities using leachate recycle is not an accurate characterization. The design period is intended to establish the total length of time that different facilities will be in operation and need to be cared for beyond closure. STS suggests the following definition:

"Design Period" is the length of time determined by the sum of the operating life of the solid waste landfill facility and the post-closure care period necessary to stabilize the waste in the units.

"Disposal"

STS believes that the terms "disposal" and "storage" are used in these proposed regulations in a number of places and that they should be defined in order to avoid confusion. For the former term, the definitions contained in the Statute and in Parts 702 and 807 are used to suggest the following definition, which contains the statutory definition and a second sentence as an optional addition for Board consideration:

"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. Unless the solid waste is contained to prevent its entry into the environment, any storage, including that resulting from treatment, for an indefinite period of time and for which there is no certain plan to remove the solid wastes or its residues from the storage or treatment site to another site for final disposition also constitutes disposal.

"Disturbed Areas"

1. This definition must be changed to specifically refer to those areas where waste material has been deposited. (LLC)

2. Disturbed areas should be limited to those areas directly related to the disposal of waste. Specifically, areas where waste has been previously placed and have been covered with final, intermediate, or daily cover or the present working face. (NSWMA)
3. Disturbed areas should be limited to areas directly related to the disposal of wastes. (WMI)

4. The Agency has not clearly determined the Board's intent in this section. It is the Agency's interpretation that surface areas at a landfill which have been altered to fashion a roadway to the active fill area are included in this definition. Similarly the Agency views areas altered to achieve final contours (e.g.

borrow areas, depression fills, "screening" berms) as being included. Finally the Agency consideres any portion of a facility over which a piece of heavy equipment has been driven to be a "disturbed area." The Agency requests clarification on each of these points in the Board's opinion. (P.C. #21 IEPA)

Response:

STS agrees with the Agency's interpretation and notes that the other commentors do not provide convincing reasons for changing the existing definition of "disturbed areas". Lands physically altered to construct support structures related to the facility are also "disturbed areas" since they can affect runoff characteristics and could increase the amount of water intercepted by the landfill units. In addition, the suggested revisions would ignore a clearly defined area or point source such as construction and borrow areas which are significant contributors of suspended solids. No change is required.

"Engineer"

1.A defination (sic) for an engineer should be added that provides the engineer should be competent, either by training or experience to do solid waste design work and that the engineer has adequate professional liability insurance..(CCL)

Response:

STS does not believe a definition is needed in these regulations. Various state and national professional organizations provide certification and the State of Illinois' Department of Professional Regulation has specific requirements for registration of engineers. Facility owners are responsible for hiring competent professionals. It should be noted that Section 812.102 requires that a professional engineer registered in the State of Illinois shall certify all designs.

"Existing"

1. Note the typographic error: "of" should be "a".(IEPA)

Response:

Noted. Will be corrected to read as follows:

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

"Facility"

1.It is unclear whether the term "facility" defines an area larger than "permit area", as later defined. We do not believe that any portion of the gas or leachate treatment system lying outside the permit area is, or properly should be, a part of the 'facility", nor should any land constituting a buffer zone, lying outside of the permit area, be considered a part of the facility. (NSWMA)

2.As noted in our discussion of the regulations affecting these areas below, gas treatment systems, leachate treatment systems and buffer zones should not be considered part of the facility. (WMI)

Response:

A facility represents the entire solid waste disposal operation , while the permit area is the surface area designated in the permit to contain the facility. There is no reason for a portion of the gas or leachate treatment system to lie outside the permitted area because they are part of the facility.

It is not clear which "areas below" is being referred to by WMI, but the definition of facility would not be complete without including all the structures that are part of the solid waste landfill operation. If "buffer zones" are considered to be the region outside the property boundary and a structure (home, hospital, remote leachate treatment system, etc.), then such areas are not necessarily part of the facility.

3.Can a "facility" contain one or more non-solid waste (e.g., hazardous waste) disposal units? Does a "facility" include a "buffer zone"? Why has the Board omitted references to "storage" units which are ancillary to disposal operations at a facility? Waste disposal regulations must, in the Agency's view, encompass such storage units in order to be comprehensive and consistent with applicable statutory policy. (IEPA)

Response:

A new facility is designed to handle "solid wastes" as defined in these regulations and may not contain hazardous waste disposal units. Hazardous waste units are defined and regulated under Parts 700-749. An existing facility that contained hazardous waste dispoal units would be subject to the regulations of Parts 700-749. If by "buffer zone", IEPA means the "zone of attenuation", then a facilty would include a buffer zone. The term, "processing works" in the definition was intended to

include any storage units on the facility. However, in order to make the meaning clearer the following change is suggested:

"Facility" consists of .... A facility may contain, but is not limited to, one or more solid waste disposal units, buildings, treatment systems, processing ~~works~~ and storage operations, and monitoring stations.

"Field Capacity"

AAJ has pointed out that the field capacity is dependent on both temperature and pressure. However, these conditions are dependent on the field conditions. STS suggests the following change to the definition:

"Field Capacity" is the maximimum moisture content of a waste under field conditions, but above which moisture ~~can be~~ is released by gravity drainage.

"Gas Collection System"

1. Note the typographical error: in the second sentence, delete "by" before "produced". (IEPA)

2. It is not clear why it is necessary that flow be to a central point or points. [They suggest deletion] (NSWMA & WMI)

Response:

STS has noted the error in the second sentence, and points out that in the first sentence, "at" should have been "to". Gas collected through a set of collection pipes is generally led to one or more "central points", where it can be easily processed, i.e. treated for beneficial use or burned. STS agrees with NSWMA that the term, "central points" may not be as clear as intended. Changes are suggested to correct the definition to read as follows:

"Gas Collection system" is a system of wells, trenches, pipes and other related structures that collects and transports landfill gas produced in a putrescible waste disposal unit ~~at a central point or points~~ to one or more gas processing points. Gas flow may be ~~by~~ produced by ~~an induced draft produced by mechanical means or~~ naturally occurring ~~produced~~ gas pressure gradients or aided by an induced draft generated by mechanical means.

"Hours of Operation"

1.The defination (sic) for hours of operation should include the time heavy equipment is operating to cover the refuse waste. The requirement should allow only one hour after wastes are accepted. This can be accomplished if ther (sic) is adequate equipment on site. (Note: This has been a major problem in our area with heavy equipment working late into the night and at early hours in the morning. The noise is a nuisance and distraction to the people who live near the landfills.) (CCL)

Response:

STS does not believe that a strict definition for "hours of operation" is needed in this section of the regulations. However, the operating permit can be written to include special conditions that limit the hours of operation to reduce or eliminate nuisance noise levels and comply with any applicable noise regulations.

"Inert waste"

1a.As pointed out in comments and testimony in R84-17, there is substantial reason for concern that wastes that are not truly inert will find their way into "inert" waste landfills. This concern is underscored by the significant problems with the extractability test proposed by the Board in connection with defining waste.(NSWMA & WMI)

Response:

If the testing of wastes is carried out properly, there is no reason for the first concern. It is not clear what is meant by "significant problems" since they are not stated. The proposal does not specify a universally applicable leachate extraction test, but rather specifies a performance standard that is designed to allow flexibility in the test methodology needed to best simulate field conditions.

1b.The safe operation of an inert waste landfill requires stringent controls on the wastes disposed and monitoring to ensure that problems are not developing. It is difficult to identify inert wastes without a permitting process. The proposal requires no onsite permitting or reporting and appears to exempt so-called inert landfills from monitoring altogether, so there can be no confirmation that the assumptions made as to the innocuous nature of such wastes are in fact borne out in the field. (NSWMA & WMI)

Response:

Stringent controls might be required only if the initial testing of wastes is not carried out properly. A permitting process for inert waste landfills is included in Part 812, Subparts A and B and in Part 813.

1c. The proposal is apparently to define an inert waste as one which does not produce a contaminated leachate, or a waste which leaches contaminants at a level which does not exceed drinking water standards. This definition defies any common sense understanding of the term inert and apparently allows an increase over background concentrations for inert waste landfills without consideration of site-specific factors and without provision for monitoring or testing to ensure that problems are not created as time goes on. This approach is in contrast to the nondegradation standard and the postclosure obligations to confirm compliance with standards which are imposed on all other wastes. This represents a difference in treatment which is entirely unjustified. (NSWMA & WMI)

Response:

The issues of background concentrations, nondegradation and possible monitoring requirements were addressed at the June 16, 1989 hearings.

1d. We note as well that the inert waste definition would appear to permit the disposal of asbestos and related materials in inert waste landfills. Such materials may frequently be found in building and demolition debris. Limited cover or groundwater protection requirements for inert landfills may increase the risk that such materials could become airborne or end up in surface runoff or groundwater. (See R84-17, R.1678). Note also that the explanation found in the STS July 24, 1987 Response No. 8 in R84-17, which states that building rubble in not necessarily inert, which appear to be inconsistent with the definition itself, which may expressly include building rubble. If the concept is maintained, the definition may require clarification. (MSWMA & WMI)

Response:

The definition does not specifically allow building rubble. Certain items present in building rubble were included as examples of potential inert wastes. STS would like to explain again that the intended definition for inert wastes is that wastes may be classified as an inert waste only when it has been tested to determine if the leachate formed contains contaminants in excess of levels specified in Section 811.202. Thus, in order to make the definition clearer, the sentence which expressly

includes certain materials as inert will be changed to say that they "may include" such materials. Asbestos and asbestos containing materials may be classified as "special wastes" or "special handling wastes". [See also the response to comment #3 below].

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2. The issue of inert wastes is dealt with in the Section 810.103 definitions and in Section 811.202 of the proposed rules setting forth the standards for determining whether a waste may be defined as inert. As discussed at pages 25-26 of the Background Report, Inert Waste Standards, if applicable, would provide an economical method for disposing of numerous industrial process wastes which industry believes do not pose a threat to the environment, including possibly steel mill slags, dust, foundry sands, coal combustion wastes and similar materials. The proposed definitions and regulations, however, appear to be tying the definition of inert waste to an undefined test providing that the leachate should not exceed any of the existing Illinois Water Quality Standards including, apparently, standards for dissolved solids. As discussed by a variety of witnesses and comments in R84-17, such a standard for determining what is an "inert" waste is unduly restrictive and unnecessary for the protection of the environment. The testimony of Mr. Tom Barnes proposed one specific test, together with appropriate standards, for determining an inert waste. The Board has apparently rejected this standard. {see Exhibit 35 in R84-17D}.

Even assuming the Board were to retain its existing water quality standards, it is not a necessary basis for determining what constitutes an "inert waste" for purposes of these regulations. Leachate from a landfill is much more closely analogous to "effluent" from a treatment works than it is to the ambient water quality. It is respectfully submitted that an appropriate standard for determining the quality of the "leachate" for purposes of determining inert waste must be adopted in order to make these rules workable and economically reasonable. (IERG)

Response:

STS stresses again that the purpose of these regulations is to establish a category (inert) of wastes. This de minimus class of wastes are not expected to have any impact on groundwater, the air surface, water and soils; no matter where the facility, containing such wastes, is located. The determination of what is an inert waste is not "unduly restrictive". In fact, it allows a flexible test procedure that is provided to screen and identify those wastes which can be landfilled in accordance with the proposed requirements for inert waste landfills, which are not as stringent as for chemical and putrescible waste landfills. The choice of water quality standards as the level for

determining if a waste can be considered an "inert waste" is reasonable since an inert waste landfill, as presently proposed, is not required to have liners. In fact, a more appropriate level might be the background concentrations present in the area in which the landfill is to be located. (See also Comment 1c. by NSWMA & WMI)

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3. Again, the Board has here used absolute terms: "nonbiodegradable," "nonputrescible," and "not in any way". Over time, few substances, if any meet all these criteria; the Board may wish to clarify this point. Also, the Board has not made clear whether the phrase "will not in any way form a contaminated leachate" is intended to mean that a "contaminated leachate" will not be formed irrespective of the quality of up-gradient ground and surface water. For instance, it is conceivable that a waste which under ordinary conditions would not form a "contaminated leachate" if upgradient waters are either already contaminated to within a hair's breadth of a standard set forth in Section 811.202 or have other characteristics which trigger the release of contaminants (e.g., a low pH). Finally, this definition would appear to include some truly hazardous materials (e.g., asbestos) which, although unlikely to produce a "contaminated leachate", pose grave dangers to the public health and environment through other contamination-transport mechanisms. The Agency suggests that a serviceable definition of "inert waste" must account for such other mechanisms. (IEPA)

Response:

This category of solid wastes is intended to identify those wastes which can be considered inert based on whether significant amounts of contaminated leachate is formed when determined in accordance with Section 811.202. It is recognized that most substances yield leachate, which is why the proposed definition sets the level of contaminants, which the leachate from the waste must remain below for the waste to be considered "inert". It is also recognized that inert wastes containing hazardous materials such as asbestos may pose a threat to public health via the inhalation route of exposure. The existing definition of "special wastes" which includes "industrial process wastes" specifically includes asbestos dust. While it excludes wastes such as construction or demolition debris, they would certainly be considered special if they are contaminated with asbestos. In addition, 35 Ill. Adm. Code 228.141 dealing with asbestos containing debris sets out various requirements for such wastes to prevent its dispersal into the air before its disposal by burial at a sanitary landfill, meaning a landfill accepting chemical or putrescible solid waste. STS suggests the following clarifying changes to the definition:

"Inert waste" means ~~nonbiodegradable, nonputrescible, non-watersoluble~~ solid waste that will not ~~in any way~~ decompose biologically, burn, serve as food for vectors, form a gas, cause an odor, or form a contaminated leachate when determined in accordance with Section 811.202 (b). Such solid waste shall be considered to be nonbiodegradable, not putrescible and non-watersoluble. Inert waste may include~~s~~, but is not limited to: bricks, masonry and concrete (cured for 60 days or more).

"Land treatment unit" and **"Landfill"**

1. The defination (sic) of landfills should include words perimeter site barriers as well as security barriers prior to the commencement of operation. It should apply to unit as well as facility. (CCL)

Response:

STS does not understand this comment.

2a. The definitions of "land treatment unit" and "landfill" are very similar and may not be adequately distinguishable. A land treatment unit provides treatment by virtue of contact with the soil and this concept should be included in the definition of landfill. (See next comment.) (NSWMA & WMI)

2b. The definition [of landfill] should exclude permitted transfer stations and include land treatment units. (NSWMA)

3. Section 810.103 defines landfill as the basic operating definition of the entire proposal. Confusion has developed as to how this definition will apply to certain activities. Of particular concern are ash ponds for the utility industry, and storage and processing piles for various solid waste generating industries including the steel industry. IERG hopes that the definition of landfill will be clarified to make it clear that these rules only apply to locations designed for the permanent disposal of wastes which are not regulated under other programs, such as NPDES for ash ponds. (IERG)

4. The primary question that members of the Illinois utilities have is whether or not ash settling ponds are exempted from the R88-7 proposed rules for new and existing landfill disposal facilities. The reason for concern is that there is some discrepancy in the formal and informal definitions used for "landfill". According to Section 810.101, all definitions in Section 810.103 apply throughout Parts 811-815. According to the definition of "landfill" in 810.103, surface impoundments are specifically excluded. Ash ponds are considered surface impoundments by the

utility industry, which would, therefore, make them exempt from the proposed rules in R88-7.

The confusion of the landfill definition arises from a statement in the February 25, 1988, Opinion of the Board. In one part (page 17), the Board states that the proposed rules do not cover all types of solid waste management units, but only facilities defined as landfills. The Board then gives another definition of landfill as "...areas of land or an excavation in which wastes are placed for permanent disposal. Excluded are facilities whose emissions are regulated under other federal or state programs for protection of land application units, surface impoundments, and injection wells." This could encompass utility (ash pond) surface impoundments. Prior to that statement in a listing of solid waste management facilities, landfills, waste piles, and surface impoundments are specifically listed as different disposal activities..

Members of several Illinois utilities feel that ash settling ponds should not be included under the R88-7 proposed rules, because they are surface impoundments regulated under the NPDES program, and not landfills. However, the formal definition in the Order of the Board is different than the informal definition given in the Opinion of the Board. We request, as part of our comments, an official interpretation as to whether or not ash ponds are to be included as "landfills" to be covered by the proposed rules.

Regardless of whether or not ash ponds are included as "landfills" under these rules, these rules would be the principal source of design and operating standards for use by IEPA permit writers under the NPDES permit program. Thus, promulgation of these rules would place utility ash ponds under the double jeopardy of having to comply both as "landfills" (if ash ponds are not exempted) and as surface water impoundments discharging to surface waters of the state (whether or not ash ponds are exempted). (UT)

5. The Agency queries the purpose of the reference to 35 Ill. Adm. Code 309 in this definition. Further, it is very unclear as to how a "land treatment unit" is distinguished from a "landfill". A "landfill" is defined as a unit or facility "where waste is placed in or on land for disposal", while a "land treatment unit is defined as an area "where wastes are applied onto or incorporated into the soil surface for disposal". It is not enough to say in the "landfill" definition, as the Board has done, that a "landfill" refers to something "which is not a land treatment unit" where the terms are clearly overlapping; recourse to a quality dictionary fails to provide guidance as to what distinguishes the "placing" of waste "in or on land for disposal" from the "application" or "incorporation" of waste "into the

soil surface for disposal". Additionally, the Agency notes that this definition contains no mention of "treatment" other than in the defined term itself.

The Agency urges the Board to clarify both the "treatment" component of this term and the distinction between this term and similar terms. (IEPA)

6.A landfill should include placement of waste on land or in piles for storage. Any type of storage involving the deposit of waste on land will have the same environmental impact as a landfill. The definition should exclude permitted transfer stations. (WMI)

Response:

It is clear from these comments that both these terms need to be defined in such a way as to allow a clear distinction between them. These two definitions are also linked with the definitions of "disposal" and "storage". If "land treatment units" (LTUs) are considered to be applications of waste into the soil surface for the purposes of either treatment or treatment & disposal, then utility ash ponds and surface impoundments are LTUs since they do accumulate solids at the site of the treatment. If such solids are disposed at the treatment site and their disposal threatens groundwater, then they may need to be redefined as a landfill, particularly with reference to those landfill requirements dealing with groundwater monitoring and protection. The reference to 35 Ill. Adm. Code 309 was intended to indicate that such units might require discharge permits related to compliance with all applicable surface water quality standards. The specific reference to Part 309 can perhaps be deleted within the definition of LTU.

In addition, compliance with the all applicable surface water and groundwater quality standards is required of all land treatment units. Since a NPDES permitting system for groundwater discharges does not presently exist, conditions similar to those used in the protection of groundwater from landfill generated leachate might perhaps be included in the operating permit for the LTU, if that LTU is considered to be used for disposal.

STS believes that LTUs (land application units, surface impoundments, ash ponds, etc.), whose operation results in solid waste disposal, should be considered for possible inclusion in the definition of a landfill and subject, at a minimum, to the groundwater protection standards contained in the regulations. STS, however, does recognize that the original intent and scope of the proposed regulations in R88-7 might be changed if LTUs, used for disposal, are included in the definition for "landfill"

since the standards being proposed pertain only to "landfills." STS provides two options for the definitions, the first to subject only those LTUs used for disposal of solid wastes as landfills subject to, at a minimum, groundwater protection standards and secondly to explicitly exclude LTUs from the definiton of a landfill. The revised options suggested for Board consideration follows:

Option 1: Inclusion of LTUs as landfills

"Land treatment unit" means an area where wastes are applied onto or incorporated into the soil surface for either treatment or combined treatment and disposal. A land treatment unit, such as an utility ash pond or a surface impoundment, whose operation results in the disposal of non-inert solid wastes at the site of the treatment shall be considered a landfill for the purposes of preventing groundwater pollution. Land treatment units must meet all applicable Board regulations and may be subject to ~~the~~ permitting requirements ~~of 35 Ill. Adm. code 309~~.

With the above definition, the differences between "Land treatment unit" and "Landfill" becomes clearer. The definition of "landfill" also needs to be modified to exclude land treatment units from the definition only when the operation of such units does not result in disposal of solid wastes at the site of the treatment. The following changes are suggested:

"Landfill" means a unit or that part of a facility where waste is placed in or on land for disposal and which is not a land treatment unit, surface impoundment, or an underground injection well. For the purposes of this Part, waste piles used for disposal, land treatment units or surface impoundments, whose operation results in disposal of non-inert solid wastes at the site of the treatment are considered landfills.

Option 2: Specific Exclusion of LTUs from Definition of Landfill

"Land treatment unit" means an area where wastes are applied onto or incorporated into the soil surface for either treatment or combined treatment and disposal. A land treatment unit, such as an utility ash pond or a surface impoundment, must meet all applicable Board regulations and may be subject to ~~the~~ permitting requirements ~~of 35 Ill. Adm. code 309~~.

With the above definition, the differences between "Land treatment unit" and "Landfill" becomes clearer. The definition of "landfill" also needs to be modified to exclude land treatment units. The following changes are suggested:

"Landfill" means a unit or that part of a facility where waste is placed in or on land for disposal and which is not a land treatment

unit, surface impoundment, or an underground injection well. For the purposes of this Part, waste piles used for disposal are considered landfills.

STS also notes the definitions for "land treatment unit," and "landfill," are not completely in accord with the common understanding and meaning of the term of art, "land treatment unit." The generally accepted definition for the term, "land treatment," taken from a USEPA publication, EPA 625/1-81-013, entitled, "Process Design Manual for Land Treatment of Municipal Wastewater" is as follows:

"Land treatment is defined as the controlled application of wastewater onto the land surface to achieve a designed degree of treatment through natural physical, chemical, and biological processes within the plant-soil-water matrix."

Such a definition clearly focuses on the treatment aspect (type and purpose) of the term as it should. This term of art, used in the context of wastewater treatment, has been transferred to the application of wastes onto the land surface in the proposal. The existing definition, however, of "land treatment unit" does not deal with what the "treatment" is; it does contain a description of what is being done, i.e., a definition of what should be termed "land application." STS suggests having an all-inclusive definition for "land application," then define landfilling as one method of land application used for disposal and specifically exclude other types of land application. Such a change would better define the terms whichever option is used. The following is suggested optional language for use in Option 2:

"Land application" means an area where wastes are placed in landfills for the purpose of disposal, or applied by means of spreading or mixing on land for incorporation into the soil surface for the purpose of agronomic benefits, land reclamation, waste treatment or utilization.

"landfill" means a unit or part of a facility in or on which waste is placed and accumulated for disposal and does not include surface impoundments, underground injection or any other type of land application. For the purposes of this Part, landfills include waste piles, as defined in this Section.

An alternative, again within Option 2, but without changing the existing language substantially is the following:

"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,

a land application unit is not a landfill; however, other applicable Board regulations 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, surface impoundment or an underground injection well. For the purposes of this Part, landfills include waste piles, as defined in this Section.

"Malodorous odor"

1. The definition of [mal]odor is unclear and seems unenforceable [and] vague. The defination (sic) should include measurement by instrument, such as methane gas is measured, or measurement and criteria for presenting samples to an impartial panel. There should be specific threshold limits. (Note: This is very important and one of the major problems in connection with landfills.) (CCL)

2. While the definition appears to be an attempt to reference Section 9(a) of the Act and is an improvement over the proposal in R84-17(D), it would be easier and more supportable to simply reference 9(a) explicitly. (WMI)

3. The Agency remains confused as to the meaning of this defined term. As a practical matter, any term undefined by the Environnmental Protection Act yet strongly similar to a statutorily-defined term will tend to create confusion. This definition, for instance, clearly borrows its key elements from the Act's definition of "air pollution" (Ill. Rev. Stat. 1987, ch. 111 1/2, par. 3.02). Is it the Board's intent to create a subset of "air pollution" or to create a new species of air pollution? Is this definition to be viewed as promulgated under Title II of the Act or Title V? (IEPA)

Response:

The use of elements in the definition of "air pollution" in the Act for this definition is intentional since it best captures that portion of the description needed for defining a malodor. The measure of what constitutes a malodorous condition has not been standardized. One possibility is to incorporate a specific test, such as the use of a forced choice triangle olfactometer into the definition. Comments on this or other standards for its measurement are solicited. There is no intent to create a "subset of air pollution" or to create a "new species of air pollution". Air pollution is measured by one or more parameters or conditions such as concentration, visibility, smell, etc., all of which are created by air pollutants. A malodorous condition in the atmosphere is caused

by air pollutants and such a condition is used to determine if air pollution exists. The definition can be viewed as being promulgated under either Title II and/or Title V, since the pollutants are formed or emitted in one medium (land) and are transferred to another medium (air).

STS suggests the use of the noun form, "malodor" in place of the existing term, "malodorous odor" in the definition and notes that with respect to these rules (Parts 810-815), a quantitative (objective) definition of malodor is not as important as a qualitative description of what a malodor is. Malodor, or the detection of malodor, is only used in Section 811.311 as a means for triggering the installation of a gas management system. STS believes that the general definition is sufficient for this purpose and suggests that it be retained with some added clarification regarding the origin of such odors, as follows:

"Malodor~~ous odor~~" is an odor caused by one or more contaminant~~s~~ emissions from a facility into the atmosphere 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.

"New"

1. There may be a drafting problem in the third scenario. It is confusing. (NSWMA)

2. There may be a drafting problem in the third scenario. What is the purpose of "if" in the second line? Why is the "is to be" language used? This creates some implication of regulation based on future intent. Shouldn't the "new" standards become effective for a landfill only when the increase takes place? (WMI)

3a. The Agency finds this definition very confusing. Some of the blame for this may be attributed to typographical errors; for instance, the superfluous semicolon following "for permitted landfills" in the second indented clause and the words "if its" following "design capacity" in the third indented clause. Note that the second indented clause apparently should be concluded with a semicolon rather than a period. Further, it appears to the Agency that this definition is curiously unbalanced; the second indented clause to be parallel in construction with the first such clause, should apply to "landfills not exempt from permit requirements..." rather than to "permitted landfills". The Board's choice of wording overlooks landfills not exempt from permit requirements but which are not permitted. Presumably, the intent of the Board in choosing this asymmetrical

construction is to be consistent with its recent holding to the effect that a "sanitary landfill" is not to be distinguished from a "sanitary landfill operation which is required to have a permit" (see Section 21(p) of the Act and the Board's Opinion and Order in IEPA v. Presnall, AC 87-6, December 12, 1987). If so, the Agency strongly objects, not only for the reasons set forth above and in its arguments in and appeal of the Presnall decision, but also because such an interpretation creates the anomalous usage ("permitted landfills for which no development or operating permit has been issued ...") found in the second indented clause. Finally, the Agency notes that this definition applies solely to landfills, not withstanding its more generic title, and to a "facility or unit", leaving the reader to speculate, in cases of phased or multiple-unit facility development, as to whether a given unit is "new" or "existing" (i.e., where such a facility has a general facility development permit, but has separate specific unit development permits and/or individual unit operating permits). (IEPA)

3b. Finally the Agency notes that this definition applies to landfills, notwithstanding its more generic title, (to a "facility or unit,") leaving the reader to speculate, in cases of phased or mulitiple-unit facility development, as to whether a given unit is "new" or "existing" (i.e., where such a facility has a general facility development permit, but has separate specific unit development permits and/or individual unit operating permits).

In light of the above the Agency requests the Board to revise the definition of new to provide as follows:

[Language suggested by IEPA is contained in pp. 5-6] (P.C. # 21, IEPA)

Response:

The commentors have noted several drafting errors, which will be corrected. In addition, the following changes, based on the Agency's language and the other comments, for defining "new" is included in the following suggestion:

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

~~For l~~Landfills or units exempt from permit requirements pursuant to Section 21(d) of the Act~~, which~~ has~~ve~~ not yet accepted waste as of the effective date of these regulations; ~~and~~

~~For permitted l~~Landfills~~;~~ or units not exempt from permit requirements pursuant to Section 21(d) of the Act, ~~for which~~ have no development or operating permit ~~has been~~ issued by the Agency

pursuant to 35 Il. Adm. Code 807 as of the effective date of these regulations~~.~~; or

~~For all l~~Landfills, with a unit whose maximum design capacity or ~~if its~~ lateral extent is ~~to be~~ increased after the effective date of these regulations ~~take effect~~.

"Permit area"

1. The Board's definition is limited to a horizontal ("surface area") dimension. As the Board is aware, recent caselaw (M.I.G. Investments, Inc. et al, v. v. IEPA et al, Ill. Supreme Ct. Docket No. 64946, opinion filed April 25, 1988) has conclusively established the fact that a landfill's "permit area" is comprised of both its horizontal and vertical dimensions. The Agency suggests that the Board may wish to embody this concept in this definition. (IEPA)

Response:

The definition was intended to include the entire surface area containing the facility which does cover a three dimensional region. The Agency appears to be reading more into the definition of a permit area than was intended. The intent was to describe the surface area occupied by a facility (i.e., a footprint). STS also notes that an operator wishing to modify the vertical extent of a waste disposal unit would be changing the capacity of a unit as well as the permit area or region, which are considered "significant modifications" for which approval of the Agency is necessary. The question of whether a permit area contains above ground or below ground features is not relavent because the definition of "facility" contains all structures, including the solid waste disposal units that are necessary for the operation of the landfill.

However if the horizontal and vertical dimensions of all facility structures above and below the ground are required to be explicitly included in the definition, then the use of the term, "permit area" would not be appropriate; instead, the term, "permit region" to describe the complete volume below ground would be needed. Suggested language, if the Board wishes to make such a change, is presented below:

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

"Runoff"

1.The defination (sic) to runoff water should make reference that no runoff is permitted on adjacent property unless the operator has received permission for such runoff and that the operator has written documentation they have received permission. (CCL)

Response:

The above comment relates to potential problems with runoff onto land adjacent to the landfill. Such considerations are addressed in the initial design of the landfill. STS does not believe that there is a need to include such design considerations in the definition of runoff. Discharges from point sources are covered under the NPDES permit program.

2.Why should runoff include precipitation falling directly in a stream channel? Such stormwater wouldn't seem to require special management. (NSWMA & WMI)

3.It is difficult for the Agency to understand the inclusion of precipitation falling "directly in a stream channel" in this definition. Absent some ground contact, how can precipitation be considered as "runoff"? (IEPA)

Response:

The "precipitation that falls directly in a stream channel" is added to the portion of water that flows overland and enters the channel when designing a hydrologic control structure, such as a sedimentation pond or diversion ditch. In addition, that portion of the overland flow which infiltrates the soil and flow laterally until it enters the stream channel, called interflow, must also be included in the total runoff for design calculations. STS suggests the following addition to correct the definition:

"Runoff" means water which flows overland as a result of precipitation before entering a defined stream channel, any portion of overland flow which inflitrates into the ground and reaches the stream channel, and ~~or~~ precipitation that falls directly in a stream channel.

"Salvaging" and "Scavenging"

Response:

In response to a comment by the IEPA on Section 811.108, the following definitions based on the existing definitions in Part 807 are being suggested for addition:

"Salvaging" means the return of waste materials to beneficial use, the operation of which shall be confined to an area remote from the operating face of the landfill; shall not interfere with, or otherwise

delay the operations of the landfill; and shall remove all materials for salvaging from the landfill site daily or separate by type and stored so as not to create a nuisance, harbor vectors or cause an unsightly appearance.

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

"Seismic Slope Safety Factor"

1.Reference should be made in the defination (sic) to minimum design and construction of the liner and leachate collection system in case of an earthquake. (CCL)

Response:

STS does not feel that there is a need for such references in the definition.

2.For events other than earthquakes there is no way for design purposes to predict the extent of forces which hypothetically could be involved. (NSWMA & WMI)

3.The reference to"other seismic events such as an explosion" should be deleted. (WMI)

Response:

Seismic events such as an earthquake or explosion are used in the definition as examples of events that may cause a massive slope failure. The Seismic Slope Safety Factor is a safety factor built into a design to minimize a slope failure. Section 811.304 specifies the safety factors to be used under various conditions. No change in definition is needed.

"Significant Modification"

1a.While changes have been made in this section, it is still unnecessarily broad and seems to ignore the role played by the substantive provisions of the proposal itself. Many of the matters described as significant modifications are really enforcement problems. For example, where a permit calls for sampling three wells or quarterly sampling and only two wells are sampled on a yearly basis, there is an enforcement matter and should be handled as such. If an operator wants to change

his sampling program or any other matter covered by his permit, then he already has an obligation to get a permit modification to allow him to do that. This is true for almost every one of the matters the proposal attempts to define as a significant modification.

Note that even assuming that the approach taken is correct, changes to the leachate management system and the surface water control system should be considered significant modifications only if efficiency or performance is decreased.

The amount of the postclosure financial assurance will change every year with inflation. It does not seem necessary to require a new permit every year.

The reference to changes which will occur in background or maximum allowable concentrations is confusing and may be unreasonable. The applicant has no control over changes in background. If there are changes in maximum allowable concentration, a hypothetical modeled number in any case, then it is to the operator's benefit to modify his permit to avoid enforcement.

A number of the matters listed, e.g., remedial action or change in background, are also already covered under the substantive provisions of the proposal. Agency review is required where remediation is to take place or where an operator attempts to show that assessment monitoring or remediation is not required because background has changed. Again, these "significant modification" provisions are unnecessary and redundant.
Currently such approvals are handled by conditions in the development permit. This system works reasonably well and should be continued. Making every CQA approval a separate permit modification is much too unwieldy. (NSWMA & WMI)

1b.The capacity of a waste disposal unit is an estimate based on expected waste types to be received and estimated settlement. The increase or decrease in capacity over this estimated design capacity is expected.

The next eight conditions dealing with cover, liners, leachate collection, leachate management, leachate treatment, gas management, surface water, and groundwater monitoring systems all have adequate design and performance standards outlined in 811. If significant design changes are required, a significant permit modification is required. If performance standards are not met, minor operation modifications can often be made to correct such problems. If problems persist, an enforcement action may be necessary.

The criteria concerning operating authorization is discussed in comments on 813.203. The provision for operating authorization

is a new concept and requires careful review. We are concerned that, given the matters for which CQA approval is required, handling CQA approvals like a permit modification would result in delay with serious risk of damage to structures while permit approval is obtained, e.g., liners, final cover, and other elements could undergo significant damage before approval is received. (NSWMA)

2. The Agency strongly urges the Board to delete this term and concept from the regulations. The Board should simply use the term "modification" as is done in other programs. The Agency notes a certain lack of consistency among the several change indicia; for instance, while a simple change in "placement of daily or intermediate" cover is deemed a "significant modification", only an increase in "capacity of the waste disposal unit" or a decrease in "performance, efficiency or longevity of the liner system" or in the "efficiency or performance of the leachate collection system" constitutes a "significant modification". The Agency's experience in regulating proposed changes to critical aspects of waste disposal operations suggests that it is often the subject of the proposed change, rather than the ostensible direction of that change, which is decisive of the issue of "significance". Bearing in mind that a "significant modification" triggers requirements additional to those applicable generally to modifications of permitted activities, the question becomes which permitted characteristics warrant imposition of such additional requirements as a check upon, and notice of, changes. As Part 813, Subpart B (Sections 813.201 - 813.204) indicates, these additional requirements include submission to the Agency of all information required in the original permit application that will be changed by the proposal (Tm 813.202) and submission to the Agency of an acceptance report for each new structure prior to its being put into service (Tm 813.203(b)). If, as this proposed rule provides the direction of some proposed changes dictates whether the Agency is to be informed, it will become increasingly likely over time that Agency file data will bear scant resemblence to field conditions as allegedly "insignificant" modifications accumulate. In addition, to the extent that the proposal allows the owner of the regulated facility to avoid the additional requirements of Subpart B based upon the owner's unfettered judgement as to the probable effect of any change, it provides a powerful incentive for unwarranted optimism and for scientifically unsupportable assumptions. The Agency notes that this definition begins by emphasizing the area or subject of the change, but fails to retain that orientation in the indented sub-clauses; this inconsistency can be remediated generally by deleting the parts of each sub-clause related to the ostensible direction of change (e.g., in most cases, by eliminating any phrase beginning with "will").

As to the specific change indicia, the Agency suggests that the Board add a new sub-clause regarding any requirement set forth as a special condition in the Agency permit and another new sub-clause regarding final cover. Further, the Agency requests clarification of the sub-clause regarding "design or configuration of the regraded area"; does the Board here refer to the site's "design or confifiguration" prior to construction, after development, or after final closure? Finally, is an "operating authorization" a "significant modification" subject to the 90/180 day review period allowed by Section 813.301 (and Section 39(a) of the Act)? (IEPA)

Response:

The definition intended here is to list those conditions or changes that are significant. STS agrees partly with the Agency, that the subject of the proposed change, rather than the ostensible direction of that change is important. However, it is usually the decreases in the level of performance or efficiency or changes that have an adverse effect on the operation of the landfill that are of greater concern. The level of "significant change" is established at the time that the permit is first approved. The expected range for different parameters and other conditions of operation are based on the technology being used and could be specified in the permit. These will need to be used to determine if the change is outside the normal range for that parameter or operation. In response to comments of NSWMA and WMI, STS believes that a change that has already occurred may be both a significant modification as well as an enforcement problem. Obviously, if a change violates a permit condition, then the operator is subject to enforcement action. However, the role envisioned in this definition and in Part 813 is that of anticipation of "significant changes" that are planned or might occur which should be included as a modification to the permit.

In addition the following changes, based on the Agency's comments, are suggested:

"Significant Modification" is a modification to an approved permit ~~in which changes to~~ that is required when one or more of the following changes, considered significant when the change is outside the expected operating range of values for that parameter or as specified in the permit, are planned, occur or ~~to~~ will occur:

An increase in ~~T~~the capacity of the waste disposal unit ~~will be increased~~ over the permitted capacity;

A change in ~~T~~the placement of daily, ~~or~~ intermediate or final cover ~~will be changed~~;

A decrease in ~~The~~ performance, efficiency or longevity of the liner system ~~will be decreased~~;

A decrease in ~~The~~ efficiency or performance of the leachate collection system ~~will be decreased~~;

A change in ~~The~~ configuration, performance or efficiency of the leachate management system ~~will be affected~~;

A change in ~~T~~the final disposition of treated effluent or the quality of the discharge from the leachate treatment or pretreatment system ~~will be affected~~;

Installation of a~~A~~ gas management system ~~will be affected~~, or a decrease in the efficiency or performance of an existing gas management system ~~will be affected~~;

A change in ~~T~~the performance or operation of the surface water control system ~~will be affected~~;

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

A change in the applicable background concentrations or the maximum allowable concentrations ~~will occur~~;

A change in the design or configuration of the regraded area after development and after final closure ~~will occur~~;

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

Any change in ~~T~~the permit boundary ~~will be changed~~;

A change in ~~T~~the postclosure land use of the property ~~will change~~;

A remedial action necessary to protect groundwater ~~is necessary~~;

Transfer of ~~T~~the permit ~~is to be transferred~~ to a new operator; ~~or~~
Operating authorization is being sought... assurance program~~.~~; or

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

"Solid Waste"

1a. Upon close inspection, this proposed definition appears to raise several thorny issues. One of these is the result of essentially combining a "definition" section with a "scope and applicability" section. As the Board is aware, the definitions of "solid waste"

and (especially) "hazardous waste" are in a state of flux for several reasons. First, of course, is the reality that pursuant to 40 CFR 261.2 and 35 Ill. Adm. Code 721.102 (including Appendix Z's Table to Section 721.102), a given material may be a "solid waste" if it is "recycled" by being burned for energy recovery, but may not be a "solid waste" if "reclaimed". Second, the interplay of the several federal rules defining "solid waste" and "hazardous waste" and the various exceptions (e.g., Section 721.102 (d) and (e) and Section 721.103(d)) and exclusions (e.g., 721.104) thereto has generated complex and confusing federal "guidance" on definition and "scoping" issues (see, e.g., the USEPA Memorandum dated June 23, 1986 from Marcia Williams to Regional Division Managers, identified as "OSWER Policy Directive #944412.00-2", enclosed herewith as IEPA Enclosure #1, and has spawned complex and sometimes site or industry specific litigation regarding the scope of RCRA regulations and the definition of key terms (see, e.g., American Mining Congress, et al v. U.S. Environmental Protection Agency, 824 F.2d 1177, July 31, 1987). Third, further clouding the issue of what constitutes a "solid waste", USEPA has published a proposed amendment to 40 CFR 261.2 engendered by the Court's Opinion in the American Mining Congress case (see 53 Fed. Reg. 519 et seq., January 8, 1988). The Agency has preliminarily identified several unresolved issues raised by this more recent federal proposal (see the January 29, 1988 letter from Charles A. Zeal of IEPA to USEPA, enclosed herewith as "IEPA Enclosure #2"). In short, as far into the future as one can see, the issue of what is a "solid waste" and/or "hazardous waste" and the issue of what activities are covered by RCRA will be essentially unresolved to some degree at the federal level. Is it the board's intent that as "scoping" and definitional issues are raised by industry, "resolved" by U.S. EPA and adjudicated by the courts, the affected substances may pop into or out of the State's Solid Waste definition? The Agency urges the Board to at least delete the "scoping" aspect of this definition as a means of reducing the confusion to a minimum. This could be accomplished by deleting the clause beginning with "except that," in the first sentence. The deleted language could then be transferred to other Parts of these rules so as to effect the Board's intent without unnecessarily obscuring the central meaning of this important term.

Another issue regarding this definition is whether it might result in exemption from State regulation of those facilities which, while technicallty "regulated pursuant to 35 Ill. Adm. Code 700-749" are, under RCRA, subject to sharply reduced requirements (e.g., used batteries returned to a battery manufacturer for regeneration, and used oil that exhibits a characteristic of hazardous waste but which is recycled in some manner other than burning for energy recovery - see 35 Ill. Adm. Code 721.106(a)(3)(B) and (C)). Is it the Board's intent that

these proposed rules would apply to these kinds of activities? (IEPA)

1b. The Agency strongly urges the Board to not tie the definition of solid waste in these regulations to the definition of solid waste in the RCRA regulations. Tying this definition of solid waste directly to the RCRA regulations definition in 35 Ill. Adm. Code 721.102 will certainly narrow the possibilities for excluding materials that are being recycled or beneficially reused from regulation as a solid waste. In working with the RCRA definition of solid waste since its adoption by USEPA in January 1985, the Agency has encountered a number of application difficulties, particularly when this concept is translated to non-hazardous solid waste. In that light the Agency has developed an internal policy for interpreting and applying the existing definition of solid waste to non-RCRA contexts. The Agency has previously submitted a copy of this policy to the Board....

The Agency strongly urges the Board to incorporate this policy into the Board's definition to restate the statutory definition as part of the Board regulations. The Agency strongly urges the Board not to incorporate the federal RCRA definition by rote as has been done in the proposed rule. (P.C. #21, IEPA)

Response:

The purpose of this definition is simply to exclude hazardous wastes from these requirements. The proposal does not provide a mechanism for moving wastes into or out of the hazardous waste regulatory system. With regard to the comments in the last paragraph, the intent of this proposal is to regulate nonhazardous solid waste disposal facilities. The previous regulatory status of the type of material is not relevant to the application of standards that apply to the facilty where such wastes will be disposed. Based on comments provided by IEPA, STS suggests the following clarifying changes to the definition:

"Solid Waste" means those non-hazardous wastes defined in this section ~~at 35 Ill. Adm. Code 721.102, except that, for the purposes of 35 Ill. Adm. Code 811-815, hazardous wastes regulated pursuant to 35 Ill. Adm. Code 700-749 are excluded. Solid Wastes includes the subcategories of~~ as inert, putrescible ~~and~~ or chemical ~~wastes~~, as well as special wastes as defined in the Act, and which are not defined as hazardous waste pursuant to Board RCRA regulations at 35 Ill. Adm. Code 721.

"Storage"

Response:

As noted earlier in the definition for "disposal", STS believes there is a need to define the term, "storage". The following is suggested as an option for inclusion:

"Storage" means the discharge, deposit, injection, dumping, spilling, leaking or placing of any solid waste, including that resulting from treatment, into or on any land or water or into any well such that no 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. It shall be considered storage if the solid wastes or its constituents are contained to prevent its entry into the environment or, where uncontained, there is a definite plan and set period of time within which the wastes or residues shall be moved to another site for final disposal.

"Unit"

1. If the Board makes the suggested change to the definition of "landfill", no change to the definition of "unit" is necessary. If the Board doesn't accept the proposed definition of "landfill", the proposed definition of "unit" should be: "'Unit' is a contiguous area used for solid waste disposal, including landfills, waste piles, and land treatment units, but excluding transfer stations." (NSWMA)

2. The definition of "unit" and its use in subsequent sections requires some clarification. If the definition is intended to apply to non-landfill facilities such as waste piles, then it should include treatment and short-term storage, perhaps storage for more than ten (10) days. Furthermore the definition should include storage operations where waste volumes are simply exchanged but the environmental exposure continues, such as a waste pile which is constantly being emptied and replenished. (WMI)

Response:

A "unit" is that portion of a facility that is used to landfill solid wastes. One or more units constitutes a landfill. A waste pile used for disposal would be considered a "unit" and a "landfill". STS notes that changes have been made to the definition of landfill.

"Waste Pile"

1. The reference to placement on land "for disposal" may introduce an unnecessary and self defeating element of intent to this definition. Where wastes are placed on the ground it does not

matter, for the standpoint of the environment, whether the intent, if such could be shown, is for disposal or short or long-term storage. In fact, where would storage stop and disposal begin? (NSWMA & WMI)

Waste used in transfer stations or composting facilities should not be included in this definition. (NSWMA)

WMI recommends deletion of the words "for disposal."

Response:

A waste pile may be placed on land, either for disposal or for storage. If either activity is likely to form leachate that could contaminate groundwater, then such waste piles must be considered a landfill. Refer to the definitions of "landfill", "Land treatment unit", "Storage" and "Disposal".

"Zone of Attenuation"

1. The "zone of attenuation", within which groundwater quality standards may be exceeded, is defined as that area underlying a landfill unit, bounded by a vertical plane 100 feet from the edge of the unit, extending to the bottom of the uppermost aquifer (Sec. 811.320 (c)). We agree that "The solution to pollution is not attenuation or dispersion" (Background Report, p.8), yet the use of a mixing zone, or in this case a "zone of attenuation", that exends to the bottom of the uppermost aquifer could result in irreversible contamination of groundwater beyond the mixing zone. (CBE)

2. The Agency suggests that the Board consider adding several terms to those defined in this Section. The Agency notes, for instance, that several key terms, such as "zone of attenuation" (811.309(g)(2)(G), etc), and "normal operations" (811.403(b)) may warrant separate definitions. (IEPA)

Response:

Some new terms have already been suggested for addition based on comments. In addition, STS aggrees with the above commentors and AAJ that the term, "zone of attenuation", because it is used extensively, be appropriately defined in this Section. With regard to the concern that the extension of this zone to the bottom of the uppermost aquifer may result in "irreversible contamination", STS notes that measurements at the edge of the zone of attenuation and in the zone of attenuation are required to detect possible leachate contamination and to take appropriate action to prevent groundwater contamination. STS also notes

that the term, "normal operations" is not in Section 811.403(b) as indicated by the IEPA. STS suggests the following definition:

"Zone of Attenuation" is the three dimensional region extending below the ground to the bottom of the uppermost aquifer, and bounded by the smaller of the volumes resulting from vertical planes drawn at the property boundary or 100 feet from the edge of one or more adjacent units.

PART 811

STANDARDS FOR NEW SOLID WASTE LANDFILLS

SUBPART A: GENERAL STANDARDS FOR ALL LANDFILLS

Section 811.101 Scope and Applicability

1. As the Agency has noted above regarding the definition of "solid waste" some "scoping" issues are, and will remain, unclear and/or in a state of flux due to the vagaries of USEPA rules. A question therefore arises whenever, as here, a State rule creates a reciprocal relationship with federal rules. This can be illustrated by example: assume a "new" facility is alleged to be a hazardous waste landfill by USEPA, but is alleged to be a solid waste landfill by its operator; under this proposed rule, would that facility be subject to Part 811 or Parts 700-749? What if a court subsequently determined the facility to be a solid waste landfill? This example also serves to illustrate the need for establishing these solid waste regulations as the minimum requirements applicable to waste management units of all kinds, including hazardous waste disposal units. As the Agency's witnesses have noted previously in R84-17 (R. 1783-1788), it makes little sense to adopt necessary stringent requirements for solid waste facilities that do not also apply to hazardous waste facilities. More importantly, the combination of the exclusion of hazardous waste regulated pursuant to RCRA regulations from the definition of "solid waste" in Part 810 and the exclusion of RCRA regulated landfills from this section creates confusing results. For instance, non-RCRA wastes declared hazardous by law (e.g., Section 22.4(d)) or by the Board pursuant to Section 22.4 (c) would apparently not be subject to RCRA disposal requirements, yet these solid waste requirements would not apply to RCRA regulated landfills. Does the Board intend to have hazardous non-RCRA wastes placed in "solid waste" sites, in RCRA hazardous waste sites, or in some kind of non-RCRA hazardous waste sites?

   In addition, if the standards in this Subpart apply to new landfills, and if Part 814 applies to existing operating landfills, to which landfills do the requirements of Subparts C, E, and F of Part 807 apply?

   Finally, inasmuch as the requirements of all other subparts of Part 811 also apply to "new" landfills, the Agency suggests replacing the word "Subpart" with the word "Part" in the first sentence, and inserting the word "new" before "landfills" in the next three sentences for clarity. (IEPA)

Response:

The use of a minimum set of requirements for both nonhazardous and hazardous waste units is not without merit, but is unrealistic. The approaches between the standards for nonhazardous and hazardous waste disposal regulations are different and basically incompatible. Simply stating that the nonhazardous regulations form the minimum acceptable technology is quite simple, but would lead to legal and practical difficulties that would take years to resolve. It is certainly a worthwhile goal to use these standards as the minimum requirements for hazardous waste disposal units. However, this record was not developed with this goal in mind. The development of such an approach in these regulations requires a thorough review of the hazardous waste disposal requirements and a reconsideration of the applicability of standards in Part 811 that is beyond the scope of this proceeding.

In cases where there is disagreement as to whether a facility is a hazardous waste landfill or not, the burden is on the operator to make the showing. However, until such a case is decided, the more stringent of the two regulations will apply to the facility.

If a waste is considered by the Agency to be a non-RCRA, but nevertheless, hazardous waste, its handling is dependent on whether it is classified as a special waste. If so, then a disposal facility that is permitted to handle such special wastes can be the site of disposal. If the waste is still classified as a solid waste in accordance with the definition in Part 810, and will be disposed in a facility subject to the landfill regulations, then subsection 807.105 (b) might apply, where it states that facilities subjected to non-hazardous wastes regulations "may be subject to other Board regulations", but only where it is appropriate to do so.

The requirements of Parts 810-815 are intended to supersede the requirements of Part 807 for landfills (as stated in subsection 807.105 (c).) STS agrees with the agency that all subparts under Part 811 apply to "new" landfills and that the word "new" is required before "landfill" in the rest of this section.

In addition, STS notes that in the response to the section dealing with the definition of "landfills," it was indicated that land treatment units or surface impoundments which <u>are used for disposal</u> of solid wastes should be considered "landfills" and subject to those landfill regulations, which, at a minimum, should include those needed for the purposes of groundwater protection from contaminated leachate, namely Sections 811.101-103, 811.201-203, 811.301, 811.306-309 and 811.317-320. The Agency, during the permitting process, could require other

applicable sections of the landfill regulations, such as the need for daily cover, gas management etc., as needed. However, as noted earlier in the response in Part 810 regarding the definition of "landfill" and "land treatment unit," the addition suggested below in subsection (b) is provided as an option for Board consideration since it is a change affecting the earlier intent and scope of the R88-7 proposal as developed during the hearings. The following changes are suggested for Board consideration:

a)The standards in ~~this Subp~~Part 811 shall apply to all new landfills, except those regulated purusant to 35 Ill. Adm. Code 700-749. This Subpart A contains general standards applicable to all new landfills. Additional standards for new landfills which dispose of only inert waste are contained in Subpart B. Additonal standards for new landfills which dispose of chemical and putrescible waste are contained in Subpart C.

Optional Addition:

b)Land treatment units or surface impoundments which are used for disposal of solid wastes and can be considered landfills in accordance with the definitions in 35 Ill. Adm. Code Part 810 shall, at a minimum, be subject to 35 Ill. Adm. Code Sections 811.101, 811.103, 811.201, 811.202, 811.203, 811.301, 811.306 to 811.309 and 811.317 to 811.320. The Agency permit may include other applicable standards from this Part.

Section 811.102 Location Standards

1.The subcommittee strongly endorses the restriction to the siting of landfills where it may impact a natural landmark or nature preserve. Most of the Illinois nature preserves were put in place to protect unique or in some cases, the last remaining examples of undisturbed ecosystems left in the State. Many of these would be gone forever if they were to be destroyed by either pollution, or in some cases, even by disturbances caused by day to day operation of the landfill. We therefore, recommend that these provisions be retained. (SCC)

Response:

STS thanks SCC for their comments.

2.The Illinois Utilities encourage the Illinois Pollution Control Board to exclude electric utility ash ponds for the disposal of coal combustion by-products from the requirement limiting

development of solid waste disposal facilities in 100-year floodplains. As indicated in the Background Report (Exhibit 1, p. 16) prepared by the Board's Scientific/Technical Section, there are some instances where a floodplain offers the only practical location for certain solid waste disposal operations. Such is the case for electric utility ash ponds. Power generating plants are typically located adjacent to surface water resources due to the need for cooling water and are, therefore, commonly found within the 100-year floodplain.

The location standards of Section 811.102 (b) of the proposed rule (Exhibit 2, P. 17) are addressed by current floodplain regulations administered by the Illinois Department of Transportation (IDOT) under "An act in relation to the regulation of the rivers, lakes, and streams of the State of Illinois" (Ill. Rev. Stat. 1985, Ch. 19, paras. 70 and 70a). An electric utility proposing to construct an ash pond in a floodplain must submit a Joint Permit Application to the IDOT, the U.S. Army Corps of Engineers (COE) and the Illinois Environmental Protection Agency. The IDOT reviews the permit application against Floodplain Management Requirements (Attachment 1) and Dam Safety Requirements (Attachment 2). The worst-case analysis required as part of the application involves the development of a water surface profiles model. The modeling involves the computing of a 100-year frequency discharge, obtaining surveyed floodplain cross-sections and computing water surface profiles under restricted, existing and proposed conditions.

If all or part of the proposed ash pond was to be built in a wetland, the COE would review the permit application against Section 404 of the Clean Water Act which regulates discharge of dredged or fill material into the "waters of the United States". If the proposed ash pond was sited on a wetland, the joint permit application requirements would include support information which describes the environment in the vicinity of the project would be directly affected by the permitted action as well as any secondary effects. This would include ecological and natural resource impacts and social and economical impacts.

Given the location restrictions associated with electric utility ash ponds and the floodplain protection demonstrations cited above, the Illinois Utilities encourage the Board to exclude ash ponds from the prohibition against construction within the 100-year floodplain. (UT)

Response:

As noted earlier, STS has proposed for Board consideration the option to have the regulations applicable to surface impoundments only if such impoundments are being used for solid waste

disposal. In that situation, it is intended that, at a minimum, those portions of the landfill regulations relating to protection of groundwater would apply. However, as presently written, the rules do not apply to surface impoundments.

However, these regulations are not incompatible with the floodplain and NPDES standards cited by this commenter. It is appropriate for the Board to specify requirements for facilities constructed in flood plains. It should be noted that the proposed regulations do not prevent the construction of Solid Waste disposal facilities but, rather, specifies that damage to downstream use be prevented.

3a.(b) In subsection (b), would an area diked or otherwise protected within the 100-year floodplain be acceptable as a potential location? Must a facility, to be located within such a protected area, provide alternative floodwater storage capacity equal to 100 percent of the volume of space included within that protected area or only so much as is occupied by active operating units? Finally, please note that the citations to Section 404 of the Clean Water Act are not identical throughout these rules (e.g. see Section 812.109(f)). (IEPA)

3b.The citation to Section 404 in [subsection] 811.102 (f) should be 33 U.S.C. 1344. (IEPA P.C. #21)

Response:

A diked area (presuming the diked area is designed to divert a 100-year flood) has already significantly altered the flow regime of the area. Therefore, a landfill placed inside a diked area will not affect the flow regime of the 100-year flood event and does not require the special provisions for alternate capacity. This is compatible with the standards because an applicant can show by calculations that the flow regime is not affected.

The citation to Section 404 of the Clean Water Act is in subsection (e), not subsection (f). STS thanks IEPA for pointing out the correct citation which will be suggested for incorporation as follows:

f)The facility shall not cause a violation of Section 404 of the Clean Water Act, 33 USC 134~~2~~4

4.Section 811.102 specifies location standards for all landfills and is discussed at page 16 of the Background Report. IERG hopes that it has made clear that these limitations do not apply to

facilities which may be located in areas which might have been considered part of the historic 100 year flood plain but are presently behind dikes, levees or other permanent structures. Moreover, and more importantly, IERG urges the Board to develop performance standards for these areas as discussed at page 16-17 of the Background Report. Many of IERG's members in the power, steel and other industries are located along various bodies of water and therefore the flood plain may be the only practical location for certain solid waste disposal operations. As pointed out in the comments by the Illinois Utilities Group, there are numerous other regulations designed to protect such flood plains which must be complied with regardless of these rules.

In addition to the limited specific location standard at Section 811.102, the Board acknowledges in its opinion at page 19 and the Technical Staff's Background Report at pages 78-91, that application of the groundwater assessment requirements of the Rule 811.315: "Hydrogeologic Site Investigation" and 811.317: "Groundwater Impact Assessments", together with the water quality standards discussed immediately above, results in the imposition of stringent locational constraints. The Board requested the Illinois Geologic Survey to conduct computer modelling utilizing both its own landfill design proposal and the "Agency's Standard 10-foot Liner and No Leachate Collection Systems Design." These designs were applied to 15 sequences of geological material. The projection of 47 percent of Illinois being eliminated from use of the standard design as discusses at the Background Report at page 90 establishes the draconian impact of the Board's proposals. An examination of the map at page 91 of the Background Report makes it clear that most areas of the state containing heavy industry will be locationally constrained from the installation of even normally designed facilities under the Board's proposal. Keeping in mind that the Board's definition of inert waste apparently will require that most high volume industrial waste be treated as chemical waste and subject to these locational constraints, even for relatively benign constituents, establishes the heavy economic impact of these regulations on industry in Illinois. It would appear to require even more elaborate design of industrial landfills or extensive transport of high volume wastes at added costs.

IERG requests that the technical feasibility and economic reasonableness of these regulations considered together be addressed in further hearings in this proceeding. (IERG)

Response:

The response to comments # 2 and 3 above apply to this comment as well. The optional changes to the Scope and Applicablility Section (811.101) provides additional guidance as to which

standards apply to land treatment units and impoundments which are considered landfills, because they are used for disposal. The existing requirements in the proposal are not applicable to land treatment units and surafce impoundments.

The report by the Illinois State Geological Survey (Ex. 8 in R88-7) is an attempt to help in the landfill siting process by identifying locations in the state with the most favorable geological settings. The statement that 47 percent of Illinois will be "eliminated from use" is not true. It is quite appropriate to specify additional measures in gologically less favorable areas. However, the most advantageous (from an economic and technical point of view) location is based on site-specific evaluations such as the balance between the use of a minimum 3 foot liner at a distant more favorable geologic location versus a thicker liner in a less favorable geologic setting at a location closer to the source of the waste generation. The EcIS and EcIS hearings have also addressed some of the issues regarding technical feasibility and economic reasonableness.

Section 811.103 Surface Water Drainage

1.(a) We recommend in subsections (a)(1) and (2) that runoff simply be subject to permitting as required by 35 Ill. Adm. Code 309. Standards will then be applied in the permitting process. We also recommend that runoff from disturbed areas be regulated only during the time of disturbance. After closure, subsection (a) standards should not apply. In subsections (a) (4) and (b)(5) with the progress of site development, it may not be necessary to operate all control structures until closure is complete as long as permit limits are met.

As noted in comments on the definition of "disturbed areas" these areas should be confined to areas where waste disposal is presently or has been conducted. We concur that these discharges are best regulated by the NPDES permitting system under 35 IAC 309. All surface control features may or may not be applicable as operations progress. The surface water management plan is the approved developmental permit would dictate the appropriate length of operation for each structure. (NSWMA) (WMI)

Proposed revision to (a)(4): "All surface water control structures shall be operated according to the approved developmental permit." (NSWMA)

Response:

The regulations in 35 Ill. Adm. Code 309 are insufficient to effectively design for surface water controls at a landfill in

areas where the majority of flow is created by precipitation events. It is necessary and appropriate to specify the design events in these regulations. Disturbed areas constitute a discharge from a point source of pollution and may not be limited to only areas where waste will be placed. Borrow areas, ramps and other cleared areas constitute a significant source of sediment laden runoff that must be treated. The proposed revisions are inconsistent with the intent and philosophy of these regulations. Runoff control facilities may be removed once vegetation has been fully established.

2.(a) Runoff water should not increase the existing water capacity of present streams and ditches. If bypass design is to include runoff onto adjacent property owners land, then permission is needed from adjacent property owner prior to acceptance by IEPA of such bypass plan. (CBE)

Response:

Public comment opportunities are allowed under the NPDES program. Additional procedures are unnecessary here.

3.(a) and (b) Are the "treatment facilities" described in subsection (a)(3) required to be permitted for construction pursuant to 35 Ill. Adm. Code 309? Also, in subsections (a)(4) and (b)(5), shouldn't the references to "811.321" be to "811.322" instead? (IEPA)

Response:

Yes, if it is within the scope of Part 309. The Agency is correct in pointing out the correct reference. This will be changed in subsections (a)(4) and (b)(5) as follows:

a)Runoff From Disturbed Areas

4)All surface water.....requirements of 811.205 or 811.32~~1~~2.

b)Diversion of Runoff From Disturbed Areas

5)All diversion structures...meeting the requirements of 811.205 or 811.32~~1~~2.

4.(b) All diversion structures, berms, and dams need to be inspected frequently from October to April to make sure the structures are functioning in event of a heavy rain so that the water will not go into adjacent property of the landfill. (CBE)

Response:

All structures are covered under the maintenance provisions of 811.107.

Section 811.104 Survey Controls

1.The survey should include a statement from adjacent property owners that the survey is correct. Since a survey is only a paper entry, the actual owners could be other than what the surveyor indicates on his drawings. This is important since monitoring wells, etc. are based on the actual and accepted boundary line of the property. (CBE)

Response:

The survey should correspond to the information on a deed of ownership or a lease. An adjacent land owner is free, at any time, to check the boundaries at the County Recorder of Deeds office (or equivalent local department.) The purpose of these regulations is not to specify methods to solve boundary disputes.

2.(c) An annual survey of horizontal and vertical controls is technically unjustified and entirely unnecessary. An inspection should be completed annually and any damaged or missing controls replaced and resurveyed by a professional land surveyor. (NSWMA) (WMI)

Proposed revision to (c): "All stakes and monuments shall be inspected annually. Any missing or damaged stake or monument shall be replaced and resurveyed by a professional land surveyor." (NSWMA)

Response:

STS agrees that annual surveying may not be necessary. However, surveys to record changes that have occurred needs to be carried out. The following changes are suggested:

c)All stakes and monuments shall be inspected annually and surveyed ~~annually~~ no less frequently than once in five years by a professional land surveyor~~.~~, who shall also replace and resurvey any ~~M~~missing or damaged stakes and monuments discovered during an inspection ~~shall be replaced~~.

Section 811.105 Compaction

1.As explained on several occasions in R84-17, without refutation, it is often not possible or desirable to deposit waste "at the lowest part of the active face" (e.g., in cases of severe weather or the need to minimize visual impacts).

The intent of this phrase is unclear. As discussed on page 19 of the STS report, all operations must compact waste to the "maximum extent possible", but no design recommendations are proposed. Are the words "all waste shall be deposited at the lowest part of the active face" imposing a design standard prohibiting any push off lifts and downhill compaction? Or, is the intent of this phrase covered in Sections 811.321 (a) and 811.107 (a)(1)? If a design standard is proposed, this contradicts the STS intent: if the intent is covered in other sections, then this phrase is redundant. In either case, the reference to "the lowest part of the active face" should be deleted. (NSWMA) (WMI)

Proposed revision: "All waste shall be deposited and compacted in such a manner to achieve the highest possible density necessary to minimize void space and settlement." (NSWMA)

2.The Agency suggests that the Board should allow for non-standard deposition of wastes where appropriate (e.g., top of fill placement of wastes may be preferable during wet weather.) This should be governed by Agency permit conditions tailored to individual site characteristics. (IEPA)

Response:

STS agrees with NSWMA and WMI that there may be extreme weather conditions under which it may not be possible to limit the deposition of waste to the lowest part of the active face, and has used both NSWMA's and the Agency's suggestions to recommend the following change:

All waste shall be deposited at the lowest part of the active face, and compacted to the highest achievable density necessary to minimize void space and settlement unless precluded by extreme weather conditions.

Section 811.106 Daily Cover

1.A requirement should be added that all daily cover should be in place by 6:00 p.m. of each operating day. Removal of daily cover should not be permitted because this will increase odor problems. This would be a step backwards in protecting the citizens. (CBE)

Response:

This is an arbitrary standard with no justification.

2.(b) The Illinois Utilities wish to commend the Board on its inclusion of Section 811.106(b) which allows for the use of alternate materials or procedures in lieu of six inches of clean soil which is currently required for daily cover. The Illinois Utilities feel that this approach is not only economically feasible, but environmentally sound as well. Ever increasingly scarce and valuable landfill space should not be wasted because of the mandated use of clean soil.

For this reason, we believe Section 811.106(b) must be retained to provide for the proper management of landfill space. (UT)

Response:

STS thanks UT for their comments and adds that such alternate materials must be approved by the Agency before it can be used. See response to comment #3 below.

3.(b) Must the "alternative materials or procedures" alluded to in subsection (b) be authorized by permit, or can the operator select an alternative without Agency oversight or approval? (IEPA)

Response:

The Agency reviews the use of daily cover in a permit application or revision. The information must be included in a submittal to the Agency as specified in Part 812. Onsite facilities have to meet the requirements of the subsection if they plan to use alternative materials or procedures. Such information must be retained onsite in accordance with Subpart E of Part 815 and an annual report must be filed with the Agency summarizing the significant modifications in acordance with 35 Ill. Adm. Code 815.303 (d).

Section 811.107 Operating Standards

1.(a) In subsection (a)(1), the Agency assumes the Board is attempting to restate the requirements of Section 807.303(a), which speaks in terms of depositing wastes into "the toe of the fill" or the "bottom of the trench". In some landfilling configurations, might placing waste "in the lowest possible part of the unit" result in a different placement of wastes than under 807.303(a)? Is it always desirable to place wastes in the "lowest possible part" of a unit? If not, may the Agency specify

an alternative methodology by permit condition? If so, where is this stated in these rules? If not, why not? (IEPA)

Response:

Yes, the Agency may. See response to comment #2 in Section 811.105 above.

2.(a) Subsection (a) is redundant. The intent is clearly stated in Section 811.321 (a). In subsection (a)(1), there may be instances where beginning in the lowest part of the unit and moving to the highest is not possible or desirable. For example, in times of severe weather or where there is a need to minimize visual impacts another progression may be preferable. In addition, subsection (a)(3) requiring sequential filling and closure, is ambiguous and may even be inconsistent with other portions of subsection (a). Subsection (a) as a whole should recognize the need for vehicular access to disposal areas. (NSWMA) (WMI)

Proposed revision: Delete 811.107 (a)(1) and renumber accordingly. The new subsection (a)(2) should be "The phasing of operations at the facility shall be designed in such a way as to allow the sequential construction and filling of discrete units or parts of units." (NSWMA)

Response:

See response to comment #2 above regarding the placing of wastes.

3.(a) Subsection (a)(4): During the operation of the site it is not possible to complete a unit entirely to final grade before moving into the next unit. It is possible to have 3 sides of the unit exposed and sloped at a 3:1, these slopes would then be unfinished. Also, final contours of the site may vary drastically from unit to unit causing the operator to have to work a number of units at one time to achieve the final contour desired. Finally, during the operation of the site, it is desirable to leave some areas low to form a base from which to work off as other areas or units are needed. Subsection (a)(4) is also covered by the design and performance criteria in the Regulations.

Proposed revision: Delete subsection (a)(4) (NSWMA)

Response:

None of the activities described in this comment is in conflict with this requirement. No revision recommended.

4.(b) Subsection (b)(1): The size of the working face will vary each day depending on where the face is located on site. Some areas do not allow an operator to run a wide enough face to handle the traffic flow coming into the site (i.e., corner or ends or beginning of lifts). Who decides what is safe and efficient? As operators we all try to run a safe operation and a determination of safe and efficient should not be left to the Agency. (NSWMA) (WMI)

Proposed revision: Delete subsection (b)(1). (NSWMA)

Response:

No revision recommended. This standard is actually directed at operations that have larger than necessary working faces and is framed to reflect this intent. The Agency determines if the working face is too large.

5.(c) Provisions should be provided that common replacement parts such as pumps, generators, belts, etc. should be kept in stock at the facility, or provisions should be provided that the manufacturers recommended maintenance schedule be followed and be available for inspection by IEPA. (CBE)

Response:

STS does not believe it is appropriate to specify on-hand inventory and impossible to specify a list of "common" or "critical" parts. The manufacturer's suggested maintenance schedule is not always appropriate. These matters are more effectively regulated through a performance standard where equipment selection and performance are determined by the operator, based upon expected use, economics of the operation and availability of redundant or replacement systems. No revisions recommended.

6.(e) So long as systems and equipment are adequate and have sufficient capacity to meet all standards, it should not matter that they be maintained to achieve "maximum efficiency." (NSWMA) (WMI)

Proposed revision: Delete the sentence "Each system shall be maintained to operate at maximum efficiency throughout its operational life." (NSWMA)

Response:

Considering the nature of the operation and the degree of protection these systems must provide, it is appropriate to require that all control systems at a landfill operate at their practical best, rather than "just operate." No revision recommended.

7.(g) The standard for dust control should recognize the difficulties faced by any type of facility in extremely high winds when absolute prevention of dispersal may be impossible. (NSWMA) (WMI)

Proposed revision: Change "prevent" to "minimize". (NSWMA)

Response:

This subsection is a standard requiring the implementation of methods that are part of an air quality plan approved in the permit. The emphasis is on controlling dust with the aim of preventing wind dispersion. It is recognized that there may be situations, where high winds may thwart all reasonable attempts to control particulate dispersion. STS suggests the following:

g)Dust Control

The operator shall implement methods ~~of~~or controlling dust ~~in order~~ so as to prevent wind dispersal of particulate matter or minimize dispersion during such weather conditions as extremely high winds.

8.(j) This section needs considerable expansion. A 300 or 500 gallon tank on a truck is not fire protection. A fire protection plan is needed that includes adequate water supply such as a public utility with fire hydrants, a fire truck on the facility with compatible connections, as well as arrangements with local fire departments. The plan should include training for employees on precautions that need to be taken in event of a fire, methane gas explosion, or other disaster. The training should be quarterly and the plan written, with the plan updated at least on an annual basis. Fire protection requirements are more important at landfills that have been in operation over 5 years due to methane gas generation as well as contact with buried hazardous and explosive waste in an existing landfill. (CBE)

Response:

Because these regulations require monitoring of methane and installation of a gas management system, the threat of explosions from methane will be minimized. While the Agency should ensure the existence of a fire protection program, it should not be

responsible for specifying the type or level of safety training required.

Based on RKH's suggestion, STS recommends the following specifications for fire protection requirements in subsection 811.107 (j) amending the existing language:

j) Fire Protection

The operator shall ~~take measures for~~ institute fire protection measures including, but not limited to, maintaining an adequate supply of water onsite and radio/telephone access to the nearest fire department.

9.(k) In subsection (k)(1), the operator is required to patrol the facility for litter on a "daily" basis. The Agency suggests that this requirement must be stated more specifically if it is to be meaningfully enforceable. Absent a specific requirement that litter be collected by the end of each operating day, such enforceability is lacking. (IEPA)

Response:

It was intended that the collection of litter would take place on a daily basis. STS suggests the following changes:

k)Litter Control

1)The operator shall patrol the facility daily to check for litter accumulation. All litter shall...for later disposal.

10.(k) In subsection (k)(2), the requirement that a receiving landfill essentally turn away uncovered waste hauling vehicles bears no relation to environmental protection (coming as it does at the end of the waste transport chain) and may, in fact, be counter-productive (e.g., as uncovered haulers retake to the highways after being rejected by the disposal site.) Further, it appears to misplace responsibility for policing waste loads onto the shoulders of the receiving site operator, rather than onto the shoulders of waste generators and haulers. At most, the Board should require the receiving site operator to note on the manifest when an uncovered waste load is received.

Finally, shouldn't the Board require a written safety plan be in place at each landfill, describing site hazards and prescribing appropriate training, equipment and procedures for preventing and handling accidents? (IEPA)

Response:

While it is arguably true that the Board has the authority to require a safety plan, STS believes it is inappropriate for the Board, and the Agency for that matter, to become intimately involved in worker health and safety. There are other agencies charged with this particular duty, who already have standards and the experienced professionals needed to enforce safety standards. No revision is recommended.

11.(k) Subsection (k)(2): We object to this subsection which makes the facility responsible for turning away uncovered loads. This should not be the responsibility of the facility operator and, as a practical matter, simply puts small uncovered trucks back out on the roads where they are likely to resort to open dumping and exacerbate the litter problem. If trucks are to be covered, the Board should regulate them directly. Moreover, it makes no sense to require that a load consisting, for example, of a discarded refrigerator be covered.

Many different trucks enter the site and many of these are not normally used for hauling refuse. These trucks would not be tarped and it should not be the operator's responsibility to see that they are. If we were to turn away those who were untarped, the Agency would find open dumping on the increase. IDOT regulations require a tarp, and IDOT is better able to enforce this requirement, as it can require a vehicle to park until a tarp arrives, rather than send the vehicle back to re-litter. (NSWMA) (WMI)

Proposed revision: Delete subsection (k)(2). (NSWMA)

Response:

The responsibility for covering vehicles certainly lies with the hauler and can be included in regulations dealing with waste hauling. However, these regulations place a responsibility on the waste facility operator to not accept uncovered loads, since they can result in litter problems for which the operator will be held responsible. A change may be required to allow certain kinds of waste, such as white goods or other items which would not result in particulate dispersal or littering. STS also notes that the action of turning away loads will set an example causing future loads to be covered and suggests the following change to subsection (k)(2) which addresses this problem:

k)Litter Control

2)The facility shall not accept solid waste...to control litter, unless the nature of the solid waste load is such that it cannot cause any litter during its transportation to the facility.

12.Current rules provide for the control of nuisance associated with dust when dry weather conditions exist. However, there is no provision for the nuisance and potential public safety problems associated with mud accumulating on the waste hauling vehicles' wheels and subsequently deposited on public roadways.

We recommend that the operating standards require the facility to implement methods for controlling the deposit of mud on the roadways such as wheel washing units. (SCC)

Response:

STS suggests a new subsection (l) to deal with this problem and suggests the following addition:

l)Mud Tracking

The facility shall implement methods, such as the maintenance of roads on the facility and use of wheel washing units to minimize tracking of mud by hauling vehicles onto public roadways.

13.The Board regulation does not require the preparation or maintenance of contingency plans. The Agency request that a provision be added requiring solid waste facilities to prepare and maintain contingency plans. The Agency recommends that the following [language on pp. 11-12 of P.C. # 21] be used based on RCRA regulations as a model. (IEPA P.C. # 21)

Response:

STS has not had the time to review these additions. However, one option is to include Agency suggested language in the second First Notice and ask for comments.

Section 811.108 Salvaging

1.This section omits reference to scavenging, which is expressly forbidden by Section 21(p)(8) of the Act and rule 807.308 of this Title, and defined by rule 807.104. Since "scavenging" is not defined at 810.103 the Board's proposed rules would essentially eliminate "scavenging" as a regulatorily defined offense. The Agency urges the Board not to abandon this concept. (IEPA)

Response:

It might be useful to continue to define the terms "scavenging" and "salvaging" in Part 810, using the present definition in Part 807. Note the comment and response to #2 below. See the changes in Part 810.

2.(a) Note a drafting problem in Subsection (a) of this section which may be argued to exclude regulation of salvaging which does not immediately return waste to a beneficial use. (NSWMA) (WMI)

Proposed revision to subsection (a): The "in which solid waste is returned to a beneficial use" should be deleted. (NSWMA)

Response:

It is not clear why this change is being requested, since salvaging means the return of waste materials to beneficial use. Any non-beneficial removal would be termed scavenging. The terms salvaging and scavenging are now included in the definition Section of Part 810.

3.(c) In subsection (c) "immediate" removal of salvaged materials from the site is unreasonable. It is sufficient to require removal of those materials from the working face on a daily basis. (NSWMA) (WMI)

Proposed revision: Delete the word "immediately". (NSWMA)

Response:

In addition to the above comments, RKH has commented that the storage of salvageables allowed in subsection (c) might result in tires, white goods, etc. piling up waiting to be "recycled" and suggests that such wastes be stored in closed containers if stored longer than 7 days. Comments on the reasonableness of the 7 day period are solicited. STS suggests the following:

b)All salvage~~d~~able materials ~~shall~~ may be ~~removed from the~~ stored or accumulated on site ~~immediately or shall be stored so as not to~~ as long as it does not create a nuisance, harbor vectors, cause malodors, or create an unsightly appearance for a period not to exceed 7 days. The Agency may allow a period longer than 7 days if the salvageable materials are stored in closed containers.

Section 811.109 Boundary Control

1.Consistent with WMI's proposal in R84-17, Docket C, the sign at the facility entrance should contain a warning that hazardous wastes may not be disposed of at the facility. This is required later by Section 811.402. It might be less confusing if all such signage requirements appeared together.

We assume that the name, address and phone number to be provided are those of the operating company. (IEPA)

Response:

STS suggests that subsection (b) be corrected to include the item in Section 811.402 as follows:

b)A permanent sign shall be posted at the entrance to the facility stating that disposal of hazardous waste is prohibiited and, if the landfill is approved for accepting special wastes, that special wastes must be permitted by the Agency and accompanied by a manifest and an identification record along with the following information:

In subsection (b)(5), the name, address and phone number are of the company operating the facility. Operator and Company operating the facility were being used synonymously here. Subsection (b)(5) will be changed as follows:

5)The name, address and telephone number of the company operat~~or~~ing ~~of~~ the facility.

2.The complete facility should have a security/privacy fence erected prior to the start of any work at the site. The present wording is too vague and could be unenforceable. The "Hours of Operations" needs to be expanded as described in the suggested definition. (CBE)

3.(b) The sign at the facility should contain a warning that hazardous wastes may not be disposed of at the facility. This is required later by Section 811.402. It might be less confusing if all such signage requirements appeared together.

We recommend that subsection (b)(2) "hours of operation" be deleted. (NSWMA)

Response:

The need for a security fence can be evaluated on a case-by-case basis and is not always necessary. "Hours of operation" is clear as written. Correction to the sign requirements are included in the responses to comment #1 above.

4.(a) The Agency suggests that subsection (a) is too imprecise to meaningfully enforce. Unauthorized entry to the entire facility should be controlled at all times; limiting the control to areas "that may cause a threat to public health and safety" introduces subjectivity and creates an opportunity for confusion and abuse. Further, the Board may wish to elucidate what it means by a "secured" site; does this requirement vary in meaning from the requirement of current Rule 807.314(c)? (IEPA)

Response:

Parts of the facility may be undeveloped or may be buffer zones requiring no special safety precautions. The following is suggested to address the Agency's concerns:

a) Access to ~~T~~the open face area of the unit and all other areas within the boundaries of the facility ~~may cause a threat to public health and safety~~ shall be restricted ~~secured against~~ to prevent unauthorized entry at all times.

5.(b) Subsection (b)(4) should be removed from this section and placed under Section 811.107 by requiring the operator to notify the local constabulary of an authorized agent in emergencies after hours. This current requirement could foster harassment-type calls to an operator's home. As it presently reads, (b)(4) invites the improper handling of an emergency situation. The proper authorities (police, fire department, and IEPA Emergency Response) are best qualified to deal with emergency situations. The name and telephone number of such authorities should be posted. Additionally, these authorities should have on file the name and number of the operator or an authorized agent for the operator available to deal with emergencies to aid these authorities if necessary.
Proposed revision to (b)(4): "Telephone numbers of the appropriate emergency response agencies." (NSWMA)

Response:

The intent of this requirement is stated in the Background Report. One would think, however, that the operator would want to know about an emergency and possible violation before the Agency and local government bodies.

6.(b) Subsection (b)(5) should be written so that the name, address, and phone number on the entrance is not that of the individual, but the company name and phone number. The home phone, address,

etc. should be given to local authorities such as the fire department and police department.

Proposed revision to (b)(5): "The name, address, and telephone number of the company owning the facility." (NSWMA)

Response:

This change has been made. See response to comment #1 above.

Section 811.110 Standards for Closure

1.This whole area needs to be expanded because it will be hard to get a landfill operator to come back and fix drainage problems and berms once they are gone. Then the problem goes back to the adjacent property, township, or county to fix. (CBE)

Response:

No, it doesn't. No surface is genuinely stable over the long term and during intense precipitation events. After the landfill has stabilized, towards the end of the design period, cover maintenance becomes less critical.

2.(a) and (c) The standard of subsection (a), that the facility blend with the surrounding topography, is both unreasonably subjective and, if rigidly enforced, impossible to meet in a flat state such as Illinois. The requirement of subsection (c), that contours be compatible with the proposed land use, should be sufficient to serve the purpose. (NSWMA) (WMI)

Proposed revision: "The final slopes shall be designed to complement and blend with the surrounding topography of the designed final land use." (NSWMA)

Response:

As stated at hearing, the <u>intent</u> and the interpretation of this requirement is to require an operator to do the best it can to blend with the topography. STS suggests the following change to subsections (a), (c) and (d), based on the commentor's proposed language:

a)The final slopes <u>and contours</u> shall be designed to complement and blend with the surrounding topography <u>of the proposed final land use of the area</u>.

~~c)The final contours shall...land use of the area.~~

~~d~~c)The final configuration of the facility...the need for further maintenance.

3.(a) and (c) Except in extreme cases, the Agency doubts that subsection (a) can be meaningfully enforced. Could not the design of final slopes at a given facility under this Section vary according to anticipated future uses of the property? Could the failure of such an anticipated future use to occur result in a violation of this requirement? How are subsections (a) and (c) to be harmonized and/or distinguished? (IEPA)

Response:

The proposed land use at the time of closure determines the final slopes and contour requirements. However, during the postclosure portion of the design period, the operator will have to make adjustments to the topography to accomodate proposed changes in future land use and report such changes to the Agency. After the permit is terminated, i.e., at the end of the postclosure care period, the landfill can be expected to be stabilized and should not pose a problem to air, surface water or groundwater. A violation of this Section occurs during the design period if the operator, knowing the future land use, fails to meet the requirements of the Section.

Section 811.111 Postclosure Maintenance Standards

1.Five years is not really long enough to insure adequate vegetation and sustained growth. It really depends on the weather. Additional requirements should be added that problems related to drainage gullies, etc. which are called to the attention of the operator by adjacent property owners should receive immediate attention and be corrected immediately, weather permitting. This requirement should be extended to at least 10 years. (CBE)

Response:

Note that subsection (a)(1)(B) [made a part of (a)(1)(A) in the suggested revision] requires inspections for an extended period of time. In order to meet the statutory requirement of Section 22.17, STS suggests the following changes to subsections (a)(1)(A) and (a)(1)(B):

A)The operator shall conduct a quarterly ... after closure; and

~~B)A~~a after five years, the operator may reduce the frequency ~~to~~ to annual inspections until settling has stopped and there are no eroded or scoured areas.

B)For landfills, other than those used exclusively for disposing waste generated at the site, inspections shall be continued for a minimum period of 15 years after closure.

2.(b) The requirement in subsection (b) for "decontamination" of facilities, equipment, and structures is vague and unnecessary. Removal of wastes and waste residues is already required. The sites in question are not handling hazardous waste. Equipment can safely be used on other sites without elaborate "decontamination". Buildings should not require decontamination.

Since we are relying heavily on "discrete" units, it is very likely one unit may contain the support structures for the next unit. As written, this section could be interpreted to indicate only those structures needed for the care of the discrete unit. (NSWMA) (WMI)

Proposed revision to (b): "The operator shall remove all equipment or structures not necessary for the post-closure land use, unless otherwise authorized by permit." (NSWMA)

Response:

This subsection is applicable at closure of a unit. There is no requirement to remove equipment which is necessary for continued operation of the facility. The requirement for decontamination was taken from the Agency proposal and is intended to apply to equipment used for the disposal of certain types of special waste. Where decontamination is not necessary, it need not be performed.

3.(c) Subsection (c)(1)(B) should be modified to refer to "significant" eroded or scoured areas. This is needed because any geological formation will erode somewhat. Also, the issue of post-closure maintenance is generally handled in conjunction with the zoning which will eventually govern the facility and the end use.

Proposed revision to (c)(1)(B): "After five years, the operator may reduce the frequency to annual inspections until settling has stopped and there are no significant eroded or scoured areas or the postclosure period has ended." (NSWMA)

Response:

The addition of the word "significant" does not clarify this section and only adds confusion. No revision is suggested except for the deletion of the extra "to" in line 2 of (c)(1)(B).

4.(c) In subsection (c)(2) the requirement for filling of all rills and crevices is necessary. We recommend substitution with the standard used in Section 811.313 (c) which requires maintenance to minimize infiltration, prevent access by vectors and prevent standing water. (NSWMA) (WMI)

Response:

Until the end of the design period it is in the operator's best interest to scrupulously maintain the final cover.

5.(c) The Agency applauds the quarterly inspection regimen embodied in subsection (c)(1)(A), but continues to believe, as it has stated previously (R. 640-641, 643-644) that a semi-annual, season-specific inspection regimen is preferable as a minimum requirement to the annual, non-season specific requirement of subsection (c)(1)(B). What assurances have the Board's proposed rule provided that such annual inspections will occur at a time when all portions of the site are (a) visible and (b) accessible? Does the Board object to inserting a requirement that any reduction in frequency of final cover inspection shall be subject to Agency approval conditioned upon a showing that settling, erosion and scouring have substantially ceased? (IEPA)

Response:

Inspections must take place when the site is visible and accessible. Otherwise it isn't an inspection, is it? As for the final comment above, this standard is intended to allow the operator to change to annual requirements only after consulting with the Agency. It is framed in this way to be applicable to nonpermitted sites as well. STS has no objections to adding a requirement for permitted facilities to obtain the approval of the Agency for changes in inspection frequency.

The Agency's suggested language for subsection (c), in P.C. # 21, allows a reduction to an annual frequency of inspections after five years and by demonstrating to the Agency that settling has stopped and there are no eroded or scoured areas. This is acceptable, but STS does not feel that the demonstration to the Agency is needed since STS considers a change in the frequency of inspections to be a significant modification that requires a permit modification. By retaining the existing language, non-permitted facilities would not be forced to continue at a

quarterly inspection frequency simply because they do not have a permit.

SUBPART B: ADDITIONAL STANDARDS FOR INERT WASTE LANDFILLS

Section 811.202 Determination of Contaminated Leachate

1. The test for determination of contaminated leachate in this section is entirely unsupported and will be almost useless in identifying inert wastes. Apart from the difficulty with many wastes of identifying a representative sample, the key to developing a contaminated leachate is contact time. Without adequate contact time or some reasonable substitute, the procedure proposed will simply encourage tests not truly designed to determine whether a waste will produce a contaminated leachate.

   Furthermore, without monitoring requirements for inert waste fills, there will never be any way to confirm that the extraction test used was reliable and that contaminated leachate is not indeed being formed.

   We believe that the Board may want to consider leachate extraction procedures approved by the Agency. It may be possible to base procedures on the rules for testing residuals under Section 39 (h) of the Act.

   In any case, inert waste fills should be subject to stringent waste receipt and identification controls and groundwater monitoring to confirm the lack of impact over time. (NSWMA) (WMI)

   Subsection (b) requires or suggests a laboratory surrogate-type leachate may be used, but offers no specific suggestions. Since it appears the Board does not wish to specify a procedure, it should disclose the identity of studies which have been performed which reveal the intent of the section. (NSWMA)

Response:

All of this is covered in the Background Report. It has also been discussed during the hearings, most recently by Dr. Ham during the June 1989 hearings. Dr. Ham suggested a number of criteria that could be used in selecting a test. He has also specifically provided information on one test, namely, the American Foundrymen's Test as a representative of one of a number of tests that can be used but notes that no one test is better than another in all situations. It is because no one test can be prescribed in all situations that flexibility in the testing method has been provided in this section. Although STS considers the Section to be generally adequate in guiding the selection of a test, an addition to clarify that leachate from test fills may also be used is recommended for inclusion in subsection (c) as follows:

c)Actual samples of leachate from an existing solid waste disposal unit or a test fill may be utilized under the following conditions:

2.The Board's proposal provides for three categories of solid waste: Putrescible, Inert and Chemical. Our comments address the inert and chemical categories and the process of determining into which category a given waste falls.

The proposed regulation is deficient in describing a procedure that a waste generator must use to decide whether his waste is Inert or Chemical. The consequences of this deficiency are serious because the proposed disposal standards differ widely for these categories. If the waste generator overclassifies his waste, the result is a need for costly and unnecessary leachate control systems which may have the effect of reducing the capacity of a given site to accept wastes. (As a simple example of reduced capacity, a landfill which might be designed to accept waste to a level of 40 feet above the surface could accommodate only 36 feet of waste if a three foot liner and one foot drainage blanket were installed. The effect is a 10% reduction in waste volume for a given area and a resultant increase either in land requirements or number of disposal sites.)

In attempting to apply the proposed rule to determine the classification of his waste, a generator may be led to interpret the language the most direct way possible. The proposed rule states simply that "a waste which produces a contaminated leachate is a chemical waste." The rule further states that the leachate is "contaminated" if it exceeds the water quality standards proposed elsewhere in the rule. A leachate is generated when water, whose source may be precipitation or surface runoff, infiltrates a body of waste in a disposal site. We assume that it is the quality of this leachate that the Board is referring to in its proposal. If that is the case, the waste generator must somehow sample this leachate and analyze it to determine whether it falls below or exceeds the proposed water quality standards. This is a difficult, but not impossible task. It requires that the waste be already placed in a disposal facility. If it is the Board's intention that the process described above is the process by which a generator is to determine the classification of his waste, then the regulation should state this procedure explicitly and establish other conditions that may affect leachate quality, such as the rate of infiltration, the compaction of the waste, the analytical procedures to be employed, and other such considerations.

While the above described approach to determining leachate in situ is clearly the approach that yields the results which most closely represent a potential threat to groundwater, a generator who has yet to produce his waste faces a problem. He must find some way to predict the quality of leachate from his waste in advance of its production. Even in the case of wastes which are relatively uniform, such as coal combustion wastes, the concentration of metals varies by several multiples depending on the coal source, boiler type and firing practices.

An alternative to an in situ leachate analysis is a simulation which can be performed in the laboratory, or in the case of well-studied wastes such as coal combustion by-products, a mathematical simulation. Laboratory simulations are familiar to the Board. The EP, developed by USEPA for use as a toxic characteristic test to determine whether a waste is hazardous, is part of the Board's own hazardous waste program. The EP is nothing more than a crude analog of what leaching might occur if a waste is placed in a municipal waste landfill. The test employs dilute acetic acid as a leaching medium to simulate the acidic conditions commonly found in municipal waste landfills.

Other such laboratory simulations have been developed. For example, ASTM has developed a laboratory leaching procedure which is similar to the EP, but employs distilled water as a leaching medium instead of acetic acid. This test was developed in response to concerns that the EP is limited to acidic leaching environments whereas many wastes are never disposed under such conditions. Some metals are found to appear at lower concentrations using the ASTM test as compared to the EP test, while others are higher.

The Electric Power Research Institute (EPRI) has recently developed a mathematical simulation of leachate quality (and quantity). The process consists of a computer code which runs on a personal computer, and makes use of chemical and physical data on coal combustion ash that have been gathered as a result of EPRI's extensive research program on ash characteristics and disposal. This program is named FOWL and will be used by the Illinois Utilities in their generic design studies to be submitted later to the Board as part of a proposal for coal ash-specific disposal standards. A full description and details of this program will be submitted to the Board by the Utilities along with our waste specific rule proposal.

All of these leachate simulation studies have the advantage that they yield reproducible results and are capable of providing an area of agreement on leachate quality between the waste generator and the Illinois Environmental Protection Agency, which must administer disposal permits.

We wish to direct the Board's attention to the ASTM distilled water extraction procedure as a possible waste classification test. The Illinois Utilities prefer the ASTM distilled water extraction procedure to the EP, because our coal ash is more or less alkaline, and is not commonly disposed of in municipal landfills. We, therefore, believe the ASTM test is a somewhat better simulator of coal ash leaching phenomena. In fact, it is generally more applicable to any of the wastes which might fall into either the Inert or Chemical waste categories, regardless of the pH of the waste. The establishment of separate disposal standards for wastes in these two categories implies that they will be managed separately from Putrescible wastes, which is the environment the EP is intended to simulate. In monofills, the waste itself controls the pH of the leaching medium and, therefore, the leachability of regulated substances. The Illinois Utilities, therefore, urge the adoption of the ASTM distilled water extraction test, with a suggested multiplier of 75, as a waste classification test, if the Board is disposed to follow this approach. Wastes with analytical results of less than the 75X multiplier would be classified as Inert. Wastes with analytical results of 75X or greater would be classified as Chemical wastes.

While the Illinois Utilities have consistently held that the EP is not an appropriate analog by which to predict the quality of coal ash leachate, we provide the following comments if the EP is to be considered as a possible waste classification test instead of the ASTM distilled water extraction procedure. As the Board is aware, the EP is part of the Illinois hazardous waste regulation program, where it is the test used to determine whether a waste is hazardous by virtue of toxicity. Obviously, the test as it now stands could not be used both to classify a waste as hazardous or nonhazardous and to determine the category of solid waste in which it belongs. However, there is a provision in the present test which requires the multiplication of the concentration standards of regulated elements in the leachate by 100 times before comparing with applicable water quality standards to determine the classification of the waste. USEPA introduced the 100X multiplier in their final EP rulemaking to account for both laboratory accuracy and precision and also for leachate attenuation that occurs in groundwater. That being the case, it would be appropriate to use the same test with a lower multiplier, say 75X, for establishing the category of the waste as Chemical or Inert within the Board's proposed solid waste classification system. Selection of this value for the multiplier might appear to be arbitrary, but it is no more arbitrary than the Board's own proposal to divide all nonputrescible solid wastes into only two categories: Inert and Chemical, and to propose widely differing control technologies for each category irrespective of the actual threat to groundwater that each might pose. The advantage of this

suggestion is that it would provide IEPA and the regulated community with a familiar, tested procedure for waste classification. It would, therefore, permit early adoption of the rules proposed in R88-7 because it would eliminate the requirement for a long development, confirmation and review period that would be required for a totally new leachate simulation procedure.

At the present time, the Illinois Utilities do not propose the adoption of a mathematical simulation such as FOWL as a waste classification test. We believe that, at the present time, this procedure is too new and untried to permit early promulgation of these rules. However, the Illinois Utilities will incorporate this procedure in our generic design proposal and may, in the future, propose FOWL or its derivatives as the best method to determine the appropriate control strategy for coal ash disposal.

In any case, the Illinois Utilities believe the proposed rule as written is unworkable without a specific procedure for categorization of wastes, and we urge the Board to consider our proposal in adopting a final rule. (UT)

Response:

STS draws the commentor's attention to previous discussions at hearings, in particular Dr. Ham's testimony at the June 1989 hearings regarding the definition and determination of "inert waste" as well as the response to comment #1 above. STS agrees with the commentor regarding the need to use an appropriate test, but does not agree that it is appropriate to specify any one test. The standards in this proposal for an inert waste landfill are based on the assumption that the leachate concentration (as produced) is below the standards specified in Section 811.202 (a), whereas the use of a multiplier, as suggested by the commentor, would allow leachate concentrations that are higher by an amount determined by the multiplier chosen. If a truly representative sample of leachate is obtained, then the uncertainty in the results and the reason for using a multiplier are eliminated.

Section 811.203 Design Period

Response:

Changes in the Act relating to the minimum postclosure care period as it relates to monitoring of gas, water and settling requires changes in this section. A new subsection 811.205 (c) will be added to require monitoring of settling (see below). STS suggests the following clarifying changes to Section 811.203:

The design period for all inert 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 the purposes of monitoring settling at the site, shall be 15 years.

Section 811.204 Final Cover Requirements

1. In light of the Board's stated justification for the three foot final cover requirement isn't some figure greater than three feet warranted? Mr. DiMamibro indicated that root weight "begins falling off after about three feet." (R. 631) It would seem to follow that the three foot cover should be additional to, rather than inclusive of, the vegetative cover area. (IEPA)

Response:

A depth greater than 3 ft is not precluded if specialized vegetation with long, intricate root systems are proposed. The section provides for minimum requirements. Root weight significantly falls off after three feet. A specification of additional minimum thickness is not justified. STS suggests the addition of the word, "intended" in front of "postclosure" along with some minor changes as follows:

A minimum of three feet of soil material of a quality sufficient to insure vegetation and provide erosional stability shall be applied over all disturbed areas. Where ~~unless~~ no vegetation is required for the intended postclosure land use, ~~. In this case~~ the requirements of Subsection 811.205(b) will not apply; however the final surface shall be erosionally stable.

Section 811.205 Final Slope and Stabilization Standards

1.(b) Standards for Vegetation In subsection (b)(5) erosion control measures should only be required "as necessary." These measures will not be required, for example, to protect vegetation on top of the fill.
Proposed revision: "Temporary erosion control measures including, but not limited to, mulch, straw, netting, and chemical soil stabilizers, shall be undertaken, as necessary, while vegetation is being established." (NSWMA) (WMI)

Response:

STS considers the use of one or more temporary erosion control measures to be necessary while vegetation is being established.

This requirement is consistent with that intent. There are, however, some changes that STS would like to make in this section to (b)(2) and (b)(5). They are as follows:

2)Vegetation shall be compatible with the climaetic conditions;

5)Temporary erosion control measures, including, but not limited to, the application, alone or in combination, of mulch, straw, netting, ~~and~~ or chemical soil stabilizers, shall be undertaken while vegetation is being established.

In addition, a new subsection (c) requiring the monitoring of settling to be operated for the applicable minimum postclosure period needs to be prescribed in accordance with Section 22.17 of the Act. This requirement will need to be carried out to meet the standards of this section. The addition recommended by STS is as follows:

c)The landfill site shall be monitored for settling for a minimum period of 15 years after closure as specified in Section 811.203 in order to meet the requirements of this section.

SUBPART C: ADDITIONAL STANDARDS FOR PUTRESCIBLE AND CHEMICAL WASTE LANDFILLS

1.The words "Chemical Waste" should be deleted. This section should only apply to putrescible waste. (CBE)

Response:

No, remember "chemical waste units" are intended to cover industrial facilities.

2.Presumably these standards also apply if only putrescible or only chemical wastes are disposed. (WMI)

Response:

Yes.

3.Flexibility. The standards for putrescible and chemical landfills fixed in the regulations in subpart C are minimum standards for all such landfills. As such, they provide a minimum of flexibility for a variety of wastes. Since the Board's proposal will apparently treat most of the high volume industrial waste as chemcial waste with minimal environmental impacts, there is a need for greater flexibility built in the regulations. The use of In situ materials and geomembranes, the waiver of leachate collection systems, and the modification of other design

requirements all should be considered. IERG previously suggested a broader adjusted standard provision as part of these regulations. IERG continues to believe that such a provision, tied to a demonstration of no greater environmental impact than allowed under the Board's general regulations, should be included. For example, if an alternative design for specified wastes will provide equivalent environmental protection, it should be allowed. Absent such an adusted standard provision the Board, as proponent of these rules, should consider their appropriateness for the wide variety of wastes that will be governed, the cost of their application to these wastes, and whether any equivalent environmental benefits will be achieved. (IERG)

Response:

There is a provision in Section 811.320 to obtain Adjusted Groundwater Quality standards as well as the Board's Adjusted Standard procedures that provide the needed flexibility.

Section 811.302 Location Standards

1.(a) "No part of a unit shall be located...of a sole-source aquifer designated by the USEPA...." I question the applicability of sole-source aquifer definition in the State of Illinois. IEPA has apparently abandoned the sole-source aquifer concept with the passage of the Illinois Groundwater Protection Act. (STSCL)

Response:

Yes, it is true that the IEPA uses other protection methods but this does not preclude the possibility of the USEPA designating a sole source aquifer in Illinois.

2.(b) The standard should be 500 instead of 1200 feet from a recharge zone. Provisions should also be made that if there has been considerable blasting in the area, such as in mining, then there should be more stringent requirements since blasting will cause cracks, etc. in rocks for some distance from the blasting area. (CBE)

Response:

No justification is provided for changing the distance to 500 ft. Subsection (b)(3) covers the concerns regarding cracks that might exist in strata between the waste disposal unit and the top of the aquifer.

3.(c) To require that a facility be screened from view when located within 500 feet of the right-of-way of a state or interstate highway is too restrictive. Screening should be provided, however, only to the maximum extent practicable. Any discretion as to the amount of screening required should be left up to the permit reviewer or the local siting authority. (LLC)

4.(c) This section needs considerable expansion and more specific requirements. First, the distance should be expanded to 2000 feet from the proposed 500 feet. Second, the screening requirement should also include township and county roads in addition to state and interstate roads. To do otherwise would be unfair and discriminatory.

The standard should also require that no part of a unit or facility be located closer than 2000 feet from any dwelling, business, school, or hospital without the property owner permission. It should also provide that the unit or facility not be located closer than 2000 feet from any land zoned for residential or business use, such as highway business district, unless the operator receives permission from the property owner/s. (Note: This is an important matter because sometimes local jurisdictions cannot add additional requirements because of "home rule" limitations. Adding requirements at the local level at the last minute is not a good practice and counterproductive to everyone involved.) (CBE)

5.(c) In subsection (c) the requirement that a facility be screened from view is confusing and unreasonable. It is usually impossible to totally obscure a facility, which is defined very broadly, from view. If such a requirement is imposed, it should be qualified by a requirement for screening to the extent reasonably possible. (NSWMA) (WMI)

Berms should be included among the listed screening methods. (WMI)

Proposed revision: "A facility located within 500 feet of the right-of-way of a state or interstate highway shall be screened from view, to the extent reasonably possible, by natural objects, fences, barricades, berms, or plants." (NSWMA)

6.(c) In subsection (c), does the Board intend that any screening device(s) completely obscure any view of the landfill from a highway right-of-way? This could be a very heavy burden for "area fill" (above-ground surface) landfills in Illinois. In additon, IEPA, in P.C. #21, suggests alternate language to include a minimum barrier height of 8 feet from any public right-of-way. (IEPA)

Response:

This was discussed during hearings. The requirement is not intended to block a view of the facility, but rather to screen operations. There is no way to justify a distance of 2000 feet without considerable technical documentation and no revisions to this requirement is recommended. STS agrees with CBE that county and township roads should be included and with IEPA that a minimum height might provide better guidance. Comments on the use of this minimum height could be solicited at second First Notice. The following changes are suggested:

c)A facility located within 500 feet of the right of way of a township or county road; or state or interstate highway shall ~~be~~ have its operations screened from view by a barrier of natural objects, fences, barricades, or plants no less than 8 feet in height.

7.(d) Subsection (d) could create serious siting difficulties in addition to those already posed by SB 172. Adequate protection for these purposes is provided by subsection (a). There seems to be little justification for the restrictions in (d) and much risk that they could be used to block proposed facilities. (NSWMA) (WMI)

Proposed revision: "No part of a unit shall be located closer than 500 feet from any dwelling, school, or hospital that was occupied on the date when the operator first applied for a permit to develop the unit, unless the owner of such dwelling, school, or hospital provides permission to the operator, in writing, for a closer distance." (NSWMA)

Response:

STS agrees with this proposed change and suggests it for inclusion as follows:

d)No part of a unit...dwellings, schools, and hospitals 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

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8.(e) In subsection (e), does the Board intend to preclude construction of a landfill within 5,000-10,000 feet of the side of a runway, or does the requirement apply only to landfills so situated generally in line with the direction of the runway? (IEPA)

Response:

Yes, the distance requirement applies on either side of the runway. Birds flying to or from a landfill can interfere with flight operations, as well.

9.(e) In subsection (e) there should be an opportunity to locate closer than the buffer zones given if FAA approval is obtained. (NSWMA) (WMI)

Proposed revision: Add "Unless the FAA provides permission to the operator, in writing, for a closer distance." (NSWMA)

Response:

Permission from the Federal Avaiation Administration (FAA) for a distance closer than prescribed in this section can be used in an adjusted standard procedure since this provision is intended for the safety of aircraft. If the FAA changes its minimum distance requirement, then the rules can be amended to reflect the change. No change is recommended.

Section 811.303 Design Period

1.Has the Board considered the effect of baled wastes upon the "measures undertaken in compliance with subsections (b) and (c) to encourage stabilization of putrescible waste"? If one accepts the premise that accepting only shredded waste warrants a shorter landfill design period, isn't balefilling incompatible with that premise? (IEPA)

Response:

No, the studies referenced in the Background Report show that shredded waste that is baled undergoes approximately the same amount of accelerated degradation as unbaled shredded waste. Baling shredded waste does not appear to have a negative effect on the rate of degradation.

2.WMI has explained its concerns about the manageability of leachate recycling systems. It believes that they should be prohibited. If allowed, the Board should recognize that there are already strong financial incentives to recycle leachate and that no additional incentive, such as shortening the design period and thereby the sufficiency of the financial assurance mechanisms or of other standards, is necessary or desirable. Indeed, since

experience shows the possibility of serious harm when recycling fails, it is even more important that recycling facilities be required to provide full backup systems and evidence of adequate financial capacity in case recycling is not successful.

As for shredded waste facilities, shredding is only effective if the waste is then left uncovered. No special consideration should be given for shredded waste facilities. (WMI)

Response:

As previously stated, the requirements outlined in Section 811.309 (f) [incorrectly referenced as subsection (e)] provide a workable, safe procedure for recyling leachate to enhance biodegradation. Note that the other requirements for leachate treatment and disposal in 811.309 are not waived. The following change is suggested below to correct the reference in subsection (c):

c)The design period for...in accordance with 35 Ill.Adm. Code~~Section~~ 811.309 (~~e~~f) shall be the estimated operating life plus 20 years.

STS suggests the addtion of a Board Note at the end of this Section to indicate that Section 22.17 of the Act specifies a minimum postclosure care period of 15 years except for onsite facilities and that subsection 22.17 (a) specifically allows for longer periods if prescribed by the Board or federal regulations.

Section 811.304 Foundation and Mass Stability Analysis

1.The Agency advises the Board that it does not maintain on staff a registered or certified Structural Engineer to assess the adequacy of measures by landfill operators to demonstrate compliance with this section. If the Board feels that structural engineering input is necessary to assure compliance with this section, the Agency suggests that these rules require such input and/or mandate (perhaps in Section 812.102) that permit applications be certified by a qualified Structural Engineer as meeting the standards of this section. (IEPA)

Response:

Mass stability analysis falls under the branch of civil engineering called "geotechnical engineering." Geotechnical engineers rather than structural enginners review slope stability plans. Designs are required, in Part 812, to be prepared under the supervision of a registered professional engineer.

2.(b) Subsection (b) should not be interpreted as applying to individual leachate collection pipes. Failure of individual pipes will not necessarily result in the failure of the leachate collection system. (WMI)

Response:

True. Scattered failures (collapse) of small segments of some pipes should not affect the performance of the system. This subsection is aimed at preventing a system failure.

3.(c) Subsection (c) is meaningless unless the seismic loadings intended to apply are defined. Reference may be made to USGS seismic zones. (WMI)

Response:

There are other equally effective ways of collecting seismic information and determining the seismic loading. It is not necessary or desirable to limit the designer to one specific source of data. The analysis should be based on the quality of the information available locally.

Section 811.305 Standards For Foundation Construction

1.(d) The prohibition of placement of soil on frozen ground in subsection (d) is unnecessary. Construction can be undertaken on frozen ground if the material being deposited is not frozen and there are no unnecessary delays. (WMI)

Response:

This suggestion is contrary to geotechnical practice advised in textbooks and EPA guidance documents. However, if there is technical documentation in the record showing that the requirement in subsection (d) is inappropriate, then a revision will be considered.

Section 811.306 Liner Systems

1.The Board's proposal advocates design criteria based upon adherence to performance standards. The standards are met through the development of a facility design based upon the results of the hydrogeologic site investigation and the associated groundwater impact assessment. The performance standard would be met by

engineering the disposal facility to control the "risk" to groundwater posed by the waste. The design would be based upon a unique combination of the waste's properties and the hydrogeologic characteristics associated with the site.

This performance-based approach with no minimum hydrogeologic criteria and with the requirement that the operator demonstrate the suitability of a site based solely on groundwater impact assessment has technical merit. The adaptability inherent in performance standards, coupled with a set of detailed guidelines aimed at achieving site-specific performance, provides an environmentally sound and cost-effective alternative to fixed design standards. A universal design standard cannot adequately protect all groundwater resources unless the standard is so stringent as to require over-design for a vast majority of sites.

The hydrogeologic characterization and the groundwater assessment must be used to determine the suitability of a site for the development of the solid waste management unit and to develop the minimum engineered groundwater protection features of a facility. The background report noted "...the Illinois State Geological Survey evaluated potential effects of design standards described in their proposal on groundwater formations throughout the state. Results of this study indicate that a performance-based approach is workable in Illinois."

However, the performance-based approach advocated in the Board's proposal is qualified with one dominating caveat, i.e., at a minimum, all facilities must have a three-foot clay liner overlain with a leachate drainage and collection system as required. This caveat also includes prohibition of using in situ soils/materials without recompaction even if the in situ soils afford an equivalent or greater degree of groundwater protection. This prohibition is based upon Griffen et al (1985) "...found that natural and in situ materials contain sand lenses, joints, fractures, micro-structures, and other anomalies that may (emphasis added) cause excessive leaks."
In situ materials can afford the desired degree of groundwater protection. An Illinois utility conducted a hydrogeologic investigation and groundwater impact assessment for a proposed ash disposal facility. This study characterized the site stratigraphy as one that could support the development of an ash disposal facility and provide for groundwater protection. The confining unit at this site was shale. The subsurface investigation documented that a relatively uniform shale unit of thickness in excess of 30 feet was present beneath the entire site. The upper zone of the shale unit appeared to be moderately weathered at the surface. Some near-vertical joints were observed in the shale near the surface. The joints were irregular and close. The shale was very dense with measured dry densities ranging from 124 to 141 lbs/ft^3 and moisture content

ranging from 7 to 15 percent. Monitoring wells were set in what appeared to be a fractured zone. The horizontal permeability from a falling head test performed in the field ranged from 4 x 10^{-8} to 2x 10^{-8} cm/sec, indicating that the weathered portion of the shale had not appreciably reduced the permeability within the unit. Permeability of the shale calculated from tests performed in the laboratory was about 1 x 10^{-8} cm/sec. These tests and the subsequent groundwater impact assessment demonstrated that the natural shale unit exceeds the permeability requirement of 10^{-7} cm/sec for a liner and the thickness of the shale unit provides the desired degree of protection. The inherent nature of shale does not allow it to be recompacted, nor is it required. The design will take advantage of this unit for the "bottom" of the facility. In addition, the groundwater impact assessment revealed that the proposed side walls of the facility would be a potential pathway for leachate migration. In response, the sidewalls of the proposed facility will be "keyed" into the shale and will be constructed of recompacted soils and additives which would meet and exceed the criteria advocated in this proposal.

In summary, quoting the background report: "The advantages of the performance standards are that they increase the flexibility of landfill design and allow site specific information to drive the design of the facility , and readily allow the adaption of new technology without changes in the regulations." The three-foot liner criteria and requirement of recompaction must be removed to allow for the development of disposal facilities which are environmentally sound, cost-effective, and based upon rational scientific principles. (UT)

Response:

See testimony. In addition, subsection (g) provides for the use of alternate liner configurations.

2.In the STS background report pp.32-38 it is stated that the efficiency ratio of leachate containment increases rapidly as a clay liners density is increased to three feet, but from three to ten feet, the efficiency ratio increase is quite small. STS further states that the best available economically reasonable containment system is a compacted earth liner three feet thick.

We submit that these recommendations do not follow good engineering practices. There is no safety margin here. It is easy to conceive of objects penetrating one or two feet into the liner, if not completely through, no matter how carefully the first five feet of refuse are placed on the liner. A five

foot liner would be economically justified for the safety factor it provides. (SCC)

3. The Agency continues to oppose, for reasons stated by it on the record (R. 262-265), the three-foot liner requirement. Taken as a whole, the Record of this proceeding (R84-17) simply fails to support this reduced requirement. Dr. Hamm, the Board's witness, acknowledged that three feet is an absolute theoretical minimum which "doesn't leave any margin for error." (R266-267) Dr. Daniel, another Board witness, in defending the three-foot requirement,stated that requirement solely in terms of "sites that have...good geologic settings" (R. 268), which he described as "rather forgiving sites" having "a backup that nature provides" in the form of natural "conditions to attenuate the movement of waste." (R. 268) Nowhere did he address "the vagaries of real world activities that occur on top of that liner and that relate to or have an impact on that liner." (remarks by Mr. Van Ness R. 275) Mr. DiMambro of the Board's Scientific and Technical Section also acknowledged, in reply to Mr. Chappel's question regarding potential operational impacts upon liners, that "I don't have a response to that right now." (R. 264) The record discloses no response was provided later, either. The record does disclose further testimony by Mr. Chappel, uncontroverted and unquestioned thereafter, that a three-foot liner design standard imprudently lacks "some factor of safety for errors during construction and operation of a site" and is significantly less than the six to seven foot width of standard refuse containers. (R. 188-190) Finally, as Dr. Hamm admitted (r. 266), even the State of Wisconsin, in which the theoretical studies supporting the three-foot liner requirement were performed, has opted for a five-foot liner requirement. To justify a three-foot liner requirement, the Board must find support in the record for the proposition that either (a) no solid object capable of being driven by the weight of heavy equipment through the liner will likely be deposited in a landfill, or (b) that any such solid object will be removed or deposited in such a way that the liner will not be compromised. The record contains only information adverse to this proposition. The Agency intends to provide additional testimony on this point at hearings held in this docket. (IEPA)

Response:

Good engineering practice does not include the arbitrary addition of a fixed safety margin, especially where this additional safety margin results in no significant improvement in performance. It must not be forgotten that the three feet requirement is only a minimum that should be increased if specific circumstances warrant it. STS does not recommend a revision.

Nevertheless, there is continuing disagreement as to the minimum specifications for the thickness of a clay liner. In addition to the objections from the IEPA, RKH also provided his comments on the minimum thickness requirement in Ex. 3, where he states:

> "Judging from trends in liner thickness requirements elsewhere and the documentation of liner performance after several years of experience in Wisconsin [referring in a footnote, to a 1984 paper by Gordon, Huebner and Kmet included in the list of papers in Ex. 3], a thickness of five feet is suggested...."

> "It is suggested that a more reasonable liner thickness is five feet, which gives some margin for material and construction variability. This is also more in keeping with trends elsewhere. Given the fact that some proposed landfills will undoubtedly be located in good clay soils of substantial thickness, a reasonable approach would be to allow a three food liner thickness if the natural clays are documented to have no lenses or discontinuities and so more than make up for the two foot reduction. Even then, it is often advisable to require the three foot liner be placed over recompacted on-site clays to assure uniformity. Another justification for reduction of the five foot clay liner thickness requirement may be the incorporation of an approved and documented FML [i.e. Flexible Membrane Liner], along with the clay to form a composite liner system."

With regard to the compacted earthliner thickness in (d)(1), RKH has also stated, "I agree that 3 feet is the absolute minimum, and that 5 feet is a reasonable practical minimum." STS recommended and provided technical justification for the setting of 3 feet as the minimum in its Background Report. This thickness requirement must be considered not as a separate standard but one that in combination with the other requirements such as the assurance of good construction practices and oversight using a construction quality assurance officer. A setting of greater than 3 feet for the minimum thickness does not appear to be technically justifiable for providing a significantly increased margin of safety. There is, however, no question that a composite liner system using a combination of a clay liner and a FML (properly installed) can provide a greater margin of safety than a 3 foot or 5 foot clay liner alone. The Board would have to make a policy decision, based on its discretion, to prescribe any clay liner thickness beyond 3 feet

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4.WMI generally supports the proposed basic three-foot liner requirement which it believes to be adequate. See R84-17, R. 1682-83. See also R. 268-69, 276-77. It bases its opinion on experience as well as several years of monitoring the performance of a liner system. See R84-17, R. 1743-44. When properly constructed such systems are sufficient despite the Agency's fears that they may be compromised by unusual wastes, e.g., fenceposts or furniture. Certainly, WMI does not agree that the Agency's proposed ten-foot liner requirement is generally acdepted by industry. (WMI)

Response:
STS thanks WMI for their comment.

5.(b) Again in subsection (b) the seismic loadings should be specified, e.g., loadings as specified in the USGS seismic zone designations. (WMI)

Response:

No. See response to Section 811.304 Comment #3.

6.(d) This section needs expansion. Reference needs to be made for minimum thickness of liners in areas subject to earthquakes such as the New Madrid Fault in the Belleville area. The minimum should be 15 feet instead of the 3 feet. Also, the clay should be sloped to a leachate collection system.. On top of the clay should be 2 feet of clean sand followed by 3 inches of clean loose straw. Then waste can be placed on the straw. (CBE)

Response:
There is no technical justification for this design. Seismic analysis on a site-by-site basis will assist in the determination of appropriate design modifications.

7.(e) This section is unclear. The geomembrane liner should be in addition to the clay liner and not a substitution for the clay liner. Liners are "new" and there is no track record on how these liners will withstand the test of time, especially with the high concentration of hazardous waste in household trash. (CBE)

Response:

CBE has misunderstood this section. Geomembranes are not required at all operations, nor are they necessary. However, when an operator decides to use one, the standards of this section dictate the design. No, a geomembrane may not be used by itself. It must always be used in conjunction with a compacted clay liner.

8.(e) In subsection (e)(1) we assume that the deletion of the reference to leachate collection was made because it was thought to be redundant and not because such systems are not required with geomenbranes. (WMI)

Response:

The reference to leachate drainage and collection systems has not been deleted in Subsection (e)(1).

9.(f) In subsection (f) the Board had adopted our suggestion that the requirements apply only to slurry trenches and cutoff walls used for containment. We suggest that the language "used for containment" be inserted after "walls" in the first line of (f)(1). (WMI)

Response:

Yes, revision is recommended. STS suggests the following language to subsection (f)(1):

1)Slurry trenches and cutoff walls built to contain leachate migration shall be used only in conjunction with....remedial action required by 811.319.

10.(f) Subsection (f)(4) states that slurry technology shall be stable for "the long term." The long term can mean either geologic time or the design period. We propose a revision which places some boundary on the technology and is consistent with the intent of the design period.

Proposed revision: "under all conditions during the design period. They shall...." (NSWMA)

Response:

Yes, revision recommended. Change subsection (f)(4) as follows:

4)Slurry trenches and cutoff walls shall be stable under all conditions~~, including long term, short term and end of construction~~ during the design period of the facility. They shall not be susceptible to

displacement or erosion under stress or hydraulic gradient.

11.(g) Given the limitations of (g)(2) WMI requests an explanation of how one obtains approval to use a technology for the first time. (WMI)

Response:

When using a technology for the first time and the operator has insufficient data to demonstrate compliance with this section, then an approval to engage in an experimental practice must be obtained. If the experiment provides sufficient evidence that the new technology can be successfully implemented, the operator may submit that data as support for an alternate standard under this section. This is a good comment which serves to illustrate the need for an experimental practice procedure.

12.Under subsection (g), can the operator of a landfill employ alternative liner configurations without prior permit approval from the Agency? (IEPA)

Response:

No, the IEPA approves all liner designs at permitted facilities.

Section 811.307 Standards for the Leachate Drainage System

1.(b) We believe the record from R84-17 is clear that subsection (b), regarding the maximum leachate head of one foot, is intended as a design standard. The draft, however, should provide clarification on this point.

There is no need for a different design in inward gradient landfills, if that is what subsection (b) means. (WMI)

Response:

No, there is no reason for a different design. However, groundwater flow into the system must be accounted for. This subsection outlines the conditions under which the inflow from groundwater must be calculated. STS suggests some minor clarifying language changes to (b) as follows:

b)The system shall be designed... with the leachate collection system required by Section 811.308:

1)T~~t~~o maintain a maximum head of leachate one foot above the liner and ~~under the following conditions:~~

~~1~~2)To operate d~~D~~uring the month when ~~having~~ the highest average monthly precipitation occurs and, if the unit's 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:

~~2)~~A)~~Assuming~~ the unit is at field capacity, and

~~3)~~B)~~Assuming~~ the final cover is in place.~~, and~~
~~4)For units with the bottom of the liner located within the saturated zone, assuming the groundwater table is at its seasonal high level.~~

2.(d) As explained at the hearing of R84-17(D) the subsection (d) provision for laminar flow conditions in the drainage layer is unnecessary and should be deleted. Indeed, it may be desirable to encourage a strong flow in the drainage layer to prevent sediment clogging. See R84-17, R.1670-71, 1683-84. (NSWMA) (WMI)

There is no need for a different design in inward gradient landfills, if that is what the section means. (NSWMA)

Proposed revision to (d): Delete. (NSWMA)

Response:

This was covered at hearing. There is little evidence that nonlaminar flow will prevent sedimentation in a porous medium. However, scouring of the earth liner and displacement of the sand layer and filter blanket is a possibility. In the absence of any sound technical documentation this design criteria is appropriate.

3.(g) Subsection (g) is extremely confusing and unnecessary. The design standards are the same for saturated and unsaturated zones. (NSWMA) (WMI)

Proposed revision to (g): Delete. (NSWMA)

Response:

Upon reconsideration and evaluation of cases not anticipated by the application of this requirement, STS recommends the deletion of subsection (g) as follows:

~~g)Units with the bottom of the liner...the seasonal low water table elevation.~~

Section 811.308 Standards for the Leachate Collection System

1.(h) In Section 811.308 (h), the proposal specifies that leachate be removed from a leachate collection sump before the leachate depth rises above the invert elevation of the leachate collection pipes. This standard is inappropriate and extremely ill advised. It seems to require a dry sump, yet a dry base could result in undesirable biological growths in the leachate system. The proposal encourages the production of excess leachate, a practice which is discouraged throughout the remainder of the proposal. The practice serves no purpose in protecting the environment. In practice it may be impossible to comply with the requirement as stated; limitations in pumping equipment and pump operation may not be capable of meeting the requirement. Leachate removal and head maintenance requirements should be developed on a site-specific basis considering the quality of leachate containment provided by the site and the impact of leachate head levels on the environment. We understand from testimony in R84-17(D) that this subsection is not intended as a performance standard and believe that should be clarified. See R84-17, R. 1760-61. (NSWMA) (WMI)

Proposed revision: Delete the sentence with "If sumps are used...." (NSWMA)

Response:

The intent of subsection (h) is to allow leachate to drain freely at all times, which is primarily a performance standard. In order to meet this performance standard the collection system (including pumps, sumps etc.) must be properly designed. The requirement that the leachate level not rise above the invert of the collection pipe is a design standard needed to meet the performance standard. STS does not recommend a change.

In addition, corrections that clarify the language in subsection (b) have been suggested by AAJ and the inclusion of bedding materials to the language of subsection (e) has been suggested by RKH both of which are endorsed by STS. The change suggested by STS are as follows:

b)Collection pipes shall be designed <u>for open channel flow</u> to convey leachate under the conditions established in 811.307 (b).

e)The collection pipe material <u>and bedding materials as placed</u> shall possess sufficient structural strength...used at the facility.

Section 811.309 Leachate Treatment and Disposal Systems

1.(a) If the intent of subsection (a) is to design a leachate collection system based only upon gravity flow, the design is both impractical and at times impossible.

Proposed revision: Delete "Leachate shall be allowed to flow freely from the drainage and collection system." (NSWMA)

Response:

Leachate drains from the system to the sumps or tanks in response to the force of gravity. It is not clear what type of leachate collection system is being considered by NSWMA.

2.(b) We understand that onsite treatment is not required but is one option that may be used. Note that the reference to "multiple" structures in subsection (b) is confusing and should be deleted. It may suggest that several treatment units may be required, rather than a treatment unit backed up by storage and provision for shipment offsite in the event of problems. (NSWMA) (WMI)

Response:

It is intended for the system to have smaller parallel processes so that part of the system can be shut down for maintenance.

3.(c) Subsection (c)(2) indicates anticipated modifications to the leachate treatment plant design may be incorporated into design submission. The Board should be commended for realizing the full scale plant need not be built from day one. However, when the operator constructs these add-ons, is a permit modification required? We recommend that the operator be required to submit proof to the Agency that modifications have been made in accordance with the permit, within a reasonable time after the modifications are completed. (NSWMA)

Response:

This depends on the conditions of the original permit. If the permit authorizes expansion of the system at periodic intervals and no changes are considered by the operator, then a permit modification is not necessary. If the expansion is covered by a construction quality assurance (CQA) program, it will be necessary to submit the CQA report to the Agency upon completion of the expansion.

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b.Note also that the reference to "unit operations" in subsection (c)(4) is confusing since it is not clear whether the landfill unit or the treatment facility is being referenced. (NSWMA) (WMI)

Response:

A treatment facility is being referenced. "Unit operations" is a sanitary/chemical engineering term-of-art and the confusion is unfortunate. STS suggests the following change to remove any confusion:

4)All of the facility's unit operations, tanks, ponds....to control seepage to groundwater.

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c.The word "treated" in subsection (c)(5) should be deleted. All effluent should meet standards. (NSWMA) (WMI)

Response:

The word "treated" is used here because it is part of Section 81l.309 (c), which deals with the standards for onsite treatment and pretreatment. This does not mean that other effluents discharged to waters of the state are exempt from meeting standards. Untreated leachate has to meet the standards for discharge to an offsite treatment facility.

4.(c) No onsite treatment should be allowed unless the facility is located at least 5 miles from a town of 2,500 or more. Truck transport is not the answer due to spillage and poor housekeeping that will create odor. If there is a sanitary sewer within a 2 mile radius, the leachate should be piped to the sewer. (CBE)

Response:

These appear to be unreasonable and arbitrary. STS notes that such requirements can be considered only if there is technical data to support the changes.

With regard to the subsection (d)(2), RKH has suggested adding specifcations of a 10^{-7} cm/sec permeability and 2 feet minimum thickness for the secondary containment system. STS recommends the following change:

d) Standards for Leachate Storage Systems

2)All leachate storage tanks shall be equipped with secondary containment systems equivalent to the protection provided by a clay liner 0.61 m (2 feet thick) and a permeability no greater than 10^{-7} cm/sec.

5.(d) Only one day's storage should be permitted. It is preferred that the leachate be piped to a sanitary sewer so there is no need for storage. Leachate storage creates odor problems. (CBE)

Response:

If available, leachate is likely to be immediately discharged to the POTW. However, there are compelling reasons for having additional capacity on hand. Leachate odor problems can be alleviated with pretreatment.

6.(d) In subsection (d)(1) the maximum generation rate should be the rate defined in Section 811.307 (b). (NSWMA) (WMI)

Response:

Yes. The following change is suggested for clarity:

1)The leachate storage facility...at the maximum generation rate used in designing the leachate drainage system in accordance with Section 811.307.

7.(e) Subsection (e)(4) indicates the operator must have access to all meters, valves, etc. which monitor the flow or control the leachate in some way. They are additionally considered part of the facility. Sewage systems contain many such devices which are not under the control of the operator, but, is some way control the leachate flow. Unless this section intends a forced takeover of some of these devices by the operator, the phrase "which can be controlled by the operator" must be added. Otherwise, this requirement cannot be met. (NSWMA)

Response:

Good point. However, where the operator cannot control access, a duplicate set of valves and a flow meter should be established to allow the operator flexibility and to monitor flows. STS suggests the following change to subsection (e)(4):

4)Pumps, meters, valves and monitoring stations that control and monitor the flow of leachate from the unit and under

the control of the operator shall be considered part of the facility and be accessible to the operator at all times.

8.(e) Subsection (e)(5) contains two requirements by which leachate must flow freely "at all times" and an alternate leachate management system must be established if the flow is "restricted". All discharges to POTW's are required from time to time to restrict their discharge particularly in times of excess rainfall.

We suggest this section be modified to indicate "The design should accommodate restricted access to the treatment works for five (5) days. In the event access is restricted or anticipated to be restricted for longer than five (5) days, an alternate leachate...." This will accomplish the same objective as the proposed language and avoid an endless parade of management plans for known occurrences. (NSWMA)

9.(e) In subsection (e)(5), a leachate system should not be designed only for gravity flow. Delete the word "freely". Also, subsection (e)(5) should be rephrased to clarify that continuous discharge to the treatment works is not required but that use of storage facilities and transport to the treatment works by hauling are acceptable alternatives. It is common to batch wastes to facilitate testing and discharge at times of otherwise low flows. It is also common to hold flows during storm events or in order to locate problems before discharge. (NSWMA) (WMI)

Proposed revision: "Leachate should be allowed to flow into the sewage system: however, if access to the treatment works is restricted and cannot be hauled to the treatment works via truck or stored onsite, then an alternate leachate management system shall be constructed in accordance with Subsection (c)." (NSWMA)

Response:

Yes, these revisions meets the intent of the regulation. However, under no circumstances may leachate be stored in the leachate collection and drainage system. STS suggests the inclusion of the following changes to subsection (e)(5):

5)Leachate shall be allowed to flow ~~freely~~ 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).

10.(f) As for subsection (f) regarding leachate recycling systems WMI has testified and commented at length in R84-17 as to the desirability of leachate recyling. Essentially, WMI believes that leachate recycling is an unproven and damaging practice that too often is used as an excuse to avoid leachate treatment. We urge that leachate recyling not be allowed; if it is, it should be subject to stringent monitoring and control. (WMI)

In addition, subsection (f)(3) represents a significant loophole in the leachate recycling standard. It would apparently allow one to recycle a small amount of leachate and avoid the 30-year design period. (WMI)

(f) In subsection (f)(7) the proposal to slope cover away from the perimeter is an extremely damaging idea as it is likely to encourage ponding and excess leachate generation during construction. It conflicts with the whole idea of minimizing leachate generation. (WMI) (NSWMA)

Proposed revision: Delete subsection (f)(7). (NSWMA)

Response:

STS recommends no revision based on this comment.

AAJ has pointed out a typographical error in subsection 811.309 (f)(1)(B). The word "stem" should read "system".

11.(f) No leachate recycling should be allowed at the facility because it will create, among other problems, a potential odor problem. Another problem would be leachate runoff into adjacent property in event of an accident or spill. (CBE)

Response:

Documentation in the Background Report indicates otherwise.

12.(g) Note that subsection (g) designation is repeated. Subsection (g) on page 35 should be (h). (NSWMA)
Subsection (g)(1) requires monthly leachate monitoring from each unit, an entirely unnecessary requirement. Leachate simply does not vary that much over time. Indeed, yearly leachate monitoring should be sufficient. Where data on unit leachate is useful for some purpose, specialized monitoring of that unit can be performed. The STS explained at hearing in R84-17 that the purpose of leachate monitoring before treatment was to determine when treatment could be discontinued. See R.1761. We don't disagree with the purpose, but believe that a much more

responsible monitoring requirement can be used to accomplish that purpose. (NSWMA) (WMI)

Proposed revision to (g)(1): Change "month" to "year". (NSWMA)

Response:

STS thanks NSWMA for pointing out the error in lettering. It will be corrected. STS recommends a revision to quarterly sampling to coincide with groundwater monitoring as follows:

1)Representative samples of leachate shall be collected from each unit at a frequency of once per ~~month~~ quarter while the leachate management system is in operation.

13.(g) Subsection (g)(2) contains the requirement to monitor for anything which may cause a problem or demonstrate it won't cause a problem. Since at this stage we are apparently in a detection type monitoring mode, this requirement will produce much research-type information which has very little benefit. Dr. Lue-Hing indicated the trace-type compounds have no effect on sewage treatment plant performance. We suggest this section be modified to indicate only those compounds necessary for the POTW to determine loading requirements and compliance with NPDES Regulations - the same as must be done by any other discharger to a POTW.

The purpose of leachate monitoring, as described at the hearing, is to help determine when treatment can be discontinued. The leachate monitoring requirement imposed here is extraordinarily burdensome and will require the collection of much useless information.

Subsection (g)(2)(G) is much too vague and invites sampling for all possible parameters. There is no standard for determining what "may" cause contamination beyond the zone of contamination or for determining groundwater "indicator" constituents. Subsection (H) defines any indicator parameter used in the groundwater monitoring. Indicator parameters are the fastest moving and thus most indicative of leachate contamination in the groundwater. Sampling of indicator parameters would provide sufficient data to correlate groundwater contamination and leachate properties.

The cost of the proposed monitoring program could be $35,000 to $55,000 per year, even assuming a rather limited reading of the requirements of paragraphs (G) and (H).

As currently stated, we are not told what constituents need to be tested. It says "any other constituent that may cause contamination." So there is no question as to what is required, a list of the constituents to be tested for should be included. (NSWMA) (WMI)

Proposed revision: Delete (g)(2)(G) and (g)(3)(D). (NSWMA)

14.(g)(2)(D) and (g)(3)(D) Both of these sections require the testing of leachate for any constituent that may be present. This is too loosely written. Guidance is necessary to standardize what parameters must be analyzed. (LLC)

Response:

STS agrees with the proposed revision since additional requirements may be added to an NPDES Permit (subsection (g)((2)(F)) or to a pretreatment ordinance to meet the requirements of a POTW. STS suggests the deletion of subsections 811.309 (g) (2) (G), and 811.309 (g) (3) (D)., and renumbering of the remaining subsections as follows:

g)Leachate Monitoring

2)Discharges...or pretreatment:

F)Any other constituents listed...works and present in the leachate; and

~~G)Any other constituent...beyond the zone of attenuation; and~~

~~H~~G)All of the...groundwater monitoring.

3)Disharges...include, as a minimum:

C)Any constituents listed...in the leachate; and

~~D)Any other constituent...beyond the zone of attenuation; and~~

~~E~~D)All of the...used for groundwater monitoring.

15.In relettered subsection (h)(2) naturally occurring groundwater may have levels of over 30 mg/l BOD. It is unreasonable to collect and treat leachate if it would attenuate to background levels within the zone of attenuation. (NSWMA) (WMI)

Proposed revision to relettered (h)(2): Add "Provided, however, that in no event shall the leachate constituents, including BOD concentration, be less than background levels within the zone of attenuation." (NSWMA)

Response:

STS agrees in subsection (h)(2) establishes when treatment can be terminated. The 30 mg/l BOD standard is a treatment standard that can be met with existing technology. No revision is recommended.

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16. This requirement needs to be expanded to provide that if there is a sanitary sewer within a 2 mile radius of the facility, then the leachate should be piped underground to the sanitary sewer for treatment and disposal. This requirement will reduce the chances for an odor problem. (CBE)

Response:

The requirement appears unreasonable and arbitrary. Further, it may be impractical to construct a sewer line that connects to the sanitary sewer. There is no provision that prevents a facility from piping leachate.

17.(g) The results of all leachate tests should be made available by the operator to all homeowners within a mile radius of the facility that use wells for drinking water. These tests should be mailed quarterly by the operator and at no cost to the homeowner. (CBE)

Response:

Requirements such as these relating to public notification or participation appear to be related to legal issues that are outside the scope of the technical standards that are being proposed for adoption by the Board. The public participation process in landfill siting and permitting has been addressed in the February 25, 1988 First Notice Opinion.

18.(h) Instead of 5 years, the collection and monitoring of leachate should continue as long as wells are used for drinking water within a 2 mile radius of the facility. (CBE)

Response:

Minimum collection period is five years beyond closure. After that, collection and treatment must continue to occur until leachate meets minimum standards, which is sufficient to address CBE's concerns regarding contamination of drinking water wells.

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19. The Board's proposal appears to be flexible to allow for many methods, singly or in combination, to satisfy the leachate collection, conveyance, treatment and disposal criteria. This flexibility does not, however, support the proposed requirements for the installation of leachate collection systems at all waste disposal facilities. (UT)

Response:

Yes, it does provide flexibility. See Background Report.

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20. What if leachate from a solid waste site qualifies as a hazardous waste under RCRA (35 Ill. Adm. Code 721.102-721.103)? Must the landfill operator comply with 35 Ill. Adm. Code 722 ? Absent a testing/determination requirement similar to 35 Ill. Adm. Code 722.111, how is the site operator, or any facility receiving such leachate from the operator, to know whether and for what reasons the leachate is hazardous under RCRA? (IEPA)

Response:

Leachate is wastewater generated by a landfill operation and covered under the Clean Water Act and should not be subject to RCRA hazardous waste requirements. However, offsite leachate treatment facilities should be informed of the nature and characteristics of the leachate that they will be receiving.

Section 811.310 Landfill Gas Monitoring

1. (Regarding 811.310 and 811.311) We enthusiastically encourage the comprehensive monitoring of gas buildup in landfills. Besides presenting a health hazard and the threat of explosion, we attribute the major part of the bad odor associated with landfills to be due to methane buildup. We urge that you keep in place both your monitoring and your standards for requiring a gas management system as they are presently written.

In summary we urge that you put these proposed regulations in place without compromising for purely economic reasons. It can be anticipated that many operators in the industry will declare that these environmentally sound proposals will constitute an undo (sic) hardship on both landfill operators and the public who use these services. We submit that on a long-term basis landfills that are environmentally sound and run in a responsible manner so as to have the least detrimental impact on the neighborhood where they are cited will prove to be the most economical. At the present time, the residents who are unfortunate enough to live in the vicinity of a badly run landfill

are subsidizing both the operators and the users of these landfills. These subsidies are in the form of lower property values and the intolerable living conditions that a badly run landfill will generate with its odor and litter. Added to this is the possibility of state and local government being saddled with massive environmental cleanup expenses as the result of badly cited (sic) and operated landfills.

We further submit that as the construction monitoring and day-to-day operation are brought to state-of-the-art and adequately protect the environment the true cost of landfilling will be reflected by the rising of tipping fees. This will automatically encourage the recovery of the valuable resources that we are now indiscriminately burying in the ground because of the unsound operating practices that promote artificially low tipping fees.

As previously stated the overriding consideration of the Board and Agency should be the health and welfare of Illinois citizens. These regulations coupled with vigorous enforcement will promote both a safer environment and, in the long run, will prove to be the most economical way to dispose of Illinois solid waste. (SCC)

Response:

STS thanks SCC for their comments and for pointing out the benefits of a sound monitoring program.

2.(b) The reference to predictive gas flow models in (b)(3) should be deleted. The intention, according to the STS testimony in R84-17, is permissive and use of such models, which are not sufficiently developed to be useful tools, should not be mentioned in the regulations. (WMI)

Response:

Use of such models is an aid to designing a gas monitoring system and its use is optional.

RKH suggests that it is desirable to monitor for gas 10 feet below the liner unless prevented by the geology in subsection (b)(2). STS does not see a compelling reason to include this specification.

RKH correctly suggests that the use of optimum in subsection (b)(3) be defined as the ability to trace or observe gas movement. STS suggests the following underlined change:

b) Location and Design of Monitoring Wells

3)A predictive gas flow model may be utilized to determine the optimum placement of monitoring points required for making observations and tracing the movement of gas.

RKH suggests that the locations of ambient air monitors be specified so as to measure ambient air within one inch of the ground surface. STS agrees and suggests adding a new subsection (b)(8) given below.

8)At least three ambient air monitors shall be located no higher than 0.25 meter (1") above the ground and 30.49m (100 feet) downwind from the edge of the unit or at the property boundary, whichever is closer to the unit.

3.(c) Monitoring should continue beyond 5 years after closure. Also, in the past, there have not been enough monitoring wells. The minimum number should be based on a square foot basis. (CBE)

Response:

Monitoring will continue beyond the 5 year period after closure until methane generation and build up no longer constitute a problem. See subsections (c)(4)(A) and (B).

RKH has provided some language, which STS agrees with, to replace existing subsection (c)(1). As required in Section 22.17 of the Act, the minimum monitoring period for offsite facilities is 15 years. Therefore, STS suggests correcting subsection (c)(4) to replace the minimum monitoring period from 5 years to 15 years, before it is discontinued. The suggested changes are as follows:

c)Monitoring Frequency

1)All gas monitoring devices, ~~and~~ including the ambient air monitors, shall be operated to obtain sample~~d~~s on a monthly basis for the entire operating period and for a minimum of five years after closure.

4)After a miniumum of five years or, in the case of landfills, other than those used exclusively for disposing waste generated at the site, a minimum of fifteen years after closure, monitoring shall be discontinued...met for at least one year:

4a.(c) In subsection (c) there had been testimony in R84-17 that ambient air monitoring for gas is not meaningful and will not

yield useful results. See also subsection (d)(2) and section 811.311 (a)(2). There was also testimony that monthly monitoring is not necessary given the rate of change of gas conditions and quarterly monitoring or monitoring determined on a site-specific basis is sufficient. (R.1672) This is true for both mechanical and pressure-driven systems. (NSWMA) (WMI)

Response:

Ambient air monitoring for methane is appropriate and possible under the required conditions.

4b.Proposed revision to (c)(1): Change "monthly" to "quarterly". (NSWMA)

4c.Proposed revision to (c)(3): Change "quarterly" to "yearly". (NSWMA)

Response:

No, gas conditions change rapidly and the more frequent monitoring is justified.

5.(c) The standard of subsection (c)(4)(A) is unsupported in the record. The record supports, and we recommend, a standard of 25 percent of the LEL. (NSWMA) (WMI)

Response:

RKH has also suggested that the trigger for continued monitoring after 5 years of closure be changed from 5% of LEL to 25% of LEL. STS agrees that 5% may be too restrictive. However, the level of 25% of LEL or above is used as a trigger to require a gas management system (see Section 811.311 (a)(3)), since that level of gas is indicative of considerable gas production. Thus, a level between "5%" and "25%" to trigger the discontinuance of monitoring is reasonable. STS suggests 15% of LEL in subsection (c)(4)(A) to read as follows:

A)The concentration of methane is less than 15 percent of the lower...outside the unit; and

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6.(c) In addition, the standard for cessation of monitoring in (c)(4)(B) is vague and meaningless. The quantities of gas generated within the unit will have very little impact on the potential for migration. (WMI)

Response:

If sufficient quantities of methane continue to be produced within the unit, then migration from the unit is possible. A predictive gas flow model may be an appropriate method to show that the quantities being generated will not result in exceeding the standards of 811.311 (a)(1). [Note that subsections 811.311(a)(1) and (2) have been combined into a single subsection 811.311 (a)(1)]. The following changes are suggested:

B)Monitoring points within the unit indicate that methane is no longer being produced in quantities ~~likely to~~ that would result in migrat~~e~~ion from the unit and exceed the standards of subsection ~~811.311~~ (a) (1) ~~and (2)~~.

7.(d) The inclusion of nitrogen and oxygen as monitoring parameters in (d)(1) has no beneficial use. As stated on page 46 of the STS report, oxygen is monitored for the "potential for explosion." The percent LEL by which methane is monitored quantitatively monitors the potential for explosion. There is no need to monitor for oxygen itself. Monitoring for nitrogen at a probe also serves no purpose. Nitrogen monitoring is only helpful for an active well.

Proposed revision: Delete (C) nitrogen and (D) oxygen. (NSWMA)

8.(d) In subsection (d)(1) monitoring is required for nitrogen and oxygen. This is not likely to be productive. Oxygen, for example, may be consumed by the landfill, and changes in oxygen levels are not likely to be an indication that air is being pulled in, if that indeed is the concern of the subsection. (WMI)

Response:

The background document contains information regarding the need for monitoring of oxygen and nitrogen. RKH has suggested adding other parameters, in particular, CO_2 and other volatile organics. STS agrees that CO_2 should be monitored and should be added in subsection (d)(1) as item "E) Carbon dioxide". Although organics monitoring would be desirable, it may not be cost effective to monitor all volatile organics. At a minimum, the toxic volatile organics, benzene and vinylchloride might be considered by the Board for specific inclusion and added to the list of parameters in (d)(1) or to use the suggested additon in subsection (d)(1)(F). STS suggests the following changes to subsection (d)(1):

d)Parameters to be Monitored

1)All below ground monitoring devices shall be monitored for the following minimum parameters at each sampling interval:

A)Methane;
B)Pressure;
C)Nitrogen; ~~and~~
D)Oxygen~~.~~;
E)Carbon dioxide; and
F)Any compound on the list of air toxics, adopted by the Board, and which are expected to be produced in the landfill unit.

9.(d) In (d)(2) monitoring of ambient air produces data of no beneficial use. This section proposes the possibility of permanent monitoring stations for ambient air and introduces surface emission controls. Surface emissions should not be regulated under the proposal.

Proposed revision: Delete 811.310 (d)(2) and 811.311 (a)(2). (NSWMA)

Response:

No, field collection can be randomly done. Surface emissions can be a significant source of explosive gases and toxic substances. Therefore it is appropriate to monitor and regulate surface emissions from landfills. The monitoring stations need not be permanent. For clarity, STS suggests replacing the existing subsection (d)(2) with the following:

2)~~The ambient air...less than 5 miles per hour.~~Ambient air monitors shall be sampled for methane only when the average wind velocity is less than 5 miles per hour at a minimum of three downwind locations 100 ft from the edge of the unit or the property boundary, whichever is closer to the unit.

Section 811.311 Standards for Landfill Gas management Systems

1.WMI testified extensively in R84-17 that the appropriate standard for landfill gas, one which provides an ample measure of safety, is the LEL at the property boundary. This is a widely accepted standard. The STS proposal cuts that standard substantially but without apparent justification. WMI continues to believe that the standard it proposed in R84-17(C) is fully adequate. (WMI)

Response:

The standard is not widely accepted and STS considers a level of 100 percent of LEL to be a very dangerous level since it could

lead to explosions and recommends that a mechanism to take action be in place well before the 100 percent LEL anywhere occurs. Fifty percent is an appropriate trigger.

2.(a) This requirement is considerably less stringent than the federal requirement. As far as adjacent property is concerned, it makes no difference if the methane gas is in the air or below ground. Explosive gas is explosive gas, period. To meet the federal minimums, the limit should be 25 percent of the lower explosive limit, not 50 percent. Also, the word "facility" should be added whenever the word "unit" is used so that this requirement applies to the whole landfill and not to just a small area. Also, there is an odor problem related to methane gas. (CBE)

Response:

The description of the federal minimum here is incorrect since the proposed standards are not less stringent than the federal standard. The requirement is expressed in relation to distance from a unit, the point of gas generation. It is inappropriate to reference the "facility."

3.(a) In (a)(1) methane migration should be controlled at the property line. There has been extensive testimony R84-17 that the appropriate standard for landfill gas, one which provides an ample measure of safety, is the LEL at the property boundary. This is a widely accepted standard. The STS proposal cuts that standard substantially but without apparent justification. The original standard is fully adequate. There is no technical evidence which supports an added factor of safety at 100 feet from the waste boundary. Unlike groundwater flow which is governed by geological gradients, gas has no directional component. It can be assumed that a 100 foot zone of attenuation for groundwater is due to the potential for groundwater impact downgradient to that point. It is not technically justified to predict gas flow in that same manner. The property boundary is a well-used point of enforcement.

Proposed revision: Delete the words "or 100 feet from the edge of the unit, whichever is less." (NSWMA)

Response:

No. It is inappropriate to base standards on the amount of land an operator is able to purchase or the amount of property controlled by the operator. Gas migration does have a directional component and can be described by mathematical models.

STS recommends combining (a)(1) and (a)(2) into one subsection (a)(1) for clarity, which also requires renumbering (a)(3)-(5) to (a)(2)-(4). The proposed subsection (a)(1) follows:

a)The operator shall install a gas management system if any one of the following conditions are met:

1)Methane ~~attributable to the unit is detected at any location at a~~ concentration greater than 50 percent of the lower explosive limit in air, attributable to the unit, is detected by an ambient air monitor or a monitoring device, below the ground surface, ~~at a point~~ and which is located at or beyond the property boundary, or 100 feet from the edge of the unit, whichever is less;

~~2)Methane, attributable to...whichever is less;~~

~~3~~2)Same as previous (a)(3)
~~4~~3)Same as previous (a)(4)
~~5~~4)Same as previous (a)(5)

4.(b) Would the Board please clarify the intent of subsection (a) in relation to subsection (b)? Are "gas venting systems" and "gas collection systems" species of "gas management systems"? Wouldn't most underground accumulations of methane be expected to exceed 50 percent of the lower explosive limit (LEL)? Shouldn't the Board make provision for (i.e., require a gas management system) gas condensate as well as methane and leachate recyling?

In subsections (b)(4) and (c)(1), does the Board intend that gas venting/collection systems "outside the unit" may be located beyond the facility's boundaries? (IEPA)

Response:

Subsection (a) provides the conditions under which a gas management system is required, while subsection (b) is the set of standards for a gas venting system. Yes, "gas venting systems" and "gas collection systems" can be considered as parts of a gas management sytem. Where accumulations of methane cause concentrations that exceed 50% of LEL, a gas management system is required.

As indicated in the Background Report, gas condensate may be handled as leachate and may be recycled only under the provisions applying to recycling leachate. Separate standards are not necessary. The location of vents and points of collection are dependent on the nature and extent of the migaration of gas,

but gas venting equipment may not be located beyond the facilitiy's boundaries. This is also covered in the definition of a facility.

5.(b) Subsection (b) prohibits gas venting systems on other than a temporary basis. We testified extensively, without rebuttal, on this question in R84-17. We believe that the Board proposal may reflect a misunderstanding of the nature of the landfill gas problem. Methane will usually be generated at and released from a landfill. This is normal and should be expected. Problems occur only when methane collects and migrates in such a way that elevated concentrations are experienced away from the landfill site. A gas venting system does nothing more than to insure that the methane is released close to the landfill and before accumulation and migration. It overcomes some of the potential problems caused by improved cover practices. It is a widely accepted and effective measure that in some cases may be less objectionable and more manageable than flares or even more active systems. It should not be prohibited. See R84-17, R. 1673-74. (NSWMA) (WMI)

Response:

STS disagrees that the commentors' statement that they testified "without rebuttal". Gas venting systems are nothing more than "gas dilution systems." The goal of these regulations is to eliminate the contamination at its source, not to establish criteria for the dilution of toxic and hazardous substances. This analysis was clearly presented in the Background Report and these comments do nothing to refute the analysis. No revision recommended.

RKH has suggested that it might be desirable to have a venting system outside the unit in conjunction with an active system. The regulations do not prevent an operator from constructing such a venting system, but it does not allow the use of a passive venting system to satisfy the requirements of a gas management system. Convincing support for specifically adding language to including this option has not been provided; therefore STS suggests retaining the present language.

RKH has also suggested that a gas venting system (subsection (b)(3)) have the capability of venting gas down to 10 feet below the liner, which will then make monitoring down to 10 feet below the liner desirable (in subsection 811.310 (b)(2)). STS does not agree that such a requirement is needed. No change is recommended.

6.(b) Subsection (b)(4) is unsupported. Often passive systems are best installed within the units. (NSWMA) (WMI)

Response:

No, passive systems, as defined in the context of this proceeding, are inappropriate within units.

7.(b) There should be no gas venting to the air allowed unless the operator has received permission from property owners within a mile radius of the landfill. All gas venting should be underground, and there should be requirements for spare parts at the site for mechanical devices such as compressors in event of breakdown or emergency. (CBE)

Response:

Nearby property owners have the opportunity to comment on the air discharge permit as well as the solid waste permit. The mechanism proposed here is unnecessary. Suggestion on spare parts is covered in sections on maintenance of equipment.

8.(c) In subsection (c) relating to gas collection systems, our experience is that such systems outside the unit are undesirable since they tend to induce migration and have high pumping rates. (NSWMA) (WMI)

Response:

Yes, but there may be an operational reason for constructing a system outside the unit and such an option should be available to the operator. Any system that meets the required standards is acceptable.

9.(c) In subsection (c)(5) it should be noted that certification is not available for equipment. The provision should perhaps refer instead to equipment "listed" or "rated" by a national rating agency.

Proposed revision: "shall be rated by the manufacturer as safe for use..."(NSWMA) (WMI)

Response:

Yes, the propsed revision meets the intent of the regulations. STS suggests the following change to subsection (c)(5):

5)All materials and equipment used in construction of the system shall be ~~certified~~ rated by the manufacturer as safe for use in ... constituents of the landfill gas.

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10. (c) No gas collection system is "leak proof."

Proposed revision [to (c)(10)]: "The gas collection system shall be tested and maintained to minimize the leakage of gas from the collection system or air into the system." (NSWMA)

Response:

Most gas systems can be tested to a certain tolerance which is considered leak-proof for all practical purposes. No revision is recommended.

11.(c) The statement in subsection (c)(11) could allow for the operation of gas systems beyond the applicable post-closure period.

Proposed revision: Add "but no longer than the applicable design period required by Section 811.303." (NSWMA)

Response:

As stated in the Background Report, the gas collection system (and, for that matter, the leachate collection system) must be operated until the standards are met. This period may exceed the design period. No revision recommended.

12.(c) In subsection (c)(11) the reference to waste stabilization is unclear. Waste stabilization does not have a clearly defined meaning. Reference to the standards of subsection (a)(2) and (4) for ceasing operation should be sufficient. (WMI)

Response:

Waste stabilization is a commonly used term for the process of decomposition of wastes. In this subsection, the degree of stabilization considered necessary for discontinuing a gas collection system is stated in terms of the standards in 811.311 (a). With the combining of subsections (a)(1) and (a)(2) in that subsection as well as to correct minor errors for consistency, the following changes are suggested by STS for subsections (c)(2), (c)(3), (c)(11) and (c)(12):

2)The operator shall design and operate...subsections (a)(1), (2), and (3) ~~and (4)~~ will not be exceeded.

3)The gas collection system....requirements of Section 811.312.

11)The gas collection system shall be operated until the waste ~~i~~has stabilized enough to ~~and~~ no longer produce~~ing~~ methane in quantities that ~~may~~ exceed the minimum allowable concentrations in ~~811.311~~subsections (a) (1), (a) (2), and (a) (3) ~~and (4)~~.

12)The gas collection system....to meet the requirements of ~~811.311~~subsections (a) (1), (a) (2), and (a) (3) ~~and (4)~~.

13.Gas management--Our issue here again is one of liability and practicality. Presumably the reason the owner/operator is asking for a permit is there is a problem which requires immediate attention. Under this proposal, he is unable to take any substantial action to remediate the problem until he has obtained approval from several branches of the Agency. The owner/operator thus must choose between violating applicable permit regulations and a personal liability lawsuit.

In general the entire gas management section is a clear example of a straight forward problem with associated remedy made into a situation which is almost unworkable.

Although it is advisable for the Agency to have an owner/operator install any device under carefully controlled and monitored conditions, i.e, a permit, the science or art of landfill gas management is not that precise. In practice today once a gas problem is identified a prudent operator installs passive measures and then monitors their effectiveness. Should these devices prove unsuccessful a testing program is undertaken to determine which type and design capacity of an active system is necessary. This generally involves the installations of a smaller active system which is upscaled to unit size. The upscaled version is generally fabricated of commercially available components which are well suited for movement between units and around the facility during the active operating life. The components of the temporary active systems are generally available locally.

At a point when construction activity has researched a final phase, these temporary active system structures are replaced with more permanent structures. At this point the operator may elect to have the components of the active system not constructed of materials available locally.

Under the proposed regulation an operator would be forced into a never ending cycle of permitting what would be termed significant modifications. Aside from the inconvenience to the

operator the public will view this scenario as the operator and the Agency not responding to the situation when in fact all that is happening is both parties are being constrained from positive action by the permitting process.

All that is needed in this section for operating units is a standard to meet, a requirement to remediate, and a requirement to notify the Agency of what is happening. The formal permitting may be appropriate at closure but not during the dynamic active life of a unit or facility.

We strongly suggest the Board revisit the entire gas management issue. (JSC)

Response:

A necessary part of a well designed and operated landfill is the management of landfill gas. It is consistent with the intent of these regulations as explained in the Background report. The trigger levels proposed here are intended to provide plenty of time for an operator to receive a permit modification to construct a gas collection system. It is possible for a well-designed system to be installed and operated that address the concerns expressed in this comment.

Section 811.312 Landfill Gas Processing and Disposal Systems

1.We do not believe that the Board's rules should contain an explicit encouragement of landfill gas processing for beneficial uses. This is a development which is driven by many factors including the availability of a market for the gas.

On the other hand, making a processing system part of the facility for regulatory purposes, as required by subsection (g), may cause problems and is likely to inhibit development of such systems. Such systems may be owned by third parties or may be separately organized for tax reasons.

We believe that the STS's concerns about operation absent control over the processing system may be met by requirements which will insure the availability of a backup flare system or other onsite controls in the event processing is not available for any reason. Problems caused by the landfill itself may be handled as a permitting or compliance matter since the operator has liability for site problems. Requiring ownershop and control of the offsite facility will substantially discourage beneficial production. It also seems to bar operation of such facilities by gas companies and others who are arguably most expert in gas processing. (WMI)

Response:

There is no requirement to operate a landfill gas processing system for beneficial uses. The operator is responsible for all operations at the landfill, including the proper management of landfill gas. The operator may contract the gas processing operation to anyone it chooses, but must always retain responsibility for compliance.

2.(b) Section (b) prohibits the use of a third party contractor to construct and operate a gas processing system.

Proposed revision to (b): Change to " equipment must remain under the control of the operator, even in cases where the system or components thereof are owned by a third party who is under contract with the owner or operator of the waste disposal facility." (NSWMA)

Response:

See response to Comment #1 above. Note that there is nothing in these regulations to prevent the operator from forming a contractual agreement with a third party here or anywhere else. This situation need not be specifically allowed by regulation. No revision is recommened.

3.(c) In subsection (c) permitting for flares if necessary should be left to the Agency. Also, gas flares occasionally go out. When the flare is extinguished, gas will escape. It is impossible to prevent discharges absolutely. (NSWMA) (WMI)

Proposed revision: "Gas discharges into the atmosphere shall be minimized. No gas shall be discharged directly into the atmosphere for extended periods of time." (NSWMA)

Response:

Occasional occurrences of flares going out due to accidents or other unforseeable circumstances are covered in the air discharge permit and will not necessarily result in an enforcement action. No revision is recommended.

4.(e) No flares should be allowed unless approval has been received from property owners within a mile radius of the facility. Flares create scenic blight and are a public nuisance. Flares are a source of ignition in event of a leak or rupture of a utility gas line in the area. Methane gas needs to be piped underground to a utility company. (CBE)

Response:

Requirements such as these relating to public participation and notification appear to be related to legal issues that are outside the scope of the technical standards that are being proposed for adoption by the Board. The public participation process in landfill siting and permitting has been addressed in the February 25, 1988 First Notice Opinion.

Once a landfill has been approved for siting, flares may be a safe and appropriate means for onsite combustion. Landfill gas must be upgraded to pipeline quality before it can be sent to a pipeline. It may be impractical to install an upgrading system, especially if there is no gas pipeline nearby to which a connection can be made or the amount of gas produced is relatively small.

5.(f) The standards should provide that property owners within a one-fourth mile radius of the facility be allowed to participate in the selection of alternative methods. In the past, the IEPA and operator have agreed to methods that, in the long run, have been injurious to adjacent property owners. (CBE)

Response:

Requirements such as those relating to public participation and notification appear to be related to legal issues that are outside the scope of the technical standards that are being proposed for adoption by the Board. The public participation process in landfill siting and permitting has been addressed in the February 25, 1988 First Notice Opinion. Are there specific documented examples of certain methods causing injuries in the R88-7 Record?

6.(f) With regard to subsection (f) we note the difficulty and expense of and question the reason for monitoring the indicated parameters at every device before and after combustion. The tests involved are costly, no useful results will be obtained and the requirement will discourage beneficial reuse or otherwise impact the choice of gas management procedures. The Clean Air Act would not appear to require such monitoring nor is it required by the Board for other similar sources. (WMI)

Response:

STS agrees that not all the constituents listed need be measured before and after combustion and treatment. The choice of a treatment or combustion device will be dependent on the gas flow

characteristics and type of constituents in the gas stream. The permit must identify all constituents which must be measured in order to meet all applicable air regulations. The following changes are suggested for subsection (f):

f)Standards for Onsite Combustion of Landfill Gas Using Devices Other Than Flares

1)At a minimum, landfill gas ~~the following parameters~~ shall be measured for flow rate, heat value, and moisture content along with combustion parameters including, but not limited to, oxygen and carbon dioxide prior to treatment or combustion. Constituents of the landfill gas and combustion byproducts shall be identified for inclusion in an Agency issued permit based on the type of waste streams that are or will be in the landfill, landfill gas analysis and potential for being emitted into the air after treatment or combustion.~~:~~

~~A)Volatile Organic Compounds;~~
~~B)...~~
~~.~~
~~.~~
~~H)Flow rate.~~

2)All constituents and parameters that must be measured before and after treatment or combustion shall be identified and included in the permit. Constituents may be included in the permit only if they are or will be emitted from the combustion or treatment device. At a minimum, the Agency shall consider the following types of constituents or parameters ~~shall be measured after treatment or combustion~~ for inclusion in the permit:

A)~~Particulates~~ The six criteria air pollutants and the hazardous air pollutants subject to regulation under the Clean Air Act;

B)~~Sulfur oxides~~ Toxic air contaminants including, but not limited to, any list adopted by the Board, carcinogens and mutagens;

C)~~Hydrochloric acid~~ Volatile Organic Compounds;

D)~~Carbon monoxide~~ Constituents known to be present in the landfill gas; and

E)~~Nitrogen oxides~~ Combustion byproducts known to be emitted from the combustion or treatment device.~~;~~

~~F)Volatile....; and~~

~~G)Other constituents...by the unit.~~

~~3)The Agency...following:~~

~~A)The alternate...the unit;~~
~~B)The alternate...; and~~
~~C)The monitoring...Adm. Code 200-245.~~

7.(g) We suggest that making a processing system part of the facility for regulatory purposes, as required by subsection (g), may cause problems and could even inhibit development of such systems. Such systems may be owned by third parties or may be separately organized for tax reasons.

We believe that the STS's concerns about operation absent control over the processing system may be met by requirements which will insure the availability of a backup flare system or other onsite controls in the event processing is not available for any reason. (NSWMA)

Response:

The gas processing system can be organized separately, owned separately and can be run separately; there is nothing in the provisions of this subsection to prevent it. But in the Board's eyes and in the Agency's eyes, the operator is responsible for compliance and may not delegate it away. No revision is recommended.
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8. Section (g)(2) references (d)(2). No (d)(2) is listed. Clarify. (NSWMA)

Response:
STS notes that subsection (g)(2) is referring to the parameters in subsection 811.310 (d)(1), not subsection (d)(2) as presently listed. In addition, other parameters of importance to a gas processing facility, such as NH_3, H_2S and H_2 might be considered for inclusion in subsection (g)(2) as suggested below:

2)The landfill gas shall be monitored for the parameters listed in subsection 811.310 (d)(~~2~~1) and any other constituents including, but not limited to, NH_3, H_2S and H_2, which are required to operate the gas processing facility.

Section 811.313 Intermediate Cover Requirements

1.(a) Change "...Have a cover totaling 1 foot..." to "..shall have compacted cover totaling 1 foot..."

Some areas of intermediate cover will lie exposed for, perhaps, 2 or 3 years. Compaction of this cover material will reduce its permeability and increase its resistance to wind and water erosion. This compaction should be specified as 2 passes by a machine designed for compacting earth (as opposed to one designed for compacting wastes.) No density or permeability requirements need to be imposed for this particular cover. (BFEA)

2. In subsection (a), the reference to Section 811.311 is erroneous; it should be to 811.314. In addition, the Board has failed to allow for use of alternative cover material (e.g., inert waste material) where appropriate. The Agency urges the Board to expressly authorize the use of such alternative materials where the Agency has, by permit condition, authorized the use of specified alternative cover material as equivalent in performance to "clean soil materials."

Response:

STS agrees with BFEA's suggestion regarding the compaction and suggests its addition. STS thanks IEPA for pointing out the error in the reference; this will be corrected. However, STS does not believe that specific alternative materials should be specified. The existing language does not prohibit the use of alternative materials so long as it meets the standards of the section. The following changes to subsection (a) are recommended:

a) All waste which is not to be covered within 60 days of the placement by another lift of waste of final cover in accordance with Section 811.31~~1~~4 shall have a cover ~~totalling~~ equivalent to that provided by 1 foot of compacted clean soil material.

3.(b) Add "The maximum slope for intermediate covered areas shall be 2.5 horizontal to 1 vertical."

All landfill surfaces should present slopes gentle enough for heavy machinery to operate safely because all waste surfaces must be compacted--not merely the active face. After waste surfaces are compacted, cover must be spread and compacted. Finally, cover must be repaired from time-to-time. All of this necessary work demands that all slopes be capable of being traversed by heavy equipment. An additional benefit is that gentler slopes resist water erosion better than steeper ones. (BFEA)

Response:

STS believes that the existing language is sufficient. No change is recommended.

4.Subsection (b) should be contrasted with the approach taken in Section 811.309(f)(6). the standard of Section 811.313 is preferable. (WMI P.C. #23)

Response:

The standards of these two subsections are not incompatible. The standard in 811.309(f)(6) is written from the point of view of designing and operating a leachate recycling system.

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Section 811.314 Standards for the Final Cover System

1.(a) In subsection (a), the Board makes clear that the portion of final cover which supports vegetative cover (the "final protective layer") is additional to the low permeability cover. The Agency supports this configuration and suggests the underlying rationale applies equally to all landfills (see Section 811.204 and related Agency comments above.) (IEPA)

Response:

See the response to comment #1 in Section 811.204. The requirements for inert waste landfills are less stringent because leachate contamination is not of concern, making the low permeability layer unnecessary. In this section, the low permeability layer provides protection against infiltration of water into the landfill and the final protective layer protects the low permeability layer and supports vegetation. No change is recommended.

2.(b) Change (b)(1) to read "...but not later than the construction season immediately following placement of the final lift..."

The reliable season for high quality engineered earthwork in Illinois is June through October. Landfill areas reaching final grade in November would have to receive the low permeability layer no later than the end of January. It is not possible to achieve the specified coefficient of permeability in cold or wet weather. Waiting until the immediately following construction season is well within the service life of intermediate cover: therefore, this proposed covering schedule will not compromise environmental protection.

Add: "Daily or intermediate cover applied in accordance with Section 811.106 or 811.313, respectively, shall not be removed from areas where they will be in direct contact with the compacted earth low permeability layer."

Leaving daily or intermediate cover in place under the low permeability layer will assure that the full thickness of the layer is effective by avoiding protrusion of the irregular waste surface into the bottom of the layer. We agree that daily and intermediate cover should be removed inside the landfill to improve flow paths for leachate and gas, but this comment applies only to the top surface where it is undesireable for gas or liquid to flow through. (BFEA)

Response:

The suggestion to specify that intermediate cover not be removed when it is directly in contact with the low permeability layer is not needed since any such practice meeting the performance requirements of the final cover system is not prohibited.

There is no technical support indicating that the required coefficient of permeability cannot be achieved except during the June to October "construction season." No revision is recommended in this regard.

RKH has suggested that waiting for the landfill to settle after placement of the final lift is desirable before the final cover (i.e. the low permeability layer) is placed in subsection (b)(1). STS agrees that this option has the advantage of improving cover quality. However, it is not clear what period of time is required for substantial settling to take place before the final cover is placed. STS notes that the maximum of 60 days that is allowed in the proposed rules does provide for some settling to take place. One option suggested for consideration is to increase the intermediate cover (perhaps up to a maximum of 3') if there is a delay in the placement of the low permeability layer; RD has suggested increasing the intermediate cover by 1' for every 60 days. For the present, STS suggests that the requirement to place the low permeability layer immediately after the placement of the final lift be deleted in (b)(1) and changed to read as follows:

1)~~As soon as is reasonably possible, but n~~N~~ot~~ later than 60 days after placement of the final lift of solid waste, a low permeability layer shall be constructed.

3.(b) In subsection (b)(3)(A)(iii) and every other subsection in which an alternative design may be utilized, can the operator

employ such alternatives without prior Agency permit approval? (IEPA)

Response:

No.

4.(b) Under subsection (b)(3)(B), may the operator employ a geomembrane as a "low permeability layer" without prior Agency permit approval? (IEPA)

Response:

No, the design of the final cover is submitted to the Agency for review during permit approval and changes such as this constitute a significant modification.

5.(b) The compaction required for the low permeability layer in subsection (b)(3) is not achievable under most conditions for natural soils placed above a completed landfill. We recommend a standard of 1×10^{-6} cm/sec for the low permeability element of the cover. With the liner and leachate standards this will still provide an adequate level of environmental protection. (See R84-17, R. 1674, 1687-88.) (NSWMA) (WMI)

Response:

If a standard of 1×10^{-7} cm/sec cannot be reasonably met, the operator may submit an alternate and equivalent design using the equivalent performance standard. No revision is recommended.

6.(d) Subsection (c) is missing. Section 314 (d) should be labeled 314 (c). In section (d)(2) the purpose of a protective layer is said to be two-fold. First, a sufficient quantity of soil capable of supporting vegetation must be present to insure erosion control through prosperous plant growth. Secondly, protective layers are often said to limit the effects of freeze/thaw degradation of low permeability layers. We object to the second criteria. It has been our experience that no degradation of the permeability of recompacted clay exists from the effects of freeze/thaw activity. Therefore, the need for protection below the frost line is unnecessary. Frost penetration has not been known to cause failure of a protective cap. Optimal moisture content of most clays range from 10 to 15 percent. Therefore, only a small portion of a clay liner is subject to the effects of freezing. Any portion of a clay cap that does expand due to the presence of frost will easily

self heal when the soil thaws. To require a final protective layer in excess of 12 inches has not been shown to be necessary. The protective layer should be determined on a site-specific basis. (See PCB R84-17, R. 1674-76.)

Research has shown that root penetration is not a problem with compacted clay caps simply because of the low moisture content and limited nutrient content of clay. Root penetration tends to migrate along the top of the clay where percolating water flows horizontally.

Proposed revision to subsection (d)(2): "The thickness of the final 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 12 inches." (NSWMA)

7.(d) In regard to subsection (d) WMI testified that it believed that the three foot final cover requirement is unnecessary unless the operator is dealing with a frost sensitive soil. Eighteen inches is generally adequate and WMI believes that the protective layer should be determined on a site specific basis. See PCB R84-17, R. 1674-76. (WMI)

8.(d)(2) This requirement for the final protection layer must be changed such that the layer will not be less than 12 inches in thickness. Based upon our experience, root penetration has not been known to cause a problem with compacted clay caps because of the lack of moisture. (LLC)

Response:

Subsection (d) will be correctly labeled as subsection (c) below. The justification for 3 feet is presented in the Background Report.

~~d~~c)Standards For The Final Protective Layer

9.(d) Would the Board consider limiting the requirements of subsection (d)(4) by some specific time? "As soon as possible" appears unnecessarily open-ended and vague. The Agency suggests 60 days is sufficient. (IEPA)

Response:

There is nothing "vague" or "open ended" about this subsection. The cover must be placed in time to protect the low permeability layer from the effects of climate listed in the standard. This can range from a matter of hours to a month. No revision recommended.

10.Note that subsection (d)(4) may not be necessary where a geomembrane is used. (WMI) (NSWMA)

Response:

A geomembrane is generally resistant to desiccation, freezing, and cracking, but good engineering practice calls for covering it with a protective layer as soon as possible. The Background Report provides some of the reasons for this practice.

10.This requirement should include that the final cover be designed by a competent engineer and that a principal officer of the engineering firm be on site daily during the placement of the final cover. (CBE)

Response:

The construction of the final cover is subject to the requirements of a CQA plan. All the design aspects must be certified by a registered professional engineer.

Section 811.315 Hydrogeologic Site Investigations

1.This should be done under the direction of a competent engineer, and a representative of the engineer firm should be present on site during all exploration activity. Consideration should be given to requiring more than one boring for each unit since a unit could be quite sizeable. (CBE)

Response:

It is the responsibility of the operator to have the work done by a competent engineering firm. This section allows more than one boring if it is necessary to obtain the required information.

2.(b) Subsection (b)(2) could be used to require field investigations on property not owned or leased by the operator. These investigations would be impossible if adjacent landowners were opposed.

Proposed revision to (b)(2): Delete the words "and any adjacent related areas, to the extent necessary to characterize the hydrogeology." (NSWMA)

Response:

STS considers the study area as that needed to achieve the purposes of this section. The Agency can and should decide during the permit review or, on an informal basis, prior to a permit review whether the hydrogeology can be characterized suitably without adjacent area information.

3.(b) Subsection (b)(3) is an excessive boring requirement in homogeneous strata. While an adequate number of borings should be made to certain depths and sampled as required, there are many purposes for soil borings and there is no reason to require all borings to meet the given standards. The section should apply only to borings involved in the site investigation. (NSWMA) (WMI)

Proposed revision to subsection (b)(3): "Except as otherwise required, all borings shall be sampled at all recognizable points of geologic variation." (NSWMA)

Response:

This section does apply only to boring during site investigations. Borings drilled for construction or geotechnical information purposes are subject only to the requirements of the designer.

4.(b) Is there a compelling reason why the Board has not required continuous sampling or borings in subsection (b)(3)? The Agency, as noted below, strongly favors continuous sampling in each boring as the surest means of avoiding disagreement, preventing repetitive sampling and fully characterizing substrata, including the commonly-encountered small sand lenses and "stringers" typical of Illinois geology. Exactly when and how is some other sampling protocol "otherwise required"? (IEPA)

Response:

The phrase, "Except as otherwise required" refers to specific requirements in each phase of the investigation which may not be fully compatible with the requirement specified in this subsection. STS agrees with the Agency on the issue of continuous sampling and suggests the following change:

3)Except as otherwise required during the site investigations, all borings shall be sampled continuously at all recognizable points of geologic variation. Where continuous sampling is impossible or where non-continuous sampling can provide equivalent

information, samples shall be obtained ~~and~~ at ~~least every~~ intervals no greater than five feet in homogeneous strata.

5.(c) The subsection (c)(1) phase I investigation should include a description of the geomorphology of the area, a description of how the units were laid down over time. (NSWMA) (WMI)

Response:

Good idea. STS suggests the addition of terms "geomorphology and stratigraphy" to subsection (B) as follows:

B)Regional and study area geologic setting, including a description of the geomorphology and stratigraphy of the area.

6.(c) The standard of (c)(2)(B) is arbitrary, technically unjustified, and possibly damaging. The boring required could be extremely deep. The purpose of this boring should be to confirm the presence of the confining layer and it should be sufficient if it extends through the top of the weathered zone of the aquifer. It could be described as a boring "to a depth necessary to confirm the aquifer setting in the field based on the regional study and the geomorphology of the area." The boring should be outside the site perimeter to avoid all possibility of contaminating the aquifer. Further, the area nearest the geographic center of the site may be excavated to bedrock, or already covered. A well drilled there would not reveal useful data. (NSWMA) (WMI)

The boring should be located based upon site geography and geology. It must be drilled in a position most favorable to obtain the maximum amount of information regarding the regional geologic setting of the unit. It seems imprudent to penetrate both the aquifer and underlying confining layer in an area where land disposal will possibly occur. This hole may easily become the primary pathway for migration of contaminants either up or down into the aquifer. In some geologic settings, this boring will also be extremely expensive. (NSWMA)
Proposed revision to subsection (c)(2)(B): "A maximum of one boring shall be drilled on the site to confirm the regional geologic setting of the unit. The boring shall extend to the uppermost aquifer. The boring shall be sampled continuously." (NSWMA)

7.(c) Why has the Board in Subsection (c)(2)(B) chosen not to require continuous sampling of borings other than at the geographic center of the site? In the Agency's view, a single boring

continuously sampled cannot be relied upon to establish the stratigraphy of a site. By allowing all other borings to be sampled at up to five foot intervals, the proposal leaves unknown approximately 60 percent of the site's geology. This can be critical in large areas of Illinois, which feature the complex geology associated with glacial till, including discontinuous sand lenses and seams, weathered zones and fracture and joint systems. The Agency suggests that borings at the corners or at some interval along the perimeter of the site be required to be continuously sampled also, as a minimum. (IEPA)

Response:

STS notes that this subsection prescribes a minimum of one boring, but that more may be required to characterize the site-specific hydrogeology. RKH has suggested that the Phase I related boring should extend down to the bedrock, when such a situation exists. STS agrees and suggests the following changes that incorporates some of the commentors' suggestions, corrects some typographical errors and clarifies the intent of subsections (c)(2)(A) and (c)(2)(B):

c)Minimum Requirements For A Phase I Investigation

2)Specific Requirements

A)The regional hydrogeologic setting of the unit shall...previous investigations.

B)A minimum of one continuously sampled boring shall be drilled on the site, as close as feasible to the geographic center, to determine if the available regional hydrogeologic setting information is accurate and to characterize the site-specific hydrogeology to the extent specified by this phase of the investigation. The boring shall extend at least 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 whichever elevation is higher. The locations of any additional ~~The~~ borings, required under this subsection, may be chosen by the investigator, but shall be sampled continuously.

8.(d) Subsection (d)(1) contains requirements which are extremely comprehensive but somewhat vague. Part (A) would require not only data on depth to bedrock but also strike, dip, joint patterns, faults, fold axes, etc. This information is not likely available from published sources. Part (B) sets no vertical

limit, so this data must be provided for all underlying strata, including bedrock. Part (C) requires the applicant to obtain geochemical and geophysical characteristics of soils. These are not limited. Therefore, the applicant may have to conduct gravity tests, magnetic tests, piezoelectric tests, heat flow tests, and any other test requested by the Agency.

Proposed revision to (d)(1)(B): "Chemical and physical properties of underlying strata from the surface to the uppermost aquifer...." (NSWMA)

9.(d) In subsection (d)(1)(D) the provision should be redrafted to require the hydraulic conductivities within and above the uppermost aquifer. (NSWMA) (WMI)

10.(d) The Agency recommends that subsection (d)(1)(D) provide that the hydraulic conductivity of the uppermost aquifer also be determined. (IEPA)

Response:

Subsection 811.315(a) defines the purpose of the site investigation. The phases are intended to allow each succeeding phase to build on or augment the information obtained in the preceeding phase. Enough information listed in this subsection (d) should be collected not only to meet the purposes of this phase of the investigation, but to assist in the next phase of the investigation.

AAJ has also indicated that (d)(1)(A) requiring site specific information is not very clear. He also expresses concern regarding the hydraulic conductivities and the need for information to be developed on what is below the uppermost aquifer as well. The following change is suggested by STS:

d) Minimum Requirements For A Phase II Investigation

1)Information to be developed

Using the information developed in the Phase I survey, a Phase II study shall be conducted ~~. The purpose of the Phase II study is~~ to collect the ~~following~~ 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 ~~attitude~~ characteristics and distribution of underlying strata including bedrock ~~and overlying strata~~;

B)Chemical and physical properties ~~of underlying strata~~ including, but not limited to, lithology, mineralogy, and hydraulic ~~properties~~ characteristics of underlying strata including those below the uppermost aquifer;

D)The hydraulic conductivities of the uppermost aquifer and all strata above it ~~the uppermost aquifer~~;

11.(d) The chemical properties of the underlying strata and physical properties of the underlying strata must be determined under Part (B). Therefore, Part (1)(F) is redundant. (NSWMA)

12.(d) In (1)(F) it is not clear what is meant by the "chemistry" of the confining layer. Should the requirement be to characterize the confining layer? (WMI)

13.(d) Part (1)(G) should require the rate as well as the direction of groundwater flow. (NSWMA) (WMI)

Response:

True, with regard to Comment #11. STS suggests the deletion of (d)(1)(F), which addresses comment #12 as well. STS also agrees with Comment #13 which requires relabeling subsection (G) to (F) and the inclusion of the suggested change as follows:

~~F)The physical and ... below the uppermost aquifer~~

~~G~~F)Direction and rate of groundwater flow.

14.(d) In (d)(2)(A) and (B) boring requirements are arbitrary. Borings should be located to obtain useful data. The locations of geologic strata are seldom related to corners of sites. (NSWMA) (WMI)

Proposed revision: Delete (d)(2)(A) and (B). (NSWMA)

Response:

The justification for these standards is presented in the Background Report and are based upon criteria developed by the ISGS which seek to define as much of the property as possible. In the absence of better information no revisions recommended.

15.(d)(2)(D) and (e)(1)(G). These sections require that the background quality of the groundwater be established during the Phase II and Phase III investigations. This requirement is too broad and guidance for which parameters must be analyzed to establish background is necessary. (LLC)

16.(d) In (d)(2)(D) the requirement should be for wells and piezometers to determine the direction and flow of groundwater in the uppermost aquifer. (NSWMA) (WMI)

Proposed revision to subsection (d)(2)(D): Add to the end, "in the uppermost aquifer." (NSWMA)

Response:

During the Phase II investigation, monitoring wells are established for gathering data on groundwater flow characteristics. Groundwater samples taken from such wells, if analyzed for all or a subset of the parameters included in the groups listed in subsection (e)(1)(G), will provide valuable preliminary information on the quality of the groundwater. This can then be used to carry out the more detailed investigation needed to identify specific constituents of concern and establish background water quality as specified in (e)(1)(G). The parameters listed in (e)(1)(G) are being revised and will be discussed below in response to comments on that subsection.

STS agrees with the comment that the requirements of this subsection apply to groundwater in the uppermost aquifer and suggests the following change to (d)(2)(D):

D)Piezometers and groundwater monitoring wells shall be established to determine the direction and flow characteristics of the groundwater in all strata and extending to the bottom of the uppermost aquifer. ~~and the background quality of the g~~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).

17.(e) Several items included in Phase III, subsection (e), would have been performed in Phase II. Specifically, (e)(1)(C) requires correlation of stratagraphic units between borings, (e)(1)(F) requires identification of zones of potentially high hydraulic conductivity, and (e)(1)(F) requires identification of the confining layer. Any applicant could not have completed

Phase II without already identifying these features and correlating units.

Proposed revision to subsection (e)(1)(F): Add "if present." (NSWMA)

Response:

Yes, some overlap of items occurs, but if the data collected during Phase II was inadequate, it may be impossible to identify these features with a great deal of confidence, hence the repetition. It is not intended to require new calculations and data if the operator is confident that these items were appropriately identified in Phase II. The proposed revision to subsection (e)(1)(F) is acceptable. In addition, STS also suggests some clarifying changes to subsection (e)(1) as follows:

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~~e~~ investigation shall be conducted to collect or augment the ~~following~~ site-specific information needed to carry out the following:

F)Identification of the confining layer, if present;

18.(e) Subsection (e)(1)(G) is overly broad. First, the uppermost aquifer could be extremely thick requiring an inordinate number of wells and samples to establish background. The second part of this subsection requires background characterization, potentially, for hundreds of parameters - anything that could be present in the landfill leachate. Moreover, it is extremely burdensome, and meaningless, to characterize concentrations to the bottom of the uppermost aquifer. This could be thousands of feet down. Similarly, requiring characterization of the aquifer for all constituents expected in a municipal leachate is extremely and unnecessarily broad. One should, instead, characterize those indicator constituents which are most mobile and most likely to migrate. Such work is necessary only in the zone to be monitored.

The reference to the broad range chemical detection analysis in this subsection is ambiguous and further explanation would be useful.. There should be a list of constituents for which to test.

Proposed revision to subsection (e)(1)(G): "Background concentrations in the uppermost aquifer shall be established for the following parameters:

(1) Field pH
(2) Specific conductance
(3) Chloride
(4) Boron
(5) Ammonia
(6) Sodium
(7) Chemical oxygen demand
(8) Total phenolics
(9) Methylene chloride
(10) 1,1-Dichloroethane
(11) Toluene
(12) 1,2-Trans-Dichloroethylene
(13) Ethyl benzene
(14) Methyl ethyl ketone
(15) Potassium
(16) Calcium
(17) Magnesium
(18) Bicarbonate

The GC-MS method 8240 - SW 846 for volatile organic analysis may be employed." (NSWMA)

19.(e) In subsection (e)(1)(G) it is extremely burdensome, and meaningless, to characterize concentrations to the bottom of the uppermost aquifer. This could be thousands of feet down. Similarly, requiring characterization of the aquifer for all constituents expected in a municipal leachate is extremely and unnecessarily broad. One should instead characterize those indicator constituents which are most mobile and most likely to migrate. See the presentation of WMI in R84-17. Such work is necessary only in the zone to be monitored.

The reference to the broad range chemical detection analysis in this subsection is ambiguous and further explanation would be useful. (WMI)

Response:

Without establishing the background concentrations of groundwater in the uppermost aquifer, it is not possible to determine what the impact of leachate migration from the landfill unit will be. The need to establish a specific background concentration for a chemical is dependent on whether it is present in the leachate. However, until the leachate is fully characterized, it is necessary, during the Phase III investigation period, to obtain, at a minimum, background concentations for those constituents expected to be in the leachate and for which a standard has been specified by the Board and to carry out a broad range scan to identify the types of constituents present in the groundwater.

The following changes are suggested to (e)(1)(G):

G) ~~Background c~~Concentrations of chemical constituents present in the groundwater below the unit down to the bottom of the uppermost aquifer using a broad range of chemical analysis and detection procedures such as, gas chromatography and mass spectrometry scan. However, additional measurements and procedures shall be carried out to establish b~~B~~ackground concentrations ~~shall be established~~, in accordance with Subsection 811.320 (d), for:

i) Any~~all~~ constituent~~s~~ for which there is a public or food processing water supply standard~~s~~ at 35 Ill. Adm. Code 302 ~~have been developed~~ established by the Board and which are expected to appear in the leachate; and

ii) A~~a~~ny other constituent for which there is no Board standard, but which ~~that~~ is expected to appear in the leachate at a concentration above the PQL, as defined at subsection 811.319 (a) (4) for that constituent. ~~and may cause groundwater contamination. In addition...shall be performed;~~

20.(e) What is the function of the "broad range chemical detection analysis" required by subsection (e)(1)(G)? To establish background concentrations? What parameters must be included? Must this analysis encompass the entire depth of the uppermost aquifer? Finally, what is the relationship of the background results for organic chemical contaminants derived under this subsection and those derived under Section 811.319(a)(4)(B)? (IEPA)

Response:

See the responses to comments #18 and 19 and the changes made to subsection (e)(1)(G). Some other changes are being included by STS to make the subsections in Section 811.319 on organics monitoring consistent with the background determination requirements in this section.

21.(e) The Agency notes that subsection (e)(1)(G) does not mention using USEPA-approved methods. Is the Agency going to approve methods? If methods other than USEPA-approved methods are used it will impose a burden on the Agency to determine if the lab methods, procedures, etc. are acceptable. How will backgrounds be established for organics where less than detection limit values are found? The proposed regulations should suggest

methods for establishing background levels for organic chemicals where less than detection limit values are encountered. The Agency has developed a Practical Quantitation Limit (PQL) method to deal with this situation, based solely on our technical ability to be able to detect these chemical species. Alternatively, USEPA has provided guidance on a modified Student's T test which takes less than detection limit values into account. Both methods make a reasonable attempt to balance the possibility of false positive findings with the possibility of false negatives. The PQL methods developed by the Agency is explained in detail in IEPA Enclosure #3 and requires USEPA methods to be utilized. The proposed regulation should also provide that backgrounds are to be established in accordance with Section 811.320(d). (IEPA)

Response:

The symbol "ND" is often used to indicate that chemicals are not present in detectable quantities. The operator could use it when applying to the Agency. The two methods for determining the statistical validity of background concentrations are precisely the types of tests envisioned by this standard. The use of the practical quantitation limit (PQL) and any applicable USEPA methods will be addressed in the section on establishing background concentrations specified in 811.320(d). In addition, STS notes that there is nothing in these regulations to prevent their use.

22.(e) The reference in subsection (e)(1)(H) to seasonal variations may suggest that a year's worth of monitoring is required. This is unnecessary at the investigation stage. At present this seasonal information is obtained as part of the permit monitoring program. (NSWMA) (WMI)

Response:

Yes, a year's worth of monitoring data is implied and it will be impossible to design and implement a monitoring program and establish background concentrations without accounting for seasonal variability. No revision recommended.

For consistency with the remaining subsections, STS suggests replacing the word "Indication" with "Identification" in subsection (e)(1)(I) as follows:

I)I~~ndi~~dentification of unusual...disposal facility on groundwater.

23.(e) In subsection (e)(2) the references to preliminary, Phase I and Phase II studies may require correction. The test pit construction requirement is entirely unrealistic. It is not

possible to construct a test pit to the required depth. (NSWMA) (WMI)

Further, test pits are impractical. By performing a phase type investigation of the subsurface, an adequate amount of information will be available to properly characterize the geologic and hydrogeologic conditions at the site. In a situation where an applicant is proposing to excavate 100 feet of material, this test pit would need to be at least 600 feet across at the surface involving the movement of 500,000 yards of material. This is certainly unreasonable and unnecessary. A proper drilling program and subsequent laboratory analysis has proven to be effective in characterizing the subsurface environment. (NSWMA)

Proposed revision: Delete subsection (e)(2)(B). (NSWMA)

24.(e)(2)(B) The Board's request for a test pit to be completed as part of the Phase II investigation is totally unnecessary. A proper investigation completed with boring logs, field reconnaissance, and laboratory verification are more than adequate to assess the subsurface conditions at any facility. In addition, many excavations for landfills in Illinois have exceeded 60 feet in depth. Constructing a test pit with minimally 2 to 1 side walls would require the excavation of an exorbitant amount of material. The cost to complete this type of investigation far outweighs any additional information that may be obtained during the excavation. This section must be stricken. (LLC)

Response:

STS agrees with NSWMA that subsection (e)(2)(A) needs some revision to make the intent clearer. The following changes are suggested:

A)New boring<u>s</u> ~~locations~~ shall be <u>located</u> at intermediate points between <u>boring holes located as part of any</u> ~~the~~ preliminary<u>, Phase I</u> and Phase I<u>I investigations</u> and in other areas identified in the Phase I <u>or Phase II</u> stud~~y~~<u>ies</u> ~~as necessary~~ to characterize the study area.

With regard to LLC's comment on subsection (e)(2)(B), STS notes that the excavation of a test pit is required as part of <u>Phase III</u>, not Phase II. Subsection (f) provides for an alternative hydrogeological investigation protocol to be used, if the alternate protocol is adequate for acquiring the needed information and can be carried out without the use of a test pit. However, the use of a test pit can provide extremely useful information regarding the site hydrogeologicial characteristics

that might have escaped notice during the earlier phases of the investigation. No revision is recommended for subsection (e)(2)(B).

25.(e) In subsection (e)(2)(C), the Board's proposal again calls for up to five foot intervals of sampling. For the reasons noted in the preceding paragraph, the Agency again recommends continuous sampling for at least some of the borings. (IEPA)

Response:

STS suggests the deletion of subsection (e)(2)(C) since it is the same requirement specified in subsection (b)(3), which has also been changed. See response to comment #4 above.

26.(f) The whole subsection (f) on phasing of the boring program will never come to pass as it is highly unlikely a facility will make it through the SB 172 siting process without a complete soil boring program in place with results available to the public. (NSWMA)

Response:

No response requested. STS notes that it would be difficult to characterize the site and prepare a siting application unless all three phases are complete. Furthermore, there are landfills that do not necessarily come under the SB172 process.

27.The general three-phase hydrogeologic investigation in this section of the Board's proposal appears to be consistent with the presently accepted investigation procedures and practices. It is recommended that the proposal be amended to advocate that this approach is the "expected" approach and that the investigator may choose alternative investigation formats or order of work activities as long as the required information is collected. (UT)

Response: Subsection

Section 811.316 Plugging and Sealing of Drill Holes

1.We support the development of standards for plugging and sealing of drill holes, but those proposed are not appropriate. This section does not contain provisions sufficient to prevent contamination of groundwater. An upcoming ASTM draft standard for wells deals with this issue and could be used as a guide.. (NSWMA) (WMI)

Response:

Note that subsection (b) specifically requires the use of materials so as to prevent the creation of pathways for migration. The ASTM standard that is mentioned has not been specified nor has it been submitted into the record. The standards in this section are framed as performance standards. If the ASTM recommended procedure addresses all of these standards in an acceptable manner, then the operator should consider using it.

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2. In general, the Agency opposes the use of drilling mud and oil in the development of a boring used for collecting data on the geology and groundwater characteristics of a site. These materials are known to contaminate soil and water samples and to affect hydraulic conductivity. The Agency suggests that all references to such materials be struck from subsections (b) and (d) in order to avoid the implication that the Board condones their use in this regard. Finally, the Agency queries whether this rule should not require that the material used in plugging a drill hole should be impermeable and compatible with the geochemistry of the site and with the leachate expected to be produced by wastes at the site, if applicable. This approach would be consistent with the requirements for geomembranes (811.306(e)(2) and (3)), earth liners (811.306(d)(4)) and monitoring well screens (811.318 (e)(1) and (2)). (IEPA)

Response:

This section covers all drill holes, including those used for purposes other than collecting geologic information. Mud and oil may be appropriate for these other purposes and it is necessary to specify standards for handling such wastes. However, the Agency is correct in noting that the use of mud and oil on holes that will be sampled is inappropriate. This section is not intended to condone that use. In any case, STS suggests the following change based on the Agency's suggestions to subsection (b):

b) All drill holes no longer intended for use shall be backfilled with materials that are compatible with the geochemistry of the site and with the leachate ~~such as drilling mud, bentonite or concrete~~ in sufficient quantities and in such a way as to prevent the creation of a pathway for contaminants to migrate.

Section 811.317 Groundwater Impact Assessment

1.(a) Subsection (a)(1) contains a requirement to estimate leachate generation and subsequent leakage as a result of presumed head on the liner. The assumptions listed in subsection (a)(1) illustrate the modeling problem we have attempted to describe at the hearings in R84-17. To get models to work, one must often assume that the landfill design fails. This is the case, for example, with inward gradient landfills. There should be no seepage during normal operations, as assumed in (a)(1). (NSWMA) (WMI)

Is Version 2 of the HELP Model sufficient, at this time, to determine the efficiency of the leachate control systems for input into a modeling program? If not, what methods are currently satisfactory? NSWMA respectfully requests the Board's explanation and guidance on this point. (NSWMA)

Many of the parameters used in models are "best estimates" or even guesses. There are no standard methods to measure dispersion coefficients or breakthrough curves. The leachate quantity and especially quality for a new site is difficult if not impossible to determine. If no seepage is anticipated from the unit, leachate constituents will be released and the site cannot be modeled. Since this is counter to the objectives of the regulations, we will have to assume a failure of the design during operation. (NSWMA)

We previously questioned the use of contaminant transport models to predict what levels of monitored parameters will be at some future time at given distances from the unit. The dispersion models are proper tools to aid in the evaluation of contaminant releases, but should not be placed into the regulatory framework and used to set standards. (NSWMA)

Response:

All of these have been addressed in the Background Report. In addition, STS suggest the following changes to subsection (a)(1) for clarity:

1)~~Assumptions~~ The operator shall estimate the amount of seepage from the unit during operations which assume: (i) that the minimum standards for slope configuration, cover design, liner design and leachate collection system design and operation apply, and (ii) that the actual design standards planned for the unit apply. Other designs for the unit may be analyzed if determined by the operator to be appropriate to demonstrate the impacts to groundwater, pursuant to subsection (b).

~~A)The operator shall.... normal operations;~~
~~B)At a minimum,... subsection (b).~~

2.(a) In subsection (a)(1)(A), the Agency assumes that the operator will be required to define "normal operations." Lacking such definition, valid evaluation of the quality of engineering assumptions, estimates and modelling inputs used in the planning process will be impossible. The Board should define this term. (IEPA)

Response:

The use of this term has been eliminated. See the changes to subsections (a) (1) (A) and (B) in response to Comment #2, above.

3.(a) In subsection (a)(2), The Agency suggests that the Board should specify the use of actual site leachate rather than surrogates, where the site is in operation. (IEPA)

Response:

Actual site leachate may be inappropriate if it is an aged facility. This can be evaluated on a case-by-case basis by the Agency.

4.(a) In subsection (a)(2), as noted in R84-17, in designing a new landfill it is not possible to use actual leachate samples or even similar leachate samples. The assumptions made in the proposal about the predictability of leachate levels are simply not borne out by the record or the experience of the industry. Without adequate leachate inputs the modeled results become extremely suspect. (See comments for Section 811.309.) (NSWMA) (WMI)

Response:

The Background Report refutes the unsupported allegations made in this comment.

5.(a) In subsection (a)(3) the reference to space variability is unclear. Some explanation is needed. (NSWMA) (WMI)

Response:

The meaning was thought to be clear from the context. However, for clarity, the following change is suggested:

3)A contaminant transport model meeting the standards in subsection (c) shall be utilized to estimate the ~~space and time variability of~~ concentrations of the leachate

constituents over time and space. The Agency may review a groundwater contaminant transport model for acceptance in accordance with 35 Ill. Adm. Code 813.111.

6.(b) The purpose and impact of subsection (b) requires explanation. We do note that it should not be necessary to model all constituents. It may be sufficient to model just the most mobile, such as chloride. The model should be used, if at all, with those parameters which are most mobile and act as good detection parameters. (NSWMA) (WMI)

Response:

If the applicant can demonstrate that certain chemicals have similar parameters, it is possible to model one of that group as a "representative". STS also suggests revising subsection (b) to clarify the intent of that section as follows:

b)Acceptable Groundwater Impact Assessment

The contaminant transport model results shall be used in ~~of~~ the assessment of the groundwater impact. The groundwater impact shall be considered acceptable if the operator predicts...closure of the unit.

7a.(c) Is subsection (c)(1) to be construed as precluding the use of a model which has no documented track record? Will the documentation supporting the claimed history be required to be presented to the Agency? If so, where is this requirement? (IEPA)

Response:

The intent is to allow the use of models for which documentation exists to establish that it is capable of representing groundwater flow and contaminant transport. This is clarified in the suggested change below. With regard to the second question, the answer is yes; the applicant must submit this information to the Agency for review. The requirement is contained in Part 812.

AAJ cautions that subsection (c)(1) may be interpreted as a "Catch-22" if the "history" referred to implies applications and could also prevent new formulations of a model unless their initial verification studies are accepted as a "history that documents its ability to represent contaminant transport phenomenon." He also states that there is a significant difference between representing transport phenomenon under

laboratory conditions and generating useful predictions under field conditions. STS agrees that the language could be misinterpreted and suggests the following:

c) Standards for the Contaminant Transport Model

1)The model shall have ~~a history that~~ supporting documentation~~s~~ that establishes its ability to represent groundwater flow and contaminant transport ~~phenomenon~~ and any history of its previous applications.

7b.The language in this section needs to be strengthened for the benefit of the hydrogeologists who will be responding to client's requests to perform groundwater contaminant transport modeling. As the proposed rule now reads, the groundwater impact assessment task requires transport modeling only and the modeling of groundwater flow appears to be neglected. Contaminant transport modeling in groundwater cannot proceed until the groundwater flow of the site has been adequately characterized by field monitoring. Numerical characterization of the groundwater regime must be of the level of confidence that model stimulations can define changes in groundwater flow patterns due to seasonal or designed and induced recharge or discharge to the system. In addition, the hydrogeologist cannot adequately address transport in groundwater until groundwater flow modeling of the site has been calibrated and verified with the necessary independent data sets. (IEPA)

Response:

The Groundwater Impact Assessment is focused on the results of the groundwater transport modeling. However there is no attempt to neglect groundwater flow modeling. The standards for the Contaminant transport model in the revised subsections (c)(1) [see above in resonse to Comment #7a] and subsections (c)(2)-(4) address the need for modeling and calibrating the groundwater flow as part and parcel of the contaminant transport model.

8.(c) How are subsections (c)(2), and (3) (4) and (8) to be documented and/or verified and/or calibrated to reflect site specific conditions? Absent a working landfill or exhaustive analysis of the site and hydrogeology of the area, it would seem virtually impossible to confidently extrapolate general assumptions and formulae to any given Illinois location. Perhaps the Board could provide additional standards for selecting an appropriate contaminant transport model, with particular emphasis on the extrapolability (sic) of the model to the chosen site, based on relative factors such as the types of wastes to be received at the site, geology and hydrogeology of the site, climatological

factors and surrounding land, surface water and groundwater uses. (IEPA)

Response:

The requirements for documentation can be in any form as long as they meet the standards of subsection (c). The verification and calibration requirements are among the standards specified. The hydrogeological investigations required in 811.315 are intended to provide site-specific information needed to run a model.

9.(c) Regarding subsection (c), there has been testimony at the hearing as to the accuracy of models. This subsection illustrates that the model was really not designed as a predictive tool for the purposes envisioned by the proposal. See, for example, the (c)(4) requirement for calibration against site-specific field data, data which will not yet exist for waste-related inputs. (NSWMA) (WMI)

Response:

This was addressed in the Background Report and in testimony.

10.(c) The reference in (c)(5) to "space and time discretizations" is unclear. (WMI)

Response:

There are several variables such as the time and space steps or intervals that must be specified. The act of specifying a discrete mathematical value is called a discretization. STS suggests the following change to subsection (c)(5) to make the meaning clearer:

5)A sensitivity analysis shall be conducted ~~with~~ to measure the model's response to changes in the values assigned to major ~~input~~ parameters, specified error tolerances, and numerically assigned space and time discretizations.

11.(c) The reference in (c)(7) and (c)(8) are unclear and may be inconsistent. What does "site-specific" mean? What if there are no available and acceptable lab tests? Can one rely on textbook data? Unfortunately, good faith judgments made in setting up a model can result in over or under predictions which are fully within the range of accuracy of the model used. It is precisely because such judgments can lead to costly remedial

action, even though no groundwater standard is exceeded, that we believe modeling has been misunderstood and is being used incorrectly in the proposal. (NSWMA) (WMI)

Response:

This was addressed in the Background Report. Modeling has not been misunderstood. However for the purposes of clarity, the following changes are suggested to subsections (c)(7) and (c)(8):

7)~~Site specific input~~ The values of the model's parameters requiring site specific data shall be based upon actual field or laboratory measurements.

8)~~Input~~ The values of the model's parameters which ~~are~~ do not require site specific data shall be supported by laboratory test results or equivalent methods documenting the validity of the chosen parametric values.

12.(c) Theoretical models are good, but basic common sense needs to be included in any model results. Regardless of any modeling, the operator should be held responsible for any contamination of the water. Also, all groundwater well tests, etc. should be made available by the operator upon request to all property owners within a one-half mile radius of the facility that use wells for drinking water. The cost should be borne by the operator. (CBE)

Response:

The procedures outlined in this proposal require the operator to react to detectable changes in water quality. Requirements relating to public notification appear to be related to legal issues that are outside the scope of the technical standards that are being proposed for adoption by the Board. The public participation process in landfill siting and permitting has been addressed in the February 25, 1988 First Notice Opinion.

13.Our comments on new landfill design focused on the use of a groundwater impact assessment to identify the minimum design and performance standards to prevent contamination of groundwater outside the zone of attenuation. The proposal states "if the assessment shows that minimum design and performance standards in Part 811 are not adequate to prevent contamination of groundwater outside the zone of attenuation, then additional groundwater protection must be provided." The opposite must also be allowed: if the assessment shows that the minimum design and performance standards in Section 811 more than suffice in preventing contamination of the groundwater

outside the zone of attenuation, then an alternate, less stringent design which is equally protective must be allowed.

The groundwater impact assessment procedure will be dependent upon the quality of the data and the models used. The utility industry has developed an extensive database and models specific to the utility waste environment. After the appropriate site-specific information has been gathered, a disposal site design can be developed. Based on this design and the fundamental database (utility ash characteristics), leachate generating modeling can be used to predict both the amount of leachate generated over time and its quality, i.e., chemical constituent concentrations. These data serve as input to the model procedures used to predict solute migration in groundwater. The results of the solute migration modeling can then be compared to the applicable groundwater standards or criteria. If the results indicate that the applicable criteria have not been met, the engineering design can be changed to afford an additional level of groundwater protection. The process can be repeated until the desired degree of groundwater protection is afforded. This iterative approach allows the designer to incorporate cost-effective standards. Compliance with standards is then demonstrated on a rational scientific basis. The regulations should allow operators to use their innovative, technical skills and data in developing cost-effective designs for their waste management facilities which are capable of meeting the performance standards. (UT)

Response:

No, the Groundwater Impact Assessment is not a "pollution maximizing algorithm." Any waste which creates a contaminated leachate must be disposed at a site where the source of contamination is removed, not allowed to migrate away at some future date.

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14. Verification of the mathematical model consists of comparing predictions made with parameters derived during calibration to an independent data set obtained in the field. Whether or not the parameters (or model) are accepted depends on whether the simulations approach "best-fit", as with calibration. With continued use, calibration, and maintenance of the model, the degree of "fit" to the natural system will be determined and the model will grow to become a dependable management and predictive tool. Only when the numerical model adequately duplicates the natural system and predictions of groundwater impact can be made with confidence, does the hydrogeologist move to transport modeling.

There are numerous uncertainties in transport modeling. Topics such as chemical fate and absorption, degradation, retardation,

and dispersion are all theoretical concepts that end up being fudge factors in many transport equations. In addition, many of the input parameters, such as effective porosity and tortuosity, cannot be measured or quantified in the field. For this reason, the hydrogeologist feels compelled to emphasize the importance of groundwater flow before attempting to predict groundwater transport.

Equations and numerical codes to simulate groundwater flow are time-tested and have been available to the profession for decades. Transport modeling is an emerging science requiring chemical expertise at the edge of state-of-the-art. By modeling a groundwater contaminant conservatively a simulation can be generated that will aid the understanding of transport - but not necessarily predict with accuracy the behavior of the contaminant. But if that model has not been supported with a calibrated and verified flow model, the accumulation of errors and assumptions will certainly generate worthless - and perhaps dangerous - information.

My concern is that a client, responding to the proposed Pollution Control Board Rules, will obligate the hydrogeologist to do transport modeling without groundwater flow. I would like to suggest that the wording of the proposed rules emphasize that transport modeling success is strongly dependent on successful modeling of groundwater flow.

I would also like to recommend that the Pollution Control Board require that certain reports, including groundwater monitoring plans, initial site characterizations, plans of operations and groundwater flow and transport models, be signed by a hydrogeologist. Geologists and engineers typically have not acquired through education and field experience the ability to evaluate and interpret data in terms of hydrogeology. The Association of Groundwater Scientists and Engineers, a division of NWWA, has an established certification program and information about the certification requirements is available through their office. Geologists and engineers who have demonstrated competence via course work or experience are eligible for certification provided each individual satisfies the minimum prerequisites. (STSCL)

Response:

A good and thoughtful comment. Contaminant transport modeling is impossible without detailed knowledge of the groundwater flow characteristics. This is reflected in the standards prescribed in subsection (c) and further clarified in the revisions suggested for this section. STS agrees that parameter values must be carefully selected before they are used as inputs in

predictive transport models. See also the response to comment #7b above.

With regard to the comments on certification, it is in the best interests of the operator to have reports relating to monitoring, site characterization, operations and modeling reviewed by the appropriate professional, whether an engineer, geologist or hydrogeologist. Designs are usually certified by a professional engineer and has been specified earlier in Section 812.102.

Section 811.318Standards for the Design, Construction, and Operation of a Groundwater Monitoring Program

1.(a) In subsection (a)(2) it is more correct to say that one monitors groundwater for potential sources of discharges. (WMI)

Response:

There is no subsection (a)(2). STS would like to suggest deleting the title and making the changes to subsection (a), including some requirements to maintain records regarding the monitoring wells as a result of deletion of subsection (~~h~~e)(6)(B) (see response to comment #18 below) as follows:

a)~~Discharges to be Monitored~~ 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 ~~monitored by~~ identified and studied through a network of monitoring wells operated during the active life of the unit and for the specified time after closure in accordance with Section 811.319. 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 location, well size, type of design and construction practice used, well and screen depths.

2.(b)(1) Note: AAJ indicates that "downgradient with respect to groundwater flow" may be misinterpreted. He states that "If flow is `down' through an aquitard, then there would be a hydraulic gradient in the vertical direction, and monitoring in the vertical would be required." STS believes that subsection (b)(1) is stated correctly to not preclude monitoring in the vertical direction, it agrees that for purposes of clarity, a change as follows is suggested for Board consideration:

b)Standards for the Location of Monitoring Points

1)A network of monitoring points ... locations downgradient, not excluding the downward direction, with respect to groundwater flow,...source of discharge.

3.(b) In subsection (b)(2), the Agency suggests the Board make clear that the proper "location" of a monitoring well is a function not only of the placement of the well, but of the screening of the well vis-a-vis the appropriate aquifer flow zones. (IEPA)

Response:

This subsection (b) is related to the location of the wells. Other sections deal with how the well is to be designed and constructed (subsection (e)) and sampled (subsection (h)) which in combination provide standards for placement of wells which are appropriate for measuring contaminants.

4.(b) The record does not support the requirement at subsection (b)(2) that wells be placed in all potential pathways; the only pathway to be monitored is the uppermost aquifer.

Proposed revision to (b)(2): "Monitoring wells should be located in the uppermost aquifer which underlies the facility." (NSWMA)

Response:

The explanation given may not hold in all cases. There may be strata, i.e. opportunities for groundwater to migrate via a pathway that is independent of the uppermost aquifer. No change is recommended.

5.(b) In subsection (b)(3) the requirement for monitoring as closely to the source as possible is theoretically unsound and may be practically useless. An explanation of this provision is needed. (NSWMA) (WMI)

Response:

See the specific description in the Background Report. Monitoring wells must be placed as close as possible to the unit (source). This is a practical and necessary standard to allow migration to be detected early. In some cases, because of the operation or topography, it may be necessary to place a well further away. STS suggests the following minor changes for purposes of clarity:

3)Monitoring wells shall be established ... disposal operation, and within half the distance ~~or less between~~ from the edge

of the potential source of discharge ~~and~~ to the ~~limit~~ edge of the zone of attenuation downgradient, with respect to groundwater flow ~~, from the source~~.

6.(b)(5) Subsection (b)(5) requires statistical comparison of concentrations detected at the downgradient edge of the zone of attenuation. The statistical methods to be used are not specified. (NSWMA)

Further, subsection (b)(5) appears to contain a significant standard for determining groundwater violations. An explanation for the legal and technical basis for the provision is necessary as a basis for further comment. (NSWMA) (WMI)

Response:

Acceptable statistical methods are described in 811.320 (e). Additional changes have been suggested for inclusion (see responses to comments on that section below). Technical basis is described in the Background Report and substantial hearing testimony. STS recommends a reference to the correct subsection, a few small changes for clarity and suggests for Board consideration the change to add, "not excluding the downward direction" in subsection (b)(5), in response to AAJ's comments made in regard to subsection (b)(1) which also applies here. The suggested changes read as follows:

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, not excluding the downward direction, with respect to groundwater flow, from the unit. Such well or wells shall be used to monitor ~~A~~any statistically significant increase in the concentration of any constituent, in accordance with subsection 811.320 (e). ~~over~~ Such an observed increase above the applicable groundwater quality standards of Section 811.320 ~~background concentration of any constituent~~ in a well located at the compliance boundary ~~this point~~ shall constitute a violation of a groundwater quality standard.

7.(b)(5) In subsection (b)(5) is "constituent" the same as a target "parameter"? There has been considerable testimony to the effect that, in the course of attenuating contaminants from leachate, the ion exchange process may result in release of the so-called "benign species" (e.g., R. 68-74, 136-137). Would "statistically significant increases" of "benign species" concentrations constitute a "violation of a water quality standard"? Does the Board endorse the concept of a "benign

species"? Finally, the Agency is not satisfied that the Board's witnesses have satisfactorily defined what a "statistically significant increase over background concentration" is for purposes of establishing an enforceable violation of a water quality standard. Is the Board referring to "statistical significance" in the sense of confidence levels of a given test, or is the Board using this term in the sense of a range of contaminant concentrations which, though higher than background, are statistically insignificant? Put another way, if a person with "perfect knowledge" determined that background concentrations of a given constituent were exceeded by .00001 mg/l, would a "statistically significant" increase (i.e., a violation of a water quality standard) have occurred? (IEPA)

Response:

With regard to the last question, the answer is yes, if it represents a statistically significant increase. The release of benign species may be an indicator that potential problems may follow. However, there may be certain constituents, which when present in concentrations above the background, but below a water quality or groundwater quality standard, do not present a threat to human health or the environment. Relief is available under those circumstances, if such a showing is made in accordance with the existing Adjusted Standards procedures of the Board or the adjusted standard procedure provided in 811.320(b)

8.(d) Subsection (d) should be labeled (c). Subsections (f) and (g) appear to be missing. (NSWMA)

9.(d) Subsection (d) requires an operator to set maximum allowable concentrations to be allowed based upon the dispersion model. Thus, if the model is imperfect in any way, the limits you set for yourself will also be "incorrect". These limits are arbitrary because there are no current regulations requiring concentrations to be lower than MSL or other health or environmental based limit. If the background for lead is 0.02 mg/1 and you predict that you might detect lead at 0.03 mg/l in a particular well, but actually detect 0.04 mg/l then you would exceed the maximum allowable. However, this concentration does not violate the health-based standard. The implications of the maximum allowable concentration have been extensively discussed at hearing in R84-17. Note specifically, however, that the reference to "all parameters" is confusing and should be clarified to specify the parameters covered. (NSWMA)

10.(d) Note...that the reference to "all parameters" in (d)(1) is confusing and should probably be clarified to specify the parameters covered. (WMI)

Response:

The errors pointed out will be corrected. Subsection (d) will be relettered (c). The "maximum allowable concentration" as defined in relettered subsection (c) is that predicted by the contaminant transport model. STS suggests redefining this concentration as the "maximum allowable predicted concentration" (MAPC). The MAPC is used as a guide for further assessment, including the gathering of additonal monitoring data and groundwater flow data needed to correct for model inconsistencies. Based on both NSWMA and WMI's comments and suggestions regarding the parameters to be monitored, STS also suggests inclusion of a reference to the parameters included in the monitoring program. The changes recommended to existing subsection (d) are as follows:

~~d~~c)Maximum Allowable Predicted Concentrations

The operator shall use...and assumptions as used in the groundwater impact assessment...predict the concentration over time and space of all constituents chosen to be monitored in accordance with Section 811.319 at all monitoring points. The predicted values shall be used to establish the maximum allowable predicted concentration~~s~~ (MAPC) at ~~the~~ each monitoring point. The ~~maximum allowable concentration~~MAPCs calculated in this subsection shall be applicable within the zone of attenuation.

11.(e) Subsection (e)(1) contains a reference to "inert" casing. Inert waste is defined, but inert casing is not.

Proposed revision to subsection (e)(8): Add"...and/or the results from lab analysis." (NSWMA)

12a.(e) In subsection (e)(1), the Board prescribes "inert" casing material be used. Again, this varies from current Agency recommended practice, which suggests that all portions of a monitoring well in contact with saturated zones shall be constructed of stainless steel where contact with organics may be expected or where long term (30 year) monitoring is warranted. Again, does the Board have information suggesting that its requirements are equal or superior to the Agency's recommended practice in terms of performance? (IEPA)

12b.These standards do not comport with current Agency recommendations, which favor a two foot pure bentonite seal above the monitored zones, a cement/bentonite slurry above the seal and pure concrete aprons installed from below the frost line

to above the surface. Does the Board have information suggesting the requirements of its proposal are equal or superior to the Agency's recommended practices in terms of performance? (P.C. #21, IEPA)

Response:

Because of the relettering of subsection (d), subsection (e) will be relettered. The references upon which these standards are based are described in the Background Report. "Inert casings" are intended to mean casings made of materials that do not react with the water or in any way affect the sample. The proposed regulations are superior to the Agency's because flexibility is maintained to utilize superior materials or other materials which do not affect the quality of the sample. It should be noted that at no time has the Agency provided technical support for their standard practices.

13.(e) In subsection (e)(2), the Board prescribes screening "only at the desired interval." The Agency's current recommendation calls for a well screen of not more than 10 feet or less than 5 feet so that depth discrete samples can be collected (screen lot size may be determined based on sieve analysis of formation material.) Once again, does the Board have information suggesting its more general standard is equal or superior to the Agency's in terms of performance? (IEPA)

Response:

The standard stated here is superior because it insures the desired performance while allowing flexibility. There does not appear to be any technical justification for the Agency's arbitrary selection of screening interval.

14.(e) In subsection (e)(3), the Agency suggests that the Board should specify that the choice of the type of seal should be based upon the site's geochemistry, water chemistry and expected leachate composition, where appropriate. In addition, such a seal should extend to a point above the highest known groundwater level in order to maintain the well's integrity. (IEPA)

Response:

Based on the Agency's comments, STS suggests the following changes to subsection (~~e~~d)(3):

3)Annular space above the well screen section...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...groundwater level.

15.(e) In subsection (e)(5), the Agency urges the Board to prohibit, not permit, the use of drill cuttings in annular spaces. In the Agency's view, use of drill cutting is highly problematic First, such cuttings are seldom compatible enough to provide an effective barrier to contaminant and-or water migration. Second, absent sophisticated sampling and analysis, it will be impossible to truly ascertain whether cuttings are, indeed, "uncontaminated"; under field conditions, the tendency will be to resort to visual and other sensory "analysis" instead, compromising the integrity of the well. Finally, drill cuttings are inherently non-uniform; any tests or analysis would therefore by subject to large ranges of variation. (IEPA)

Response:

STS agrees with the Agency that it may be difficult to determine if drill cuttings are uncontaminated. However, use of uncontaminated drill cuttings is acceptable. Also, the material used for the backfill may not be a critical factor, provided the space above the well screen is sealed and the top of the well is sealed. No change is recommended.

5)The annular space...uncontaminated cuttings.

With regard to subsection (e)(8), there was a comment regarding transmissivity testing. STS notes that this topic is covered in the Background Report and that transmissivity tests should be conducted in-situ to provide measurements that can be averaged over large aquifer volumes. No change in this subsection is recommended.

16.(e) In subsection (e)(9), the Agency suggests that the Board require demonstration of equivalency to the Agency prior to use of alternative sampling methodologies and well construction techniques. This problem, as has been noted elsewhere in these remarks, is pervasive in this draft of these rules: the Board must assume that Agency oversight of critical operator choices and decisions is provided for. (sic) (IEPA)

Response:

Of course, according to the Act, the Agency is required to collect information and enforce the regulations; there is nothing in this proposal to prevent the Agency from exercising all of the powers granted under the Act. STS does however suggest a minor language change as follows:

9)Other sampling methods...may be utilized ~~provided that~~ if they provide equal...this subsection.

17.(h) In subsection (h)(2), why has the Board required that at least 95 percent of the collected sample be groundwater from the monitored zone? What assurance could be provided that the other 5 percent would not be a significant factor? Does this rule authorize dilution of samples up to 5 percent of volume? (IEPA)

Response:

Because of the relettering of subsection (d) and subsection (e), subsection (h) will now be relettered subsection (e) as follows:

~~h~~e)Standards for Sample Collection and Analysis

No, the rule does not authorize dilution of samples as suggested by the Agency. The justification is provided in the Background Report and is based upon publications of the ISGS. The standard does not apply to dilution but rather to the sampling technique that must be used.

18.(h) In subsection (h)(6)(B), the Board requires the operator to measure the depth of the well each time he collects samples. The record provides no scientific basis for this requirement. Quarterly measurements are totally unnecessary and particularly expensive when the operator used dedicated pumps. Annual measurements of depth for each well is adequate.

Proposed revision to (h)(6)(B): Add "...(annually)." (NSWMA)

Response:

AAJ has also stated that item (h)(6)(B) appears to mean the depth of the sample inlet port down in the well and questions the need to measure this each time the well is sampled. STS agrees that this parameter does not need to be measured each time the well is sampled and recommends deletion of the parameter, "Depth of well below ground" in (h)(6)(B). This requires that existing parameters (C) through (E) be redesignated (B) through (D). However, it is necessary for the operator to maintain records of the exact location of the wells, the type of construction used, the depths at which the screens are placed in the wells and the depth of the well. Such information can be included as part of the standards in Section 811.318 (a). See the changes in that subsection in the responses to comment #1 above. The changes are as follows:

6)At a minimum, the...preserving samples for shipment:

A)Elevation of the water table,

~~B)Depth of well below ground~~

~~C~~B)pH,

~~D~~C)Temperature of sample, and

~~E~~D)Specific Conductance.

19.(h) Requirement should be expanded to include the most recent state-of-the-art regulations such as those presently in effect in California. Reference should be made to the most recent publication of the requirements. (CBE)

Response:

No, the regulations expressed here are sufficient and flexible enough to allow new practices without going through another new rulemaking.

20.If an operator needs to implement a groundwater impact assessment, then adjacent property owners within a one-fourth mile radius of the facility should be notified or any remedial action as well as any appeals to the Board. (CBE)

Response:

Such requirements do not need to be included in these regulations, especially if there are no offsite effects. Requirements such as these relating to public notification appear to be related to legal issues that are outside the scope of the technical standards that are being proposed for adoption by the Board. The public participation process in landfill siting and permitting has been addressed in the February 25, 1988 First Notice Opinion.

Section 811.319 Procedures for Groundwater Monitoring Programs

1.The Agency notes that this section and Section 811.320 have no corresponding section in Part 812. Hence, while Section 812.317 requires a permit applicant to demonstrate compliance with Section 811.318, there is no similar requirement that a permit applicant demonstrate compliance with (or provide a plan for achieving compliance with) Section 811.319. While portions of this section call for Agency oversight (e.g., subsection (b)(2)), several portions, including the key "trigger" subsection,

subsection (a), does not. As the Agency has intimated previously, these rules appear to be generally deficient in providing for the Agency's role in overseeing key decisions (e.g. choices of alternative operating practices, discontinuance of monitoring, and structuring of hydrogeologic investigations, to name a few) by regulated entities. (IEPA)

Response:

STS does not believe it is necessary to explicitly describe each and every instance of Agency oversight, especially where these are already granted by the Act and clearly described. The provisions of this section are part of the monitoring program and subject to the full scrutiny of the Agency. The Agency's concerns are unjustified. Note the changes to subsection (a)(4) requiring the Agency to be notified when the operator institutes a confirmation procedure.

2.(a) Subsection (a)(1) is a series of requirements which describe an apparent detection monitoring program but also discusses at (1)(B) a series of conditions which also are better termed a remedial investigation program. (NSWMA)

Response:

The requirements are part of the monitoring program and not directly related to remedial action. These requirements establish conditions that when met, would lead to assessment monitoring or the termination of the monitoring program.

3.(a) The reference to a "threat of contamination in (a)(1)(A) and (B) is vague and should be defined. (NSWMA) (WMI)

Response:

STS agrees that this term can be better defined. There also appears to be no necessity for the "minimum of five years thereafter" requirement. STS suggests the following change to (a)(1)(A):

A) The monitoring period shall begin as soon as waste is placed into the unit and for a period of fifteen years after closure. The operator shall sample all ... on a quarterly basis except as specified in subsection (a)(3), throughout the time the source constitutes a threat of groundwater contamination. The source shall be considered a threat to groundwater, if either of the following occur:

i)the results of the monitoring indicate that the concentrations of any of the constituents monitored within the zone of attenuation are above the maximum allowable predicted concentration for that constituent; or

ii)the concentration of any constituent monitored at or beyond the zone of attenuation is above background or greater than 50% of any Board established standard in Section 811.320 that is applicable. ~~and for a minimum of five years thereafter~~. ~~For waste disposal units, the monitoring period shall ... after closure.~~

4.(a) In subsection (a)(1)(B), it would appear possible that an operator would be entitled to scale back monitoring frequency pursuant to subparagraph (i) even though a concentration of 10 percent of "the maximum observed concentration" might be substantially greater than the "maximum allowable concentration" or even statutory or regulatory numerical standards. The Agency suggests deletion or refinement of this provision to avoid such an absurd result. (IEPA)

Response:

The "maximum observed concentration" should really be the "MAPC" [defined at 811.318 (~~d~~c)] both in (a)(1)(B)(i) and (ii). The condition in (a)(1)(B)(iii) can be made a part of (a)(1)(B). These modification are presented below:

B)Beginning fi~~ve~~fteen years after closure...constitute a threat of contamination, as defined in subsection (a)(1)(A), the monitoring frequency may change...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 subsection 811.320 (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 10 percent of the maximum ~~observed~~ allowable predicted concentration; or

ii)~~If a~~All constituents monitored within the zone of attenuation are less than...their maximum allowable

predicted concentration for 8 consecutive quarters.

5.(a) The standards for an end to monitoring or a decrease in monitoring in (a)(1)(B) are unreasonable. The end of monitoring is dependent in some cases on achievement of annual monitoring, thus compounding the problem posed by the annual monitoring standard. (NSWMA) (WMI)

Monitoring termination, as currently defined, also brings in the many problems with determining statistical significance, a very difficult concept. See the discussion in the general comments, supra. (WMI)

Response:

Subsection (a)(1)(A) and (B) have been modified (see above in response to comments 3 & 4) to provide clarification of the conditions that must be met before a change in the monitoring frequency is allowed. The section on determination of statistically significant increases is now explicitly referenced in order to provide additonal guidance.

As required in Section 22.17 of the Act, the minimum monitoring period is 15 years. Therefore, STS suggests the following changes to (a)(1)(C) to take into account the statutory requirement:

C)Monitoring shall be continued for a minimum period of 15 years after closure for landfills. Monitoring, beyond the minimum period, may be discontinued under the following conditions:

i)~~After changing to an annual schedule, n~~No statistically significant increase in the concentration of any constituent greater than the previous sample is detected for three consecutive years, after changing to an annual monitoring frequency; or

ii)Immediately after contaminated leachate is no longer generated by the unit~~, but not less than 5 years after closure~~.

6.(a)(2)(A) Again, the Board must provide guidance as to which constituent should be analyzed as part of the ongoing monitoring program. This information could be stipulated in an operating permit. As written, the section is too vague. (LLC)

Response:

Note the changes to subsection (a)(2) at the end of the response to comment #11 below.

7.(a) In subsection (a)(2)(C), the Board provides no standard determining "statistically significant changes in concentration" of contaminants, nor a clear delineation of the interrelationship between this requirement and the requirement for "checking the statistical validity." The Agency urges the Board to clarify this. (IEPA)

8.(a) Subsection (a)(3)(A) for the first time mentions "statistical" comparison to determine that a value exceeds an established maximum allowable concentration. The Board should either define the term "statistical validity" or state with clarity what statistical method is acceptable. (NSWMA)

Response:

The subsection on statistical analysis is clearly identified in 811.320 (e). Note the changes to (a)(2) and (a)(3) at the end of the response to comment #11 below.

9.(a) In subsection (a)(4), there are no provisions for changing the organic chemical groundwater monitoring program as waste streams and/or leachate characteristics change. Once again, a device for "triggering" any such change (and for Agency oversight) appears to be missing and should be supplied by the Board. (IEPA)

Response:

The operator may at any time, submit a "significant modification" to remove or modify parameters. The Agency may begin an enforcement action if it believes that the groundwater monitoring program is no longer in compliance with the regulations.

10.(a) This proposed section [(a)(4)] would require periodic testing of each monitoring well for a broad range of organic chemical contaminants. Each of the 51 organic chemicals described in 40 CFR 141.40 (1987) would at a minimum be required to be analyzed even though the constituent does not appear and/or is not expected to be in any potential leachate.

Several studies with supporting data regarding utility coal combustion wastes disposal practices have been presented to the Board under the three proceedings which were consolidated to form R88-7. This information indicates that organic contaminants are not reasonably expected to be in leachates from utility coal combustion waste. We believe that monitoring of organic contaminants should only be required for organics which are found or may reasonably be expected to be found in a leachate from a waste. (UT)

11.(a) Subsection (a)(4)(A) contains an invalid reference to 40 CFR 141.14 (1987), which contains no list of organics. The reference to "subsection (1) above" is presumably to (A). Additionally, the statement "shall be deemed background" and the discussion of statistically significant increases every five years create a rather interesting mathematical exercise of what is being compared. The whole exercise has no bearing on subsection (b), which refers back to "maximum allowable concentrations" in an assessment monitoring program. The new organic chemicals monitoring standard and criteria for violation in (a)(4)(B) does not allow for consideration of background. (NSWMA)

Response:

RKH states that a 5-year sampling frequency for organics monitoring is too long and suggests a 2-year frequency in subsection (a)(4)(C). STS endorses the 2-year frequency.

AAJ has reservations about subsection (a)(4)(B). While he approves of the organics monitoring, his understanding is that this subsection yields a well-by-well definition of background water quality rather than a true background assessment. AAJ is also concerned that major contamination in the first year might be viewed as background. STS notes that the true background water quality for each constituent including the organic chemicals is to be established in accordance with 811.320 (d). STS is also concerned that the time period of one year from the date of establishment of a new monitoring well for monitoring of organic chemicals is excessive and suggests that it be carried out within 3 months.

There also appear to be some difficulties with the use of the words "maximum allowable concentration", "background water quality", "present water quality" and "groundwater quality standard". STS notes that (1) the term "maximum allowable concentration" has now been changed to "maximum allowable predicted concentration" (MAPC) [see changes to section 811.318 (~~d~~c)] which is based on groundwater impact assessment modeling and applies within the zone of attenuation, (2) the groundwater quality standard applies at on or outside the zone of attenuation and (3) where groundwater quality standards are not established

for a constituent, the background concentration shall be considered the groundwater quality standard. STS suggests that the term "present water quality" not be used.

Subsections (a)(2), (a)(3) and (a)(4) have been rewritten to provide a clearer understanding of the groundwater monitoring program for both organic and inorganic constituents. The changes also clarify the conditions that trigger the groundwater assessment and remedial programs. The changes also address many of the comments received pertaining to the affected sections

STS provides the following recommended language for correcting perceived deficiencies in subsection (a):

a)Detection Monitoring Program

2)Criteria for Choosing Constituents to be Monitored
The operator shall monitor each well for constituents that will provide ~~an indication of~~a means for detecting groundwater contamination. Constituents shall be chosen ~~as indicators for monitoring~~ for monitoring ~~shall~~ if they meet the following requirements ~~standards~~:

A)The constituent appears in, or is expected to be in, the leachate; and:

B)The Board has established for the constituent a public ~~water~~ or food processing water supply standard ~~for the constituent in~~ at 35 Ill. Adm. Code 302 or has established a groundwater quality standard under the Illinois Groundwater Protection Act; or the constituent may otherwise cause or contribute to groundwater contamination~~; and~~.

~~C)Collection and to determine statistically significant changes in concentration.~~

~~3)If the concentration...procedure:~~

~~A)The operator...observation.~~

~~B)The operator...offsite source.~~

~~4~~3)Organic Chemicals Monitoring Program

Within ~~one year of the effective date of these regulations and within one year~~ three months of the establishment of any new monitoring well, the operator shall monitor each well for a broad range of organic chemical contaminants in accordance with the procedures described below:

A)The analysis shall be at least as comprehensive and sensitive as the test~~s~~ for~~:~~

~~i)~~the 51 organic chemicals in drinking water described at 40 CFR 141.40 (198~~7~~9) ~~incorporated by reference at 35 Ill. Adm. Code 810.104;~~ ~~.~~and

~~ii)~~any other organic chemicals targeted for monitoring in Illinois, ~~under the Illinois Groundwater Protection Act, by the Agency.~~

~~B)The results of the monitoring...violation under 811.320(a).~~

~~C~~B)At least once every ~~five~~ two years, the operator shall monitor each well in accordance with subsection (a)(3)(~~1~~A) ~~above, to determine if the concentration of organic chemicals has changed~~.

STS notes that the following subsection (a)(4) is a revised version of the existing first notice subsection (a)(3). Subsection (a)(4)(B)(iii) is an optional addition for Board consideration, which is intended to allow the Agency to have information regarding any confirmed increases.

4)Confirmation of Monitored Increase

A)The confirmation procedures of subsection (a)(4) shall be used only if the concentration 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 during routine laboratory operating conditions. The operator shall, under any of the following conditions, institute the confirmation procedures of subsection (a)(4)(B). However, the operator shall notify the Agency in writing, within 10 days, of such an observed increase and has instituted the procedures of subsection (a)(4)(B) for confirming the increase:

i)The concentration of any constituent monitored, in accordance with subsections (a)(1) and (a)(2), shows successive increases over four consecutive quarters;

ii)The concentration of any constituent exceeds the maximum allowable predicted concentration at an established monitoring point within the zone of attenuation;

iii)The concentration of any constituent monitored, in accordance with subsection (a)(3), 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 standard of Section 811.320.

B)The confirmation procedures shall include the following:

i)The operator shall verify the observed increase by taking additional samples within 45 days of the initial observation and ensure that the samples and sampling protocol used will allow any statistically significant increase in the concentration of the suspect constituent to be detected, in accordance with subsection 811.320 (e), so as to confirm the observed increase.

ii)The operator shall determine the source of the increase, which may include, but shall not be limited to, natural phenomena, sampling or analysis errors, or an offsite source.

iii)The operator shall notify the Agency in writing within 10 days of any confirmed increase and state the source of the increase and provide the rationale used in their determination.

C)If it is determined that the source of the confirmed increase is the solid waste disposal facility or cannot be determined conclusively, then the operator shall institute the following procedures:

i)Conduct an assessment monitoring program in accordance with subsection (b), if the increase is confirmed for any constituent monitored within the zone of attenuation.

ii)Implement remedial actions in accordance with subsection (d) if a violation of or increase above the groundwater quality standards of Section 811.320 is confirmed for any constituent monitored at or beyond the zone of atttenuation.

12.(b) Subsection (b) has conditions which are highly arbitrary and unreasonable. "Statistically significant" is not defined. Comparison of a value with the previous quarter's concentration neglects seasonal variability in groundwater chemistry. (NSWMA)

Response:

Methods to be used are described in 811.320 (e).

13.(b) In subsection (b)(2), in the first sentence, "to" should be "with". Further, an assessment monitoring plan submitted by a non-permitted (exempt) facility should be subject to prior Agency approval. This is not contrary to the permit exemption of Section 21(d)(1) of the Act, insofar as the assessment monitoring plan requirement applies only where a"statistically significant" increase in contamination has already been detected. Hence, Agency oversight is authorized by Section 4(c), (d), (e) and (h) of the Act, and the Board is authorized by Section 22 to prescribe standards governing such oversight. Further, the timing of the implementation of an assessment monitoring program must be keyed to a "trigger" provision (e.g., a requirement that the Agency be notified within 24 hours of confirmation of detection of contamination.) Absent such a requirement the 90-day requirement cannot be effectively enforced by the Agency. A similar lack of a meaningful "trigger" provision affects subsection (b)(3). (IEPA)

Response:

Changes have been made in subsection (a)(4) to notify the Agency after an observed increase and after it has been confirmed. In addition to the earlier responses with regard to subsection (a), STS suggests the following changes to this subsection (b) to address the comments and to clarify the intent:

b)Assessment Monitoring Program

~~If the observation is determined to be a stattistically significant inccrease greater than the maximum allowable concentration and the source is the solid waste disposal facility or cannot be determined, then t~~The operator shall begin an assessment monitoring program in order to confirm that the solid waste disposal facility is the source of the contamination and to provide information needed to carry out a groundwater impact assesment in accordance with subsection (c). The assessment monitoring program ~~which~~ shall be conducted in accordance with the following requirements:

1)The assessment monitoring ~~program~~ shall be conducted to assess the nature and extent of ~~the~~ groundwater contamination~~. The assessment monitoring program may~~, which shall consist of~~, ~~any~~ but not be limited to, ~~of~~ the following steps ~~necessary to determine the nature and extent of contamination~~:

2)The operator of any facility shall...monitoring program ~~to~~ with the Agency. If the facility... implemented within 90 days of ~~of~~ confirmation of monitored increase in accordance with subsection (a)(4) ~~detection of contamination~~ or, in the case of permitted facilities, within 90 days of Agency approval.

3)If the assessment monitoring...then the operator shall implement the remedial action requirements of subsection (d).

4)If the assessment monitoring...exceeds the maximum allowable predicted concentration...requirements of subsection (c).

14.(c) Subsection (c) also does not define "statistically significant". It should reference appropriate section(s). (NSWMA)

Response:

The term is not used in this subsection.

15.(c) The role and purpose of the groundwater impact assessment required by subsection (c) are unclear. It is also unclear where impact is to be measured. The schedule for submittal does not appear to take account of the time necessary for Agency review and approval of earlier phases and results. (NSWMA) (WMI)

Response:

The purpose is clearly stated. It is also stated in the rule that the impact is to be measured outside the zone of attenuation. The exact location is dependent on the site specific hydrogeologic features surrounding the facility. Some changes have been made in 811.319 (a)(4) requiring Agency notification of confirmed increases allowing the Agency to quickly review and approve assessment monitoring plans.

16.(d) In subsection (d)(3) there is apparently no provision for a less intrusive or aggressive remedial action program, such as a change in leachate management or gas management, operating

methods, or cover practices. Such actions and remedies can often be extremely effective and it is unreasonable not to allow their use. Further, in subsection (d)(4), the standard for cessation of action is when the "threat of exceeding the maximum allowable concentration" ends. Here, again, the maximum allowable concentration has been given a status under the regulations which is not justified by the Act or by the Technical evidence in the record. The whole section is best described as an attempt to craft a new concept--zone of attenuation--into the "conventional" RCRA Subtitle C approach. The end result is a double trigger. If the impact assessment shows no potential impacts outside the zone of attenuation, the operator is forced back to square one and could result in the operator going through athe same exercise if background then reverts back to data from an upgradient well. (NSWMA) (WMI)

Response:

These issues relating to modeling and the use of maximum allowable concentrations (now termed the maximum allowable predicted concentration) have been previously addressed in the Background Report and at hearing. However, the following changes are suggested by STS for purposes of clarity:

d)Remedial Actions

If the groundwater impact assessment, in accordance with c) above, shows a potential for exceeding the groundwater standards of Section 811.320 at or beyond the zone of attenuation, or if it is confirmed, from subsections (a)(4) or (b)(3), that there is a statistically significant increase above the ground water quality standards at or beyond the zone of attenuation, then the operator shall institute a remedial action program in compliance with the following standards:

4)Termination of the Remedial Action Program

A)The remedial action program shall continue until the threat of exceeding the maximum allowable predicted concentration of any constituent within the zone of attentuation and the threat of exceeding the groundwater quality standards of Section 811.320 at or beyond the zone of attenuation no longer exists.

Section 811.320 Groundwater Quality Standards

1.This section requires that all groundwater be maintained at its present quality. Each constituent in the groundwater down gradient of a landfill may not exceed its background

concentration unless a site-specific rule has been granted by the Board. An operator may petition the Board for groundwater standards greater than background up to the standards in 35 Ill. Adm. Code 302.301, 302.304 and 302.305.

The down gradient point of compliance is proposed at 100 feet from the edge of the landfill, or the property boundary, whichever is less. The area between the landfill boundary and the compliance point is called the zone of attenuation which may not extend past the annual high water mark of navigable waters.

Proposed Section 811.320 is more restrictive than groundwater quality standards for RCRA hazardous waste facilities (35 Ill. Adm. Code 724.194). The proposed section is more restrictive because Board approval, through a site-specific rule proceeding, is required under Section 811.320(a) to set a standard different than the background concentration for each constituent. Section 724.194 for hazardous waste allows standards above background for certain constituents (Table 1 of Section 724.194) without specific Board approval. In addition, Section 724.194 states that higher standards other than background of Table 1 values under certain conditions may be granted.

We believe that standards for nonhazardous waste sites should not be more restrictive than those for hazardous waste facilities.
Page 77 of the March 7, 1988, report entitled, "Recommendations for a Nonhazardous Waste Disposal Program in Illinois and Background Report to Accompany Proposed Regulations for Solid Waste Disposal Facilities" (Background Report) indicates that the standards in the existing requirements of 35 Ill. Adm Code Part 302 apply to groundwater. The Recommendations Report states on page 78 that this interpretation is supported by the interpretation employed by the Illinois Supreme Court [Central Illinois Public Service Company v. PCB, 116 Ill 2d. 397, 507, N.E. 2d 819 (1987)]

The Supreme Court did not make a decision as to the applicability of the numerical limitations in 35 Ill. Adm. Code Part 302 to groundwater in the referenced case. Only two issues were raised in the Supreme Court decision: 1) Does the Environmental Protection Act require the promulgation of standards and procedures under Section 28.1 as a prerequisite to the consideration of a petition for site-specific standards?, and 2) If it was proper for the Board to consider CIPS' petition, was the Board's denial of the petition arbitrary and capricious?

The Supreme Court ruled on the first issue that the Board did have authority to determine site-specific standards. The Supreme Court stated in regard to the second issue:

> It is not for this Court to determine whether the Board's action was wise, or even if it is the most reasonable action based on the record....Based on the many problems with CIPS' data discussed above, we do not believe that the Board's determination is arbitrary and capricious. Therefore, we will not overturn that determination.

The process which led to the referenced Supreme Court decision started when the Illinois EPA (Agency) denied a permit (June 27, 1984) to construct a second unlined fly ash pond adjacent to the first pond at CIPS' Hutsonville Generating Station. The Agency denied the permit indicating that construction of an unlined fly ash pond would result in noncompliance with certain of the numerical limitations of 35 Ill. Adm. Code 302.201 and 304.124 in the groundwater. CIPS appealed the permit denial to the Board, which affirmed the Agency's decision in its use of Section 302.201, but reversed the Agency's decision on its use of Section 304.124.

CIPS did not appeal the Board's decision regarding the appropriateness of applying Section 302.201 standards to groundwater. Instead CIPS filed a petition with the Board seeking site-specific water quality standards for groundwater at its site. CIPS did not file for site-specific water quality standards because it believed Section 302.201 applied, but did so because it was the most expedient method to achieve its goals at its Hutsonville Generating Station. The Agency recommended to the Board that the petition be granted. However, the Board denied the petition. The Board stated that the petition was denied due to lack of information necessary for a determination. CIPS appealed this decision which resulted in the above referenced Supreme Court decision.

CIPS argued during the permit appeal that 35 Ill. Adm. Code Subtitle C which contains Sections 302.201 and 304.124 was geared toward protecting surface waters and, in particular, toward the attainment and maintenance of conditions supportive of aquatic life. Although "waters of the State", by definition, included both surface waters and groundwater, the two were definitely not of equal importance in the development of the Board's Subtitles C regulations. The transcript of the hearings held on the water quality standards proposal (R71-14) shows the disportionality. Out of several thousand pages of transcripts, there are less than a half dozen pages on which any references were made to groundwater.

The General Assembly realized that the existing laws and regulations failed to adequately distinguish between ground and surface waters. To correct this situation, the Illinois

Groundwater Protection Act, P.A. 85-863 was enacted. The Illinois Groundwater Protection Act requires the Agency to propose comprehensive groundwater quality standards by July 1, 1989, and the board to adopt standards within two years of the proposal. Due to the lack of attention given to groundwater during the development of Subtitle C, we believe that use of groundwater standards other than those to be adopted as required by the Illinois Groundwater Protection Act would not be appropriate.

Proposed Section 811.320 establishes a zone of attenuation. The zone of attenuation (within which concentration of constituents in leachate discharged from a landfill may exceed the groundwater quality standards) has been proposed at the property boundary or 100 feet from the edge of the landfill, whichever is less. The proposal does not allow the zone of attenuation to extend pass the annual high water mark of navigable surface waters.

During the course of hearings on R84-17d (and in the preamble), the Board's technical staff member stated that the proposed rule was intended to prevent landfill operators from using the environment as a treatment facility. Thus the "mixing zone" implicit in a compliance point downgradient from a disposal unit appeared to be abandoned by the Board. The Illinois Utilities submitted that this approach was without precedent in existing air and water quality regulations in the state and was an arbitrary and capricious position for the Board to take. The Board had included nothing in the record to indicate that the use of a mixing zone in an aquifer had resulted in degradation of water quality at the point of use. The Illinois Utilities submitted that there was a large and growing body of knowledge on the capacity of soils to attenuate the concentration of contaminants such as metals and metallic salts. The Board's technical staff has been provided with results of reasearch by the Electric Power Research Institute on this subject on a regular basis. Without apparent regard for the ultimate fate of the metals and salts that may be of concern, the Board had elected in the course of past proceedings to require that the leachate containing these materials be collected and treated. The only treatment for such solutions that the Utilities are aware of will produce sludges in which the metals and salts removed from the leachate will be more concentrated than they were initially. These sludges must themselves be disposed of. Two alternatives are to place them on the landfill from which the initial leachate came, or to place them in a different landfill, presumably equipped with a leachate collection and treatment system. These procedures amount to keeping the contaminants "in orbit" in perpetuity and we could not imagine the Board condoning such an approach. A third alternative is to chemically fix or encapsulate the sludge so that the contaminants are less

leachable. The cycle of leachate collection, treatment and encapsulation seems to the Illinois Utilities an enormously expensive approach to accomplishing the goal of groundwater quality when we believe that the ion exchange, precipitation and dispersion processes that naturally occur down gradient of our disposal facilities accomplish the same goal in a dependable and safe manner which needs little or no human intervention and is substantially lower in cost. By allowing a "zone of attenuation" in R88-7, it appears the Board has accepted the above points. While we agree and have repeatedly supported the concept of a "zone of attenuation", we believe that 500 feet is more appropriate than 100 feet.

Page 78 of the Recommendations Report states:

> The "zone of attenuation" is roughly analogous to the surface water mixing zone. The intent is to provide a buffer area between the source of the discharge and the point at which the goundwater standards are enforced.

The statement would seem to support a 500-foot point instead of the proposed 100-foot point, since the mixing zone allowed for surface water in 35 Ill. Adm. Code 302.102 is an area equivalent to the area of a circle with a radius of 600 feet. Moreover, the Illinois Utilities know of no instance where an actual or portential user of groundwater is located less than 500 feet from one of its disposal facility boundaries.

In the January 14, 1986, Federal Register, the USEPA proposed its land ban disposal regulations for hazardous waste. On page 1643, the USEPA indicated that a point 500 feet down gradient from a hazardous waste disposal site is a reasonable point at which human exposure to groundwater could be expected. The USEPA indicated that 500 feet was the mean distance it found from disposal sites to the first use of drinking water.

We believe use of a 500-foot point has some basis as discussed above, while the 100-foot point used in the proposed regulation is an arbitrary point picked without any basis. The Background Report did not indicate how it arrived at the 100-foot point. The Background Report indicated that an incomplete study by the Illinois State Geological Survey was used to determine if the 100-foot point was achievable. Because use of this incomplete study may be premature, we strongly object to its use to justify establishing regulations. From the discussion presented on page 78 through 91 of the Background Report, it appears that the subject study with the use of many assumptions only shows that areas exist in the State where no degradation of groundwater quality would occur during a 100-year period at the 100-foot point. This same study also shows that even more areas would be available at which nonhazardous landfills could

be sited with a 500-foot point. We believe the Background Report in addition to our comments appear to indicate that a 500-foot point is more practicable than a 100-foot point.

Proposed Section 811.320(c)(2) should be deleted. We believe the zone of attenuation should be allowed to extend past the annual high water mark of navigable surface waters, provided that Subpart C standards must be met in the navigable water. (UT)

Response:

The use of a 500-foot compliance distance is wholly unreasonable and its adoption would allow significant degradation of large sections of Illinois. See the ISGS study, which supports the 100-foot distance.

STS notes that the standard articulated in subsection 811.320 (a) is based on the concept of nondegradation. All groundwater shall be protected against degradation by maintaining the water quality at or beyond the zone of attenuation at each constituent's background concentration (termed the background water quality for that constituent). However, the groundwater quality standard that is applicable for the purposes of compliance at or beyond the zone of attenuation for each constituent is one of the following:

1)The background water quality (i.e. concentration of the constituent), established in accordance with 811.320 (d), if:

A) No Board standard exists for that constituent. ["Board Standard" will mean any Board established standard for public water and food processing water supply in Part 302 or any groundwater quality standard that may be adopted by the Board pursuant to the Illinois Groundwater Quality Act], or

B)A Board standard exists for that constituent, but is above the background water quality.

2)An existing Board standard for that constituent, if the background water quality is above it.

3)Adjusted Groundwater Quality Standard established for that constituent, pursuant to 811.320 (b).

The standard applicable to each constituent shall be used to determine if the concentration of that constituent shows a statistically significant increase above it, at or beyond the zone of attenuation, and is attributable to the facility. Such a determination shall constitute a violation of the water quality

standard. STS suggests the following changes to clarify the above intent:

a)Applicable Groundwater Quality Standards

1)All groundwater shall be maintained ~~in its present quality,~~ at each constituent's background concentration, at or beyond the zone of attenuation~~,~~. The applicable groundwater quality standard established for any constituent shall be:

A)The background concentration for that constituent if there is no Board established standard.

B)The background concentration for that constituent, if the Board established standard is above the background concentration

C)The Board established standard for that constituent if that standard is at or below the background concentration; or

D)~~,unless the applicable g~~Groundwater quality standards ~~have been~~ adjusted by the Board in accordance with the justification procedure in subsection (b). ~~In this case the adjusted standards shall apply.~~

2)Any statistically significant increase above a groundwater quality standard established ~~by this~~ pursuant to subsection (a)(1), attributable to the facility, and occurring outside or at the edge of ~~outside~~ the zone of attenuation shall constitute a violation ~~of the water quality standard~~.

3)For the purposes of this Part:

A)Background concentration means that concentration of a constituent that is established as the background for that constituent, in accordance with subsection (d); and

B)Board established standard is the concentration of a constituent adopted by the Board as a standard for public and food processing water supply under 35 Ill. Adm. Code 302 or as a groundwater quality standard adopted by the Board pursuant to the Illinois Groundwater Protection Act, whichever is lower.

2.The only acceptable criteria would be that the water does not serve as a source of drinking water. The other requirements are subject to opinion and should be deleted. (CBE)

Response:

After consideration of the comments, the standards as written are justified and reasonable.

3.This section imposes a nondegradation standards. The provision for adjusted standards may well result in bringing all landfill sites to the PCB for a site specific limit. This will be the result even though the sites meet groundwater standards. In essence, the proposal makes the Board the permitting authority for such sites, a role which was not intended under the Act. Moreover, the adjusted standard provisions fail to provide for sites in areas which currently exceed standards for reasons other than naturally occurring contaminants. Absent such a provision the landfill would appear to be held responsible for remediating upstream contamination, a concept which is not justified by anything in the Act or the Board's regulations.

Many witnesses and commentors have recommended that the Board specify Safe Drinking Water Act maximum contaminant levels as the applicable groundwater standard and we continue to urge that the Board consider the approach. (NSWMA) (WMI)

Response:

Some of these concepts have been discussed in the Background Report and at the hearings. The nondegradation standard is consistent with the Clean Water Act and the nondegradation criteria established by the Board in Section 302.105. In any case, the Adjusted Standards Procedure provides a mechanism by which standards for specific constituents may be changed.

4.(b) Subsection (b)(3) should have a provision for groundwater which could possibly be used as a drinking water supply in which certain constituents occur naturally above drinking water standards. (NSWMA)

Response:

As presently worded, subsection (b)(3) requirements must be met before an adjusted standard can be granted. However, the Board may wish to consider adding such a provision.

5.(c) Subsection (c) regarding the zone of attenuation limits the zone to 100 feet from the edge of the unit. This is extremely restrictive, unnecessary, inconsistent with other regulatory approaches to the point of compliance (e.g., the site boundary), and could discourage the provision of buffer zones. (NSWMA) (WMI)

Response:

The Background Report and ISGS report support the proposed standards. See the responses to Comment #1 above as well.

6.(c) The zone of attenuation should not extend beyond the facility boundary onto adjacent property. (CBE)

Response:

It doesn't.

7.See remarks regarding Section 811.319, above, regarding the lack of a permit requirement corollary to this section in Part 812.

As noted previously, the Agency recommends use of Practical Quantitation Limits (PQL's) to establish "background levels" and assess the significance of changes on concentration values of constituents which are not naturally occurring in groundwater and which have background data set with values below detection limits or shown as not detected. (IEPA)

Response:

STS has suggested changes to subsection 811.319 (a)(2) requiring the procedures for confirming a statistically significant increase be applied only if concentrations are measured at or above the PQL. Note the changes in response to comment #11 of Section 811.319.

8.(d) All monitoring wells should be on the facility property, and such monitoring wells should not create a hazard or nuisance for adjoining property owners. (CBE)

Response:

Monitoring wells should be placed as close to the source of contamination as possible in order to provide early detection and are likely to be located on the facility property Such decisions are usually made when the monitoring program is being planned.

9.(d) The new Section (d) provisions regarding establishment of background is obviously an important part of the nondegradation standard and WMI looks forward to further explanation of the process at hearing. (WMI)

Response:

The need to establish background concentrations is discussed in the Background Report. STS agrees that the specifics of how the background level for a constituent is established may need further explanation for purposes of clarity. Monitoring at other than upgradient wells under certain conditons and the determination of an alternate background concentration is now included to allow appropriate background concentrations to be determined. The following changes to the procedures used in this subsection (d) are recommended for inclusion by STS, except for the last portion of subsection (d)(1) regarding the maintainance and submission of a list of background concentrations, which is provided as an optional inclusion for Board consideration:

d)Establishment of Background Concentrations

1)The initial monitoring, to determine background concentrations, shall ~~be established~~ commence during the hydrogeological assessment. The background concentrations for those parameters identified in subsections 811.315 (e) (1) (G), 811.319 (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), which ~~Background concentrations~~ may be adjusted during the operation of a facility~~,~~. Statistical tests and procedures, in accordance with subsection (e), shall be employed, depending on the number, type and frequency of samples collected from the wells, to establish the background concentrations. ~~Such~~ A~~a~~djustments to the background concentrations shall be made only if ~~as necessary, based upon~~ changes in the concentrations of constituents observed in upgradient wells over time are determined, in accordance with subsection (e), to be statistically significant ~~changes in the concentrations of constituents in the upgradient wells over time~~. ~~Such values~~ Background concentrations determined in accordance with this subsection shall ~~extablish the background concentrations~~ be used for the purposes of establishing groundwater quality standards, in accordance with subsection (a). The operator shall

prepare a list of the background concentrations established in accordance with this subsection. The operator shall maintain such a list at the facilty and 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 10 days of any change to the list.

2)A network of monitoring...in the groundwater:

A)The wells shall be...will not be detectable.

B)The wells shall be...throughout the monitoring period.

C)A sufficient number...for spatial variability.

3)A determination of background concentrations may include 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; and

B)Sampling at other wells will provide an indication of background concentrations that is representative of that provided by upgradient wells.

4)If background concentrations cannot be determined on site, then alternate background concentrations may be determined from actual monitoring data from the aquifer of concern which includes, but is not limited to, data from another landfill site that overlies the same aquifer.

10.(e) Regarding subsection (e), NSWMA strongly recommends that the Board provide that the statistical tolerance interval be used to test monitoring data. (NSWMA) (WMI)

Response:

At present 811.320 (e) allows the use of any valid statistical method that is demonstrated by the operator to be equivalent to the 95 percent confidence interval. However, STS feels that this subsection (e) needs to be expanded to provide clearer guidance as to the types of statistical tests that may be used to analyze groundwater monitoring data. The following language, replacing the First Notice language of February 25, 1988, for subsection (e), is recommended for inclusion:

(e) Statistical Analysis of Groundwater ~~Quality~~ Monitoring Data

~~The most scientifically...have been exceeded:~~

~~1)Mann-Whitney U-test,~~

~~2)Student's T-test,~~

~~3)Temporal or Spatial Trend Analysis, or~~

~~4)Any other valid...identify a significant difference.~~

1)Statistical tests shall be used to analyze monitored groundwater data. One or more of the normal theory statistical tests listed in subsection (e)(4) shall be chosen for analyzing the data unless demonstrated that they are inapplicable; in which case tests listed in subsections (e)(5) and (e)(6) shall be used. Whenever any statistical test chosen from subsections (e)(4) or (e)(5) is used, the level of significance (Type I 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, establishing 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 maximum allowable predicted concentration, 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 811.318 and 811.319.

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 alternate procedure as prescribed in subsection (e)(6) is shown to be applicable:

A)Where the percentage of nondetects in the data base used in the analysis is less than 15 percent, replace NDs with MDL divided by 2 and then proceed with the use of one or more of the Normal Theory statistical tests listed in subsection (e)(4).

B)Where the percentage of nondetects in the data base used in the analysis is between 15 and 50 percent and the data are normally distributed, Cohen's adjustment to sample mean and standard deviation followed by tests listed in subsection (e)(4)(C). However, where data are not normally distributed, an applicable nonparametric test from subsection (e)(5) may be used;

C)Where the percentage of nondetects in the database used in the analysis is above 50 percent, then the test of proportions listed in subsection (e)(4) shall be used.

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 applicable 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 are not applicable, may be used.

5)If the normal theory tests are shown to be inapplicable for the groundwater sampling data, then one or more nonparametric statistical tests such as, the Mann-Whitney U-test, Kruskal-Wallis test, a nonparametric analysis of variance (ANOVA) for multiple comparisons or the Wilcoxon Rank Sum test shall be used.

6)Any other statistical test which is applicable based on the distribution of the sampling data.

Section 811.321 Standards for Waste Placement

1. (a) This section appears to duplicate earlier Sections 811.105 and 107. The requirement for downgradient placement of waste is unnecessary and inconsistent with other portions of this section. The placement of refuse should begin in the lowest part of the unit but not the lowest part of the facility. Common operating practice is to have the run off water move away from the unit or active area, not towards it. Starting in the lowest part of the facility would cause additional construction of retention areas and diversion berms. Starting in the up gradient portion of the facility would allow runoff water to move away naturally. (NSWMA) (WMI)

Proposed revisions to Section 811.321 (a)(2): add "or" after both subsection (B) and (C) so that it is clear that these conditions are alternative and not cumulative, and add a new subsection (D), as follows: "When the lowest possible unit is inaccessible to vehicles or equipment using the facility." (NSWMA)

Response:

The reason for this requirement is stated in the Background Report. Note that subsection (a)(2) provides conditions under which an operator may begin operations at other than the most downgradient point of the facility. Note also the changes suggested to Section 811.105.

2.(a) In subsection (a)(2)(A) exception should also be made for situations where the lowest part of the unit is inaccessible by vehicles. (WMI)

Response:

The existing conditions appear to be sufficient to handle most situations. STS, however, suggests the following formatting changes to subsections (a)(1) and (a)(2):

a)Phasing...

1)Waste disposal...as provided in subsection (a) (2)~~, below,~~ the placement...part of the unit.

2)The operator may...provided in subsection (a) (1) only under the following:

3.(b) The standard should require 2 feet of sand to help drainage prior to the placement of 5 feet of waste. Also, this activity should be supervised by a competent engineer. (CBE)

Response:

The standards for the performance of the leachate drainage system are to maintain a leachate head no greater than 1 foot within the unit using a minimum thickness of 1 foot for the permeable drainage layer (with a hydraulic conductivity greater than or equal to 1×10^{-3} cm/sec), which is prescribed in Section 811.307. Additional depth for the drainage layer is not prohibited if necessary to meet the performance standard. The prescription of an additional 2 feet of sand raises the minimum depth requirement, which is not justified. This activity is part of the design and must be certified by a professional engineer.

Section 811.322 Final Slope and Stabilization Standards

1.(c) Prior to permit approval, commitment is needed as to the use of the property after closure. If there is a change, then property owners within a mile radius of the landfill facility should be advised of that change. (CBE)

Response:

The definition of "significant modification" includes any changes to the postclosure land use of the property. Such a modification must be approved in a permit. Requirements such as these regarding public notification appear to be related to legal issues that are outside the scope of the technical standards that are being proposed for adoption by the Board. The public participation process in landfill siting and permitting has been addressed in the February 25, 1988 First Notice Opinion.

2.(c) In subsection (c)(7) erosion control measures should be undertaken only if necessary. They are useful on the sides.

Proposed revision: Add the words "if necessary" after "undertaken". (NSWMA) (WMI)

Response:

STS does not believe a change is needed.

With regard to subsection (d)(2), RKH has suggested that the requirement for structures constructed
over the unit needs to be strengthened with the inclusion of gas monitoring requirements inside and outside the foundation, and the inclusion of minimum construction standards. STS comments that while gas monitoring requirements may be specified, it is perhaps beyond the scope of Board rules to specify construction

standards. At this stage, STS proposes no change to subsection (d)(2).

Comments received by the Agency with regard to Section 811.406 in Subpart D, below have asked why the load checking program is applicable only to special wastes, but not to putrescible and chemical wastes. STS agrees that the provisions apply to such wastes and suggests the addition of Section 811.323 containing the provisions of Section 811.406 with some revisions as follows:

Section 811.323Load Checking Program

a)The operator shall implement a load checking program that meets the requirements of this Section for detecting and discouraging attempts to dispose of regulated hazardous wastes at the facility. For purposes of this Section and Section 811.406, regulated hazardous wastes are wastes defined as hazardous under RCRA at 35 Ill. Adm. Code 721 and subject to regulations under 35 Ill Adm. Code Parts 700-749.

b)[Same as subsections (b)(1)-(3) of existing 811.406]

c)[Same as subsections (c)(1) and (c)(2) of existing 811.406]

3)Subsequent shipments by persons or sources found or suspected to be previously responsible for shipping regulated hazardous waste shall be subject to special precautionary measures by the solid waste management facility prior to accepting wastes. The operator may use precautionary measures such as questioning the driver concerning the waste contents prior to discharge and visual inspection during the discharge of the load at the working face or elsewhere.

SUBPART D: STANDARDS FOR IDENTIFICATION AND MANAGEMENT OF SPECIAL WASTES

1. Sections 811.401 through 811.406 were not previously considered in the Docket C, full hearings were not held and opposing testimony was not offered on the proposal of Waste Management, Inc. The Board said it was going to consider its own proposal in the future. Therefore, these provisions have not been subject to full hearing procedures and cannot be adopted without opportunity for hearing. It is not clear, from a review of the record, whether these provisions are applicable to all facilities, including facilities exempt under Section 21(d) and not possessing an agency permit (see Section 811.401(a)), or whether they are applicable to all on-site facilities as well (see Background Report, page 93). It is clear that these procedures are based upon the operation of commercial landfills receiving waste from a vast variety of sources and transporters. They are apparently designed to ensure that waste received at a commercial facility from a variety of sources is what it claims to be. Wastes from monofills or even multifills receiving limited categories of waste do not require these elaborate procedures. Whether located on-site or off-site, a facility receiving, for example, only foundry sand or blast furnace slag, does not require procedures of this elaborate nature. The operators may be held accountable for ensuring that the material is shipped to an appropriate on-site facility or a permitted landfill. For example, there is no basis to require dumping of separate loads for inspection at facilities as set forth in Section 811.406 if all material is of a homogeneous nature that can be recognized when deposited. (See proposed Section 811.406(b)). Furthermore, there is certainly no basis for requiring elaborate manifesting for the deposit of wastes on-site whether the receiving facility is permitted or not. (See Section 811.403).

   Moreover, as it is clear that in this record, there is no evidence whatsoever that so-called "special wastes" pose a greater threat to the environment than typical municipal waste, and therefore, there is no basis for imposing these elaborate, outrageously expensive and burdensome provisions on industry. IERG urges the Board to set the matter for full hearings and not to proceed with their adoption unless some justification can be put forth in the record for these procedures. (IERG)

2. We note that the Board has recently moved forward with its waste categorization rulemaking and question how that proceeding impacts Subpart D. (P.C. #23, WMI)

Response:

These requirements supplement those in Part 809. The purpose of these requirements is to ensure that special wastes that do not fall into the RCRA hazardous waste rules be properly managed at a "permitted Disposal Site" defined in Section 809.103 as a landfill facility permitted to accept special wastes. Therefore, it is appropriate to include standards for the management of such special wastes in landfills. STS would like to suggest changing the title of Subpart D as follows to better reflect the intent and content of this Subpart:

SUBPART D: ADDITIONAL STANDARDS FOR ~~IDENTIFICATION AND~~ MANAGEMENT OF SPECIAL WASTES AT LANDFILLS

Section 811.401 Scope and Applicability

1a. NSWMA believes that these same requirements shall apply equally to on-site facilities which receive special wastes. (NSWMA) (WMI)

1b. We support the adoption of a waste identification program. We do suggest some important refinements to the draft proposed. We believe that these identification requirements should apply as well to onsite facilities receiving special wastes. (P.C. #23, WMI)

2a.(a) In subsection (a), the standards for identifying and managing special wastes are made applicable only to permitted facilities. What is the rationale, and where is there support on the record of this proceeding, for excluding exempt "on-site" landfills from these requirements? While obviously the manifest requirements of Part 809 and Section 811.402 would be inappropriate to an exempt facility, much information critical to environmental protection is lost if there are not requirements regarding special waste identification and recordkeeping (such as at Sections 811.404 and 811.405) applicable to such facilities. Absent such requirements, the annual reporting requirement of Section 815.303 will not, and cannot, distiguish special waste from other types of solid waste tributary to the landfill. (IEPA)

2b. In Subsection (a), the first line should be revised to say "This Subpart applies to all landfills permitted or required to be permitted by the . . . " in addition, this Subpart needs to be revised based on the regulatory amendments adopted by the Board in R89-13(A). (P.C. #21, IEPA)

Response:

These requirements are intended to update and supplement existing Part 809 and applies to onsite facilities as well. To correct this oversight in Subsection 811.401(a), STS suggests the inclusion of onsite facilities as follows:

a)This Subpart applies to all landfills permitted by the Agency pursuant to Section 21 of the Act and landfills operated onsite with or without a permit which accepts special wastes.

RKH has suggested that "Special Wastes" be defined. At this stage, STS agrees that a definition is needed and suggests a definition similar to "special (non-RCRA) waste" used in the R89-13(A) proceeding relating to Special Waste classification/declassification.

Section 811.402 Notice to Generators and Transporters

1. This section alludes to the current so-called "supplemental wastestream permit" requirement ("A prominent sign . . . shall . . . state only special waste permitted by the Agency and accompanied by a manifest . . . will be accepted: emphasis added). Does the Board intend to retain this requirement? If so, where is this requirement to be found outside Part 807? Note that this Section seems to preclude placement of special non-RCRA hazardous waste in solid waste landfills. Where are such wastes to go? What requirements apply? See Agency comments re: Section 810.103 ("Solid Waste") and Section 811.101, above. The requirement for special waste permitting must be expressly included; the cross reference to Part 809 will not be sufficient since the permitting requirement in Part 809 depends on the applicability of Part 807 (see Section 809.302(b)). (P.C. #21, IEPA)

Response:

As noted in the response to comments 1 and 2 on Subpart D, above, the intent is to allow special (non-RCRA) waste to be disposed at a "permitted disposal site." The Section, as presently written, does allow special non-RCRA waste to be disposed. However, STS agrees that the section needs to be changed to allow those special wastes that are exempted from manifest requirements to be accepted. The following changes are suggested:

A prominent sign at the entrance to each solid waste management facility shall state that disposal of hazardous waste is prohibited and, ~~that only special wastes~~ if it is a facility permitted by the Agency ~~and~~ to accept special wastes; also state that special wastes will be accepted only if accompanied by ~~a manifest and~~ an

identification record and a manifest, unless such waste is exempted from manifest requirements in accordance with 35 Ill. Adm. Code 809.211 ~~will be accepted~~.

Section 811.403 Special Waste Manifests

1. Is a waste "received" by a facility for purposes of this section, even if it is rejected by the facility operator at the gate? As noted previously, the term "received" appears to be a key term subject to interpretation, and should be defined for clarity. (IEPA)

2. This section of the proposal would require that each load of special waste received for disposal at a permitted facility be accompanied by a special waste manifest. The Illinois Utilities wish to remind the Board that under 35 Ill. Adm. Code Section 809.211(h), persons who haul coal combustion fly ash are not required to carry or complete a manifest. The requirements of 35 Ill. Adm. Code Section 810-815 in the Board's proposal are intended to supersede the requirements of Section 807 [reference Section 807.105(c)] not Section 809. We request that the exemption from manifesting requirements for coal combustion fly ash be included in proposed Section 811.403. (UT)

Response:

The word "receive" means "not to refuse". However, for purposes of clarity, STS suggests replacing "receive" with "accepted".

It would appear that comment #2 is referring to onsite facilities accepting wastes that are exempt from the manifest requirements as allowed in Section 809.211. STS agrees that a manifest is not needed for disposal at an onsite facility, but a description including the type, quantity and rate at which the special wastes are to be disposed is needed along with other information as specified in Sections 811.404 and 811.405. However, special wastes that are exempt from the manifest requirements in accordance with Section 809.211, that are disposed offsite should be accompanied by the information required in Section 811.403. STS suggests the following changes:

a) Each special waste ~~received~~ accepted for disposal at a permitted solid waste ...shall be accompanied by a manifest containing the following information, unless such special waste is disposed at an onsite facility and exempted, in accordance with 35 Ill. Adm. Code 809.211, from the manifest requirement:

3.A copy of all special waste manifests should be provided by the operator, upon request, to property owners within one-fourth mile of the facility. All costs should be borne by the operator. It is only fair that property owners know what kind of wastes are being dumped adjacent to their property. Also records of inspection of the contents of loads should be made available, upon request, to property owners within one-forth mile of the facility. (CBE)

Response:

It is not reasonable to include a requirement that all property owners (within one-fourth mile) be served with copies of special waste manifests and inspection records. Requirements such as these regarding public notification appear to be related to legal issues that are outside the scope of the technical standards that are being proposed for adoption by the Board. The public participation process in landfill siting and permitting has been addressed in the February 25, 1988 First Notice Opinion.

4.(a) Subsection (a) should, if supplemental waste stream permits are to be retained, require the waste stream permit number be on the manifest. (IEPA)

Response:

STS agrees that where a waste stream permit is issued, the permit number be included in the manifest. The following addition is suggested to subsection (a)(6) as follows:

6)The name, waste stream permit number (if applicable) and quantity of special waste delivered to the hauler;

5.(b) Subsection (b) appears to overlook emergency shipment. Also, what exactly constitutes a "transportation record"? (IEPA)

Response:

The question on emergency shipment is not clear. STS suggests the Board to replace the word "receive" by "accepts" to be consistent with subsection (a) as follows:

b)A permitted facility which ~~receives~~ accepts special waste....management facility.

6a.(c) In subsection (c)(1), responsibilities are placed on the special waste hauler. This subsection, therefore, is apparently

duplicative of Part 809 (as is much of this section) and is in conflict with Section 811.401(a). It is unclear to the Agency why provisions regarding the form, content and distribution of manifests is placed here. The Agency suggests that only those requirements additional to Part 809 and germane solely to solid wastes should be inserted here. (IEPA)

6b.Subsection (c) needs to be revised in light of the amendments adopted by the Board in R89-13(A). (P.C. #21, IEPA)

7.(c) In subsection (c)(2)(B), why has the Board required the site to send the manifests received to the Agency each month? This is already required of waste generators and would seem to obviate the need for an annual report. Additionally, as the Agency has testified in related proceedings (R84-43/R85-27), the submission of manifest copies and/or reports from both generators and receiving sites on a quarterly basis is sufficient. In addition, the Agency believes that "rejected load" data should also be reported to the Agency quarterly by the disposal site operator. Finally, the Agency notes that hazardous wastes shipped under a RCRA manifest do not generate the same volume of data as a Part 809 manifest (e.g., the RCRA manifests are not 6-part manifests as are Part 809 manifests); as this subsection is written, some of the data required will be unavailable for hazardous wastes unless these rules are, as the Agency suggests, established as minimum waste handling requirements for all wastes. (IEPA)

Response:

STS agrees that the requirements apply to the solid waste management facility and not directly to the hauler. In addition, the frequency with which manifests are sent to the Agency should be in accordance with the requirements of Part 809, which have been amended in the R89-13(A) proceeding. STS also agrees that information on "rejected loads" should be sent to the Agency as well. The following changes are suggested:

c)Distribution of Manifests After Delivery

1)T~~t~~he receiving solid waste management facility, shall accept special waste ~~hauler shall~~ only if accompanied by ~~retain one copy and deliver~~ three copies of the manifest from the hauler, who shall retain one copy ~~to the person who accepts delivery of special waste from the hauler~~.

2)The receiving solid waste management facility shall:

A)Send one copy...special waste hauler; and

B)Send one copy of each signed manifest received to the Agency in accordance with the requirements of 35 Ill. Adm. Code 809 ~~at the end of each month~~.

c)Send information on rejected loads to the Agency in a quarterly report.

8.(c) In subsection (c)(2) there is no need to send copies of each individual manifest to the IEPA. The Agency can better use its limited resources by requiring an annual report from the generator of the special waste and disposal facility to which it was delivered (similar to the annual hazardous waste report requirements.)
Proposed revision to (c)(2)(B): "Send a summary of each signed manifest received to the Agency, annually." (NSWMA)

Response:

The Agency should have information on the wastes being disposed at a solid waste disposal facility. Annual summaries may not be adequate. See the changes to (c)(1) and (2) in response to comment #s 6 & 7 above.

Section 811.404 Identification Record

1.The manifesting system provides enough paperwork with 6 sheets on each load. A profile identification sheet is not necessary for every separate shipment. It is sufficient to require an initial sheet and then subsequent certifications, which can appear on the manifest document, that any individual load continues to comply with the I.D. sheet already supplied. Nor is it necessary to send manifest copies to the Agency. It is sufficient to require that they be maintained onsite for Agency inspection.

NSWMA strongly recommends that the Board minimize the paperwork burden on the operators and that the Board require the Agency to prepare a form which consolidates the information requested on a single form. (NSWMA) (WMI)

Response:

The information required in this section is needed to characterize the special waste so that its disposal at the facility will be carried out in a manner that is compatible with the facility's operations and not result in a breach of groundwater quality standards. However, an option for Board

consideration is the addition of a requirement in subsection (a) asking the operator to send a copy of the identification record to the Agency along with the manifest. STS, however, suggests the following changes to subsection (a)(10) to make the requirements clearer:

10)Any other information ~~required~~ such as, the results of any testing carried out in accordance with Section 811.202, that can be used to determine ~~the following information~~:

A)Whether the special waste is ~~a~~ regulated as a hazardous waste as defined at 35 Ill. Adm. Code 721;

B)Whether the special waste is of a type or has been classified, in accordance with 35 Ill. Adm. Code 809, which is permitted for storage, treatment, or disposal at the facility; and

C)Whether the special waste can be ~~The method of~~ stored~~age~~, treated~~ment~~, or disposed~~al~~ ~~that~~ using the methods available at the facilty ~~is appropriate for the waste~~.

2.Again, if the Board intends, as is intimated by Section 811.402 (see comments, above), to retain the supplemental waste stream permit, virtually all of the information required by subsection (a) of this section would already be available to the Agency except in "recertification" situations under subsection (b). The Agency requests clarification. (IEPA)

Response:

The requirements of Subsection 811.404(a) are for the use of the operator of the facility accepting and disposing special wastes at the facility.

3.This section of the proposal establishes the identification records necessary to certify that a waste received by a landfill is a special waste and not a hazardous waste. Subsequent shipments to the same landfill must be recertified under Section 811.404(b). Although Section 811.404(b)(2) allows the generator to certify that the waste characteristics have not changed, this recertification is required for each shipment. For permitted utility monofills, which can receive numerous daily shipments of the same waste stream from the same source, this additional paperwork certification requirement is burdensome and will not result in added environmental protection. The Illinois Utilities, therefore, request that an additional paragraph be added to exempt monofills from this additional

paperwork certification. At most, an annual recertification or recertification when the waste stream has changed will more than suffice for documentation that the waste received by the monofill is not a hazardous waste. (UT)

Response:

The requirements of subsection (b)(2) are not unreasonable. Each additional shipment of waste must be identified (i.e. certified) as nothing more than an additional shipment of a previously characterized waste. It is possible for the special waste profile identification sheet to have a section of the form set aside for such recertification for wastes meeting the requirements of subsection (b)(2). No change is recommended.

Section 811.406 Procedures for Excluding Regulated Hazardous Wastes

1.Is a "regulated hazardous waste" always a RCRA hazardous waste? If not, where are such wastes to go? Are they subject to these Parts or to Parts 700-749? See earlier Agency comments on this problem, above. (IEPA)

Response:

The "regulated hazardous waste" referred to in this Section are primarily those subject to Parts 700-749. At present, however there are no other special wastes which have been classified based on the waste's degree of hazard to pose a high hazard requiring treatment and disposal techniques or methods similar to those used for RCRA hazardous wastes. The new section 811.323, which is an amended version of this section 811.406, contains a definition of "regulated hazardous waste," which only includes wastes defined as hazardous waste under RCRA (35 Ill. Adm. Code 721).

As noted in the response contained at the end of the response to comment # 2 of section 811.322 above and to comment # 5 below, this section has been replaced by section 811.323. STS suggests only a single paragraph specifying the reference to 811.323 in this section and making the following changes:

~~a)~~The operator shall implement a load checking program that meets the requirements of ~~this~~ Section 811.323 for detecting and discouraging attempts to dispose of regulated hazardous wastes, as defined in Section 811.323, at the facility.

[Delete subsections (b) and (c) in their entirety.]

2.Section 811.406(a) and (b) would require that a landfill operator randomly check three incoming loads of waste each week by discharging that load in an area not at the working face, inspecting the load for hazardous wastes and recording the inspection results in a specific written record. The intent of this inspection requirement is to prevent hazardous waste from being disposed of in a municipal or special waste landfill which routinely accepts a variety of waste streams from a variety of generators and transporters. For permitted monofills receiving utility coal ash only, this requirement is unnecessary and burdensome.

The Illinois Utilities request that an exemption from this inspection requirement be included for permitted monofills receiving waste from the same source. In addition, the training requirements for inspectors and spotters specified in Section 811.406(b)(3) would not be applicable to permitted monofills. (UT)

Response:

STS agrees that the same inspection scheme may not be applicable for all facilities, but does not believe that an exemption for utility coal ash waste is the right answer. There is a need for some kind of inspection procedure, perhaps a less frequent inspection, but including the training requirements, to ensure that the waste being accepted is not being used to hide wastes not meant to be disposed at a site. Since there is no alternate inspection language provided for the types of waste mentioned in the comment, STS suggests the use of the adjusted standards procedure to obtain specific changes that are applicable to the facility requesting relief.

3.(b) Proposed revision to subsection (b)(1)(A): Amend the second sentence to read, " at a separate location within the facility near the working face." (NSWMA)

4.(b) In Section 811.406(b)(1)(A) waste loads for inspection may be dumped near the working face. This should facilitate the inspection process and we assume that it is allowed by the language proposed. (WMI)

Response:

The designated location for inspections can be near the working face as long as the requirements of subsection (c) can be met. No change is recommended.

5.(c) In subsection (c)(1)-(2), how is the receiving site operator to determine who is "the party responsible" for causing the hazardous waste to be shipped to the site? If, as indicated by subsection (c)(1), the solid waste site operator is to "assure proper cleanup, transport and disposal" of a mis-directed hazardous waste load, does the solid waste site operator become the generator, store the hazardous waste until, say, a court determines the "responsible" party (e.g., where the generator claims that hazardous wastes were added to the load after it left the generator's factory?) Who (the Agency or the receiving site's operator) is to make the initial determination of responsibility? Must the solid waste site operator apply for a supplemental waste stream permit for the hazardous waste? If so, how is the description of the generating process to be provided? Must the solid waste site operator file an annual hazardous waste report, also? Would the solid waste site operator thereafter be potentially liable under CERCLA or the State "superfund" programs? Is such hazardous waste, though segregated, deemed to be "received" (see again Agency comments above regarding the definition of "receive"?)

Why are these requirements not equally applicable to landfills authorized to receive putrescible, non-special wastes? Aren't non-special waste landfills likely to be more vulnerable to, and less suitable for hazardous wastes than are special waste landfills? (IEPA)

Response:

STS agrees that the requirements in Section 811.406 should be applicable to non-special wastes as well. See the addition of Section 811.323 which contains all the provisions in 811.406. Section 811.406 will contain only a reference to 811.323. See the changed sections above (Response to Comment # 1 above and the added section 811.323).

With regard to the determination of responsibility, the operator receiving the waste shall make the initial inspection and notify the Agency regarding the inspection results which identify the hauler and generator responsible for the shipment in question. If the operator has made such an identification, then the operator should be refusing the waste and notify the Agency. If the facility has accepted such waste inadvertently, paid for the transport and disposal of such wastes, and the responsible party is not identifiable, then the operator of the facility may have no recourse but to go to court to determine who is the "responsible" party and for recovery of costs. .

6.(c) We feel the intent of subsection (c)(1) is in the best interest of solid waste management. However, it should be left up to

the individual facility as to how to implement this program. Nowhere in this section does it say to simply reject the load. This section requires operators to act as watchdogs for the Agency. Although we do feel that the Agency should be notified of the situation and the action taken by the site, we object to the requirement that the operator assure proper cleanup, transportation and disposal of the waste at a permitted hazardous waste management facility. It is not the solid waste management facility's responsibility to assure proper disposal of a waste for which he has no responsibility. (NSWMA)

The party responsible for the improperly shipped waste should be responsible for proper disposal as well. He is the only person, for example, who may generate a manifest for that waste. Standard practice is to immediately send the waste back to the generator via the transporter. (NSWMA) (WMI)

Proposed revision to (c)(1): "The solid waste management facility shall assure proper cleanup and transportation of the hazardous waste, off site." (NSWMA)

Response:

STS agrees that wastes detected to be "hazardous" should be rejected and shipped back to the generator. However, if such wastes are accepted because they were not detected as a result of the random nature of the check, it is the responsibility of the facility, after notification and consultation with the Agency, to assure that a proper cleanup, transport and disposal in a permitted facility takes place. The responsible party can be assessed the costs incurred.

7.(c) In subsection (c)(3) the precautions of paragraph (A) are all-encompassing and should be sufficient. The precautions of (B) are not necessary in every case, e.g., where the driver was not identified as the source of the problem. (NSWMA) (WMI)

Proposed revision to (c)(3): Delete subsection (c)(3)(B). (NSWMA) (WMI)

Response:

STS suggests adding the word, "may" instead of "shall" to address the commentors concerns regarding the type of precautionary measures that an operator may use. Changes are made to Section 811.323 (c)(3), which combines existing 811.406 (c)(3)(A) and (B). See changes at the end of the responses to comment #2 in Section 811.322 above.

SUBPART E: CONSTRUCTION QUALITY ASSURANCE PROGRAMS

Section 811.502 Duties and Qualifications of Key Personnel

1. (a) The CQA "person", as defined in the Act, should be able to be an employee.

The wording "a person other than the operator" is misleading. The operator should be able to name any qualified Illinois Professional Engineer as the CQA officer. This P.E. could be employed by the operator or by a third party.

Proposed revision to Section 811.502(a): "The operator shall designate a person as the construction quality assurance (CQA) officer." (NSWMA)

Response:

This subsection is intended to prevent the operator or an employee of the operator from also being the CQA officer. In addition, STS agrees with comments (#s 2a and 2b below) on the need for a third party contractor to act as the CQA officer. The following change to 811.502 (a) is recommended:

a)Duties and Qualifications of the Operator

The operator shall designate a third party contractor ~~person~~ other than the operator or an employee of the operator as the construction quality assurance (CQA) officer.

2a.The implementation of the CQA Program is one of the most important parts of landfill regulation. Once a liner or leachate collection system has failed because of poor installation or materials, it is impossible to correct. On balance, it appears that the plan is comprehensive and well written. The one change we would make is to have the CQA engineer be a contracted third party. His salary would be incorporated into the permit filing fee to the county and would be refunded if the permit were denied. One of our members who works on construction projects observed that when the engineer is in house he has pressure from management to do things the cheapest way and from the workers to do it the easiest way. The same would be true of a consultant being paid directly by the landfill. A third party would be less likely to respond to this pressure if and when it occurs. (SCC)

2b.The construction quality assurance (CQA) officer should be a competent engineer that has adequate professional liability insurance. The CQA should be an outside third party, not an employee of the operator. (CBE)

Response:

This idea has merit. STS agrees with the concept and has made the change. See response to comment #1 above.

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3. (b) Proposed revision to Section 811.502 (b)(1): "The CQA officer shall be responsible for all inspection and testing activities, by review of field reports and by periodic inspections, or by a combination of these two along with whatever other measures are necessary to ensure that the design features are constructed using rigorous standards." (NSWMA)

Response:

STS suggests the following change:

1)The CQA officer shall supervise and be responsible for all inspection, ~~and~~ testing and other activities required to be implemented as part of the CQA program under this Subpart.

4.(b) The main issue with the proposed use of the CQA is one of liability if the facility fails. The CQA personally certifies that everything was constructed correctly not in the conventional sense of a Professional Engineer overseeing Engineers in Training but actually doing the observation.

This places the owner/operator of the facility in a position of being a "push and bury" contractor not responsible for construction or adequacy of any of the environmental controls. The board should keep in mind that one of the tests for liability is whether or not the third party could be reasonably controlled by the operator. If the CQA could be reasonably controlled by the operator then he cannot function as a CQA according to this proposal.

We suggest the Board revisit its proposed role of a Professional Engineer as a CQA and adopt a construction certification program more consistent with the construction industry. (JSC)

Response:

The intent is to prevent the operator from having control over the CQA officer. STS considers the requirement that a CQA officer be a professional engineer a necessity. The reasons for adding a construction certification program are not convincing.

Section 811.503 Inspection Activities

1.The wording "shall be present" is misleading. Both the STS report (page 94) and Section 811.505 (b) indicate that other inspectors can complete inspection reports. Therefore, the CQA officer shall supervise and be responsible for the inspections listed in 811.503, but need not be present at all times during such activity.

Proposed revision: "The CQA officer shall supervise and be responsible for inspection of the following activities:". (NSWMA)

Response:

STS notes that the intent here is to have the CQA officer assume personal responsibility for all CQA activities and does not agree that the revision proposed is necessary. However, where the CQA officer is unable to be present, the CQA officer should provide a written notice giving reasons for his absence and designate someone for whose actions the CQA officer takes full personal responsibility. The suggested change is as follows:

a)The CQA officer shall be present to provide supervision and assume responsibility for performing all inspections of the following activities:

~~a~~1)Compaction...
~~b~~2)Installation of the...
~~c~~3)Installation of a...
~~d~~4)Installation of slurry...
~~e~~5)Installation of the leachate...
~~f~~6)Application of...
~~g~~7)Installation of...
~~h~~8)Construction of...and berms.

b)If the CQA officer is unable to be present to perform as required in subsection (a), then the CQA officer shall provide, in writing, reasons for his absence, the designated CQA officer-in-absentia and a signed statement that the CQA officer assumes full personal responsibility for all inspections performed and reports prepared by the designated CQA officer-in-absentia.

Section 811.505 Documentation

1.(a) A daily summary report prepared from daily inspection reports is an excessive paperwork exercise for a qualified professional engineer. A summary of daily inspection reports could easily

be compiled by the CQA officer for the acceptance report required in 811.505 (d). Since this P.E. is responsible for all inspection activities, a review of these activities on a timely basis is inevitable and implied. All of the information listed in 811.505 (a) (1 through 7) can be easily incorporated in the inspector's daily reports or in a daily report compiled by the operator. This daily summary could be logged by the operator and made available to the Agency at the facility. The CQA program should be incorporated into a quarterly construction inspection report completed by a registered professional engineer and filed with the Agency. Test results showing proper compaction of liner, sideways, and final cover material accompanied by borings showing proper thickness should be enough to satisfy Agency requirements. As built drawings showing locations of tests and borings, the leachate collection system and construction of the perimeter side seal would accompany the test results. (NSWMA) (WMI)

Proposed revision to Section 811.505 (a): change the first sentence to read, "a daily summary report shall be prepared by the operator." (NSWMA)

Response:

The CQA officer needs to supervise the daily summary report. STS suggests the following change:

a)A daily summary report shall be prepared by the CQA officer or under the direct supervision of the CQA officer during each day of activity. The report shall contain, at a minimum:

2.(d) In subsection (d)(2), how are "as-built drawings" different from the drawings and specifications submitted and approved prior to development? If "as-built" specifications vary from those of the original plan, must a "significant modification" application be submitted? If so, when? (IEPA)

Response:

A significant modification need not necessarily be submitted; certain field decisions will be made on the spot by the site construction supervisors and these will be reflected on the as-built drawings.

Section 811.506 Additional Requirements for Foundations and Subbases

1.(b) Proposed revision to subsection (b): Add, "The CQA or his designee shall observe...." (NSWMA)

Response:

No change is recommended.

Section 811.507 Additional Requirements for Compacted Earth Liners

1.(a) There is no reason for the test liner section. During the construction of the liner, compaction tests will be required, and these results will determine if the liner is being properly compacted. The test liner requirements are redundant and will prolong the preparation of vitally needed airspace. (NSWMA)

Liners are regulated under the design standards of 811.306, the performance standards of 811.318, and the construction standards outlined in this section. If an operator were to construct a liner not meeting any of the above criteria, this liner would not be approved. This failure would be solely at the operator's expense. (NSWMA)

Subsection (a)(6) requires a new liner test section for each new borrow source, admixture or change in equipment or procedures. In many of these cases existing information, lab test procedures to verify similarities and quality control procedures can control construction without a new liner test section. (PCB R84-17, R.1676) It was thought that the STS agreed and intended to rethink its proposal. (PCB R84-17, R. 1766) (NSWMA) (WMI)

Quality control for liner construction should be based on measuring gradation and index properties of soils, moisture content at the time of compaction, and the resulting compacted density. This can be correlated to permeability. The equipment and procedures used to accomplish the compaction are of no consequence; if the material, the moisture content, and the compacted density are consistent, the resulting liner can be expected to achieve the same permeability, notwithstanding the equipment or the procedures used. A new test section should be required only where there is a change in the nature of the material, either native or admixed, being placed. (NSWMA) (WMI)

Proposed revision: Section 811.507 (a) should be deleted, or, at the very least, subsection (a)(6) should be deleted. (NSWMA)

Response:

The reasons and justification for the test liner are provided in the Background Report. STS suggests some clarifying changes to correct errors in the language of subsection (a)(5) as follows:

5)The test fill shall be tested ~~evaluated~~ as described below for each of the following physical properties:

A)Both ~~F~~field testing techniques and laboratory tests on samples of test fill shall be used to determine the hydraulic conductivity. ~~Enough tests shall be performed to provide a 95 percent confidence in the data;~~

~~B)Samples shall be tested in the laboratory for hydraulic conductivity. Enough tests shall be performed to provide a 95 percent confidence in the data.~~ For each procedure, the number of samples tested shall be large enough to obtain a 95 percent confidence interval, from the observed data, that is no greater than twice the mean hydraulic conductivity. The l~~L~~aboratory results shall be evaluated to ~~should show~~ determine if there is a statistical correlation ~~to~~ with the field testing results.

~~C~~B)Other engineering parameters including, but not limited to, ~~such as~~ particle size distribution, Atterberg limits, water content, and in-place density that ~~will be used~~ are needed to evaluate the full-scale liner, shall be determined by collecting enough samples to provide ~~a~~ representative values of the parameters~~95 percent confidence in the data~~.

STS agrees that the intent of subsection (a)(6) needs to clarified and suggests the following changes:

6)Additional test fills shall be constructed ~~for~~ each time the material properties of a ~~new~~ borrow source changes; or for each~~,~~ admixture~~,~~ or change in equipment or procedures; and

STS notes that the word, "is" on line 6 of subsection (a)(7) is not necessary and should be removed. In addition, subsection (a)(7) must be relabelled as subsection (b). The following changes are suggested:

b)~~7)~~ Construction of a test fill or the requirements for an additional test fill may be omitted if the materials and methods to be used are identical to those used in a full-scale liner or a test fill that has been previously constructed in compliance with ~~this~~ subsection (a) and documentation is available to demonstrate that the previously constructed liner ~~is~~ meets the requirements of ~~this~~ subsection (a).

2.It seems that the Board is using the idea of a "Test Fill" to avoid the necessity for taking Shelby tube samples out of an earthen liner that is required to be only 3 feet thick. We infer that the Board is concerned that removal of these samples will produce local weaknesses in the integrity or the liner. It is very doubtful that the statistical confidence level required for the test fill would be representative of the integrity of the liner itself because the results on the test liner material will be extrapolated over too large of an actual liner area.

In our opinion, it would be far better to require hydraulic conductivity sampling on the liner; then require that the compacted soil in the zone around the sampling point be pushed out using the blade on the earth compactor and then pushed back in and compacted in the normal mode of compacting earth. Finally, require a density test in the recompacted zone. This entire process will take less than ten minutes and it provides a very reliable testing regimen without compromising the integrity of the earthen liner. It has been our experience that whenever Shelby tube samples are taken, the earth compactor must be present to push the tube into the soil and to extract it again. To push out a zone of soil around the test site and recompact it is trivial in its time and cost requirements.

Our firm developed the concept of attempting to relate permeability and density of soils in landfill earthwork and so far as we know, we were the first to employ it. We specify density tests at about 200 foot intervals each way and hydraulic conductivity tests at about 600 foot intervals each way. The relationship between permeability and density is not reliable except on the particular soil tested. Significant changes in soil texture or moisture content can occur without noticeable changes in appearance. It is for this reason that we feel we must track permeability in the liner itself and not make large extrapolations.

We would welcome the opportunity to go over this area with the Board's Technical Staff because the procedure proposed is quite expensive to implement and will not produce reliable results. (BFEA)

Response:

STS welcomes technical documents that establishes the relability of the procedures included in the comments. At present, there is no such docmentation in the record. The Board might wish to consider adding a subsection (d) that specifically allows alternative methods of testing, other than those provide in subsection ~~(b)(7)~~(c), provided they meet the requirements of this section.

3.A test fill should only be eliminated if the amount of compacted earth liner is doubled. Soils are not identical, even in the same area, especially if the soil has been previously disturbed by excavation or otherwise. (CBE)

Response:

There is no technical justification for eliminating the test fill requirement based on a doubling of the earth liner thickness. The demonstration required in subsection ~~(b)(7)~~ (c) is that the material and methods to be used are identical to a previously constructed full scale liner or test fill in compliance with subsection (a) and there is documentation to that effect.

4.(b) While the Agency applauds the test liner requirements generally, the requirement in subsection (a)(6) for an additional test fill for each new borrow source may be excessive unless the essential characteristics of the borrow soils is significantly different. The Agency suggests that some kind of qualifier test (e.g., geologic or physical description or analysis of representative soil samples) should be used to determine whether an additional test fill is needed. (IEPA)

Response:

Yes, subsection (b) [changed from (a)(7)-see response to comment #1 above] is intended to address this if the new liner is going to be constructed of materials and methods that are identical to those used for a previously constructed liner or test fill and is intended to include the parameters listed here by the Agency. In addition changes have been made to subsection (b)(6) clarifying the intent of that section.

5.(c) Note also that in subpart (c)(5) of this section bonding of successive lifts together would seem to be an operating rather than a construction issue. (WMI)

Response:

It is an operation that needs to be under the control of a CQA officer, in order to ensure that the lifts are bonded well and that the liner as a whole meets the performance requirements.

GENERAL COMMENTS

1. AAJ points to an error that appears on page 19 of the Board's opinion in R88-7 of February 25, 1988. In the third full paragraph, the sentence in brackets, "(This measuring point is called the zone of attenuation)" is stated incorrectly. STS agrees and believes that the Board intended to say, "(This measuring point is called the boundary or the edge of the zone of attenuation)".

2. STS would also like to suggest that all units used in the requlation be provided in SI units along with the English system of units.

3. In Public Comment #23, WMI has submitted additional comments (Subsections A and B, pp. 1-11) on the use of contaminant transport modeling.

Response:

STS notes again that the use of contaminant transport modeling is appropriate and supports its use. Many of the issues raised have been previously addressed in the Background Document or at hearing. STS would ask WMI and the Board to also consider the post hearing comments submitted by the Illinois Department of Energy and Natural Resources (P.C. #22) which provides several examples of cases and studies where groundwater flow and contaminant transport modeling have been successfully used. In addition, STS points to the comments (see below) of the STS consultants, particularly those submitted by Dr. Jennings (AAJ) which relate to WMI's comments. Some changes to Section 811.317 and 811.318 have already been recommended to provide clearer guidance on its application.

Two of the technical consultants working with the STS have also provided comments on aspects of the R88-7 relating to Part 811 standards which are presented below for the Board's consideration:

Comments by RKH:

"I suggest inserting the provision that a landfill disposing of such [benign waste] materials must meet the siting and hydrogeological modeling and monitoring requirements, including remedial action if necessary, but liner and leachate collection requirements may be lessened or waived upon documenting the adequacy of such design to the Agency. I would give the same provision for small sites."

"Finally, as an overall comment, I am concerned that small sites have the same requirements as large sites in the proposed rules. If it is the policy to close small sites, so be it. But, if no such policy exists, there should be a provision built into

the rules for such sites. I suggest applying the same locational and groundwater monitoring requirements and requiring a Phase I hydrogeologic investigation at a minimum. Then, depending on the results, the Agency may require additional investigations and/or modeling, if necessary, and make a decision whether to ease requirements for gas control, leachate collection, etc."

"In general, the proposed rules are a major step forward, in my opinion. The above comments are not to be construed as anything but support for what has been accomplished so far. I hope these comments are helpful in fine-tuning the result."

Comments by AAJ:

"Since the board has offered to entertain further comment on the concern that contaminant transport modeling is inappropriate as proposed, I will offer the following. Most of the criticisms I have heard are thoroughly flawed. The proposed modeling requires that designers be able to anticipate the most serious environmental problems of landfills. I see no credible justification for bypassing this requirement."

"It is true that there are poor models and poor applications of good models. Obviously, I would not advocate the use of poor models, or the application of models not sufficiently competent to use them properly. However, I feel the safeguards built into the proposal (specifically the requirements for model documentation, field calibration, and results sensitivity analysis) are sufficient to guard against gross misuse."

"It is also true that the transport problems can be complex. However, if the proposed operations are too complex for competent professionals to anticipate with the best available scientific models (i.e. by engineering analysis), then they are too unpredictable to be allowed. 'Too complicated to understand' is a very poor justification for proceeding without understanding."

"Finally, on several occasions I heard the claim that one could not know what the leachates would be like until the facility was in place, and without this source strength information, the modeling could not be successful. This argument is also self-defeating. It is true that source quantification may be difficult. It may require the synthesis of as much information as possible about the proposed source plus the judicious use of estimation, extrapolation, assumption and judgement. However, unless one can make a reasonable assessment about the magnitude of the most serious environmental problems, how could the facility be allowed at all? The argument of unknown source strength also implies that one cannot guarantee essentials like liner compatibility. if you don't know what will be generated,

you certainly can't know that the liner materials will be compatible. Fortunately, I haven't yet heard this as a reason to do away with chemical compatibility analysis."

"It has been my experience that the people who typically make these comments do so on behalf of waste disposal firms that have a tremendous amount of data to draw upon. It seems almost beyond belief that the owner/operator of numerous facilities would suggest a paucity of information on leachate volume and composition. They know what the answers are. They may not like the answers, or they may not want to release the information, but they do know."

SUBPART G: FINANCIAL ASSURANCE FOR CLOSURE AND POSTCLOSURE CARE

Section 811.700 Scope and applicability

1.A requirement should be added that under no circumstance will the adjoining property owner, county, or township be responsible in the event there is inadequate financial assurance to correct a hazard to the public. Also, if there is a problem, the state will perform all necessary work promptly without any hassle as to whether the state has the funds to correct the problem. For this emergency work, the state should set up a separate fund or escrow amount to take care of problems without budget limitations from the General Assembly. (CBE)

Response:

STS makes no recommendation regarding this comment except to note that some of the financial assurance issues raised here have been addressed in the R84-22C proceeding.

2.Is it the Board's intent that these rules will succeed the financial assurance rules of Part 809? If so, shouldn't this Section mention that fact and provide a "bridge" between these two parts? Without some kind of language in this regard, this Subpart could be viewed as necessitating an immediate de novo submission and review of financial assurance instruments by all existing facilities in the State. (IEPA)

Response:

Part 809 does not include any financial assurance requirements. STS assumes that the comment is directed at the Part 807 financial assurance requirements.

Part 811 applies only to "new landfills", as defined in Part 810. The Board intends a process by which Part 807 permits are replaced with new permits under this Part. The Part 811 financial assurance rules will become applicable at the time the new permit is issued. This is an overall consideration of the proposal which does not need to be restated with respect to financial assurance. STS recommends no change.

3.(b) The first sentence of subsection (b) should be corrected to state that any one or combination of the following can be used.

Proposed revision: Add "One of the following or through" after the words "Financial assurance may be provided through" in the first sentence. (NSWMA)

Response:

This introductory Section is intended to aid readers in understanding the provisions of the Subpart. The mechanisms for financial assurance are specified in Section 811.706 and 811.707. Under certain circumstances, combinations may be used. (R84-22C, p. 35). In order to prevent a restatement of these provisions in the introduction, which would unnecessarily add to the length of the rules and increase the risk of creating loopholes caused by imperfect restatement, STS suggests retaining the general listing of the types of mechanisms available, as an aid to the reader. To avoid possible confusion, STS recommends that subsection (b) be changed as follows:

b)Financial assurance may be provided through ~~a combination of~~one or more mechanisms including a trust agreement...with the standards of this Subpart.

Section 811.701Upgrading Financial Assurance

1.Is proposed Section 811.701(c), which requires that the amount of financial asurance always provide for at least five years of post-closure care, consistent with Section 22.17 of the Act?

Response:

No. Section 22.17 now requires certain monitoring for at least 15 years. STS suggests deleting subsection (c) as follows:

~~c)The amount of financial assurance provided to the Agency must always provide for at least five years of postclosure care.~~

Section 811.702Release of Financial Institution

Response:

STS suggests the following minor change in language:

The Agency ~~will agree to~~ shall release a trustee, surety, insurer or other financial institution when:

Section 811.703Application of Proceeds and Appeal

1.As the title of this section suggests, it should be clarified that the operator may appeal actions by the Agency under this Part. (NSWMA) (WMI)

Proposed revision: "Either the Agency or the operator may sue in any court of competent jurisdiction to enforce its respective rights under financial instruments."

Response:

Appeals in general are handled under Section 813.106. This language is not broad enough to allow appeals of specific quasi-permit actions contemplated under existing Section 807.605(c). (R84-22C, p. 24). Accordingly, STS recommends that appeal language be repeated in the proposal from the existing Section 807.703(c) (R. 229, 335)

It is generally true that operators have the right to sue in Circuit Court to enforce their rights under financial assurance documents. However, the Board lacks authority to regulate this process. On the other hand, the Board arguably has authority to require IEPA to complete an enforcement action as a condition precedent to use of the proceeds of financial assurance. In R84-22 the Board adopted language, now reproposed in Section 811.703, providing the contrary: i.e., the Agency is not required to take enforcement before suing under the terms of the instrument. The main reason for not requiring an enforcement action is that a default could occur on the instruments in the absence of any prior violation of Board regulations. For example, the operator might become bankrupt for business reasons while still in complete compliance. (R84-22C, p. 24, 37)

Also, this is related to language in existing Section 807.605(b), which spells out the effect of enforcement on financial assurance in greater detail. STS recommends relettering and suggests the following language for insertion into the proposal as subsections 811.703(b) and (c):

a)The Agency...instrument so provide.

b)As provided in Titles VIII and IX of the Act and 35 Ill. Adm. Code 103 and 104, the Board may order modifications in permits to change the type or amount of financial assurance pursuant to an enforcement action or a variance petition. Also, the Board may order a closure or post-closure care plan modified, and order proceeds from financial assurance applied to execution of a closure or post-closure care plan.

c)The following Agency actions may be appealed as a permit denial to the Board pursuant to 35 Ill. Adm. Code 105 and Section 21.5(e) of the Act:

1)Refusal to accept financial assurance tendered by the operator.

2)Refusal to release the operator from the requirement to maintain financial assurance.

3) Refusal to release excess funds from a trust.

4)Refusal to approve a reduction in the penal sum of a bond.

5)Refusal to approve a reduction in the amount of a letter of credit.

6)Refusal to approve a reduction in the face amount of an insurance policy.

7)Determination that an operator no longer meets the gross revenue test or financial test.

Section 811.704Cost Estimate for Closure and Postclosure Care

Response:

With regard to whether operators are allowed to reduce the cost, STS, at hearing, recommended that operators be allowed to reduce the amount of required financial assurance to present value. The expanded post-closure care period under the proposal has made the reduction to present value a significant correction. (R. 197)

The reduction to present value should assume a 4% return on the trust corpus, 0% inflation. This reflects the long-term experience that safe investments, suitable for a trustee, tend to yield 3 to 5% more than the inflation rate. Although investments may actually yield a higher return, the excess will tend to balance increases in the cost estimate due to inflation. Under other portions of the rules, the operator will have to review the cost estimate at least once every five years, at which time the amount of the trust will be adjusted to reflect actual earnings and the current cost estimate. (R. 197)

For example, consider a site with a closure and post-closure care cost estimate of $1,000,000, which, under the plan, needs to be paid out in equal $33,000 installments at the beginning of each year for 30 years, starting with closure. At the time of permitting, it is projected that the site will reach the point of maximum cost exposure during the current permit term during the first year of the permit. The operator would have to assume immediate closure. A trust funded with $590,000 would be sufficient to provide post-closure care. (R. 197)

Based on the above discussion, STS recommends making changes to subsection (g) which are presented at the end of the responses related to Section 811.704.

As noted in the response to comment #1 in Section 811.701, the requirements of Section 811.704 (h) regarding cost estimates beyond the design period are not consistent with Section 22.7 of the Act. The current R88-7 proposal includes more detailed closure and postclosure care requirements than Part 807 contained when R84-22C was adopted. Therefore certain detailed information are dropped from the requirements for the cost estimate; relying instead on the proposed closure and post-closure care requirements. (R. 227). STS recommends changes to clarify some subsections and to correct wrongly labelled subsections as follows:

a)The operator ~~must~~ shall have a written estimate of the ~~current~~ cost of closing all ... of this Part, ~~and a~~ the closure and postclosure plans under 35 Ill. Adm. Code 812.114 and 812.115, and for the ~~current~~ cost of postclosure ~~monitoring and maintenance~~ care. The cost estimate is the total cost for closure and postclosure monitoring and maintenance.

g) The postclosure monitoring....be prepared:

1)~~o~~On the basis...will cease at the "assumed closure time", defined as the time during the next term of the permit when the cost of closure is greatest; and

2)Reduced to present value

A)Based on a 4% discount rate;

B) Without allowing for inflation;

C)Over a period including the time remaining until the assumed closure time, plus the post-closure care period;

h)The postclosure care cost...minimum, ~~include~~ be based on the following elements~~, if required, for~~ in the postclosure care plan:

1)Groundwater monitoring, based on the number of monitoring points and parameters, and frequency of sampling specified in the permit.

~~A)Number of monitoring points to be established in the term of the current permit;~~

~~B)Parameters to be monitored;~~

~~C)Quarterly sampling intervals;~~

~~D)Cost per parameter per sampling.~~

2)Annual Cost of Cover Placement and Stabilization, including an estimate of the annual residual settlement and erosion control, and mowing cost.

~~A)Estimate of the area to be disturbed during the next term of permit which is expected annually to require residual settlement or erosion control work;~~

~~B)Annual cost of residual settlement and erosion control work;~~

~~C)Annual cost of mowing and other management practices.~~

3)Alternate Landfill Gas Disposal. If landfill gas is transported to an offsite processing system, then the operator shall include in the cost estimate the costs necessary to operate an onsite gas disposal system should access to the offsite facility become unavailable. The cost estimate must include the following information: installation, operation, maintenance and monitoring of an onsite gas disposal system.

~~A)An estimate of the costs necessary to install an onsite gas disposal system such as a flare;~~

~~B)The annual costs of operation and maintenance of the gas disposal system; and~~

~~C)The annual costs to monitor the gas disposal system.~~

4)Cost Estimates Beyond the Design Period. When a facility must extend the postclosure care period beyond the applicable design period, the cost estimate must be based upon ~~five more years of postclosure care~~ such additional time.

~~g~~i)This Section does not grant authority....shall include the cost in the cost estimate.

j)Once the operator has completed an activity...that element of the cost estimate.

Section 811.705 Revision of Cost Estimate

1.(a) Does the Board in subsection (a) intend to indicate by the phrase, "at every permit renewal", that operating permits will have expiration dates? (IEPA)

Response:

Section 813.108 limits permits to five years. This Section will require revision of the cost estimate at least that often. STS recommends no change.

2.(c) Depending on the approach taken in determining what constitutes a modification this section may require revision of cost estimates much more frequently than is necessary. (WMI)

Response:

Any modification to the permit needs to be reviewed to determine if it is consistent with the closure and postclosure plans and cost estimate. If the operator determines that no change is needed, Section 811.705(b) allows the operator to certify that no change is needed. STS recommends no change.

Section 811.708Use of a Financial Mechanism for Multiple Sites

Response:

STS suggests changing the title as follows:

Section 811.708~~Use of a~~ Financial Mechanism for Multiple Sites

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Section 811.709Trust Fund for Unrelated Sites

Response:

STS recommends that any changes to this Section be addressed in another proceeding.

Section 811.710Trust Fund

1.As a general matter, it continues to be useful, and will help avoid confusion, to include sample forms in the regulations as are found in current Part 807. We recommend continued use of those forms. (NSWMA) (WMI)

Query whether the March 1, 1985 date in subsection (d)(4) is still appropriate. (WMI)

Response:

The Foreign Corporations as Fiduciaries Act has been replaced with the Corporate Fiduciaries Act, Ill. Rev. Stat. 1987, ch. 17, pars. 1551-1 et seq. STS recommends that the following language be added to subsection (b):

b)The trustee shall be an entity which has the authority to act as a trustee and:

1)Whose trust operations are regulated by the Illinois Commissioner of Banks and Trust Companies; or,

2)Who complies with the ~~-Foreign Corporations as Fiduciaries-~~Corporate Fiduciary Act, Ill. Rev. Stat. 1987, ch. 17, ~~-par. 2801-~~pars. 1551-1 et seq.The APA exempts the prescription of standardized forms from rulemaking procedures. (Section 3.09(d) of the APA). The Code Unit discourages agencies from placing forms into rules. The Board placed forms into the rules in R84-22 because of the time constraints on that rulemaking, and because of possible confusion at the outset of the program.

With regard to the comment by NSWMA and WMI, STS notes that the forms were based on the USEPA financial assurance forms in 40 CFR 264.151. However, they were substantially altered. For example, all references to the standby trust funds required under the USEPA rules were removed. After reviewing the forms, it appears that a portion of the financial assurance requirements may be included in the forms themselves. It would be better if they were included in the rules, to avoid the possibility that the program requirements might be altered by possible future amendments to the forms. STS recommends the following change to subsection (c), and to several subsequent Sections:

c)The trust agreement must be on forms as specified ~~-by the Agency-~~ in Appendix A, and the trust agreement must be accompanied by a formal certification of acknowledgment, as specified in Appendix A.

As proposed, Section 811.710(d)(4) included the March 1, 1985, date for financial assurance for sites already receiving waste. (R84-22C, p. 23) STS recommends that this date should now be dropped from the rules (R. 199) as follows:

4)The operator shall make the first annual payment prior to the initial receipt of waste for disposal~~-, or prior to March 1, 1985, for sites receiving waste for disposal prior to that date~~. The operator shall also, prior to such initial receipt of waste, submit to the

Agency a receipt from the trustee for the first annual payment.

R88-7 will result in increased cost estimates. The existing regulations would allow the operator to meet any additional costs by establishing a trust fund. However, the existing rules would require immediate funding of the trust in many cases. STS recommends that Section 811.710(d)(7) be added to allow a pay-in of at least three years for such operators:

> 7)An operator required to provide additional financial assurance for an increase in the cost estimate because of a change in the regulations governing closure and post-closure care may provide such additional financial assurance pursuant to this subsection. The operator may provide the increase by contributing to a new or existing trust fund pursuant to this Section. Subsection (d)(2) notwithstanding, the pay-in period for such increase shall be not less than 3 years.

2.In subparagraph (g) regarding reimbursement, it may be impractical to require the operator to request reimbursement by submitting "itemized bills" to the Agency, since he may have performed the work with his own crews, in which case he may not have itemized bills. Moreover, the Agency should be given only 30 days, not 60 days, to process such a simple request and reimburse the operator. Finally, the Agency should be required, at the very least, to furnish the evidence giving rise to its "reason to believe" that the cost of closure and postclosure care will not be significantly greater than the value of the trust fund. Otherwise, the Agency is given entirely too much discretion in this matter. (NSWMA)

Response:

The trust fund mechanism contemplates that an operator should plan to draw on the trust corpus to close the site. Under Section 811.710(g)(1), when the operator does the work himself, he should prepare statements showing the work done, just as though he were a third party contractor. (R84-22C, p. 35) The Agency should pay these, subject to the same rules as for other claims. The Agency cannot be required to pay undocumented claims out of the trust, whether they originate with the operator or a third party. If the operator is unable to prepare statements documenting the work which has been done, he just has to wait until certification of closure and release from financial requirements pursuant to Section 813.402 and 813.403, at which time the Agency will release the financial institution pursuant to Section 811.702, and the remainder of the trust corpus will revert to the operator. (R. 198) STS recommends no change.

Although it may be possible for the Agency to pay most claims within 30 days, the Agency could be called upon to make some difficult decisions in this area. For example, the Agency might question whether the fund is adequate to pay the entire cost of closure and post-closure care. STS therefore recommends leaving up to 60 days for the Agency to decide. (R84-22C, p. 36) STS recommends no change.

Section 811.710(g)(3) allows the Agency to withhold disbursements from the trust. The existing language of Section 807.661, which was borrowed from 40 CFR 264.143, allows the Agency to withhold funds "if it has reason to believe" that the costs of closure will be "significantly" greater than the value of the trust. First, this is a subjective standard. Second, it is a vague standard. STS recommends that it be changed to read:

3)If the Agency ~~-has reason to believe-~~determines, based on such information as is available to it, that the cost of closure and postclosure care will be ~~-significantly-~~greater than the value of the trust fund, it ~~-may-~~shall withhold reimbursement of such amounts as it...

Further, the existing language also allows the Agency to withhold such amounts as it "deems prudent". Again, this is a subjective standard. This has been revised to require the Agency to withhold such amounts as it "determines are necessary to preserve the fund in order to accomplish closure and postclosure care". (R. 198) STS recommends that subsection (b)(3) be changed to read:

3)... such amounts as it ~~deems prudent~~ determines are necessary to preserve the fund in order to accomplish closure and post-closure care until it determines that the operator is no longer required to maintain financial assurance for closure and postclosure care.

With regard to the paying out of claims from a trust fund, the existing rules in the proposal are vague as how the Agency should pay out funds in the event the trust is inadequate to pay all claims. Although this is not directly related to R88-7, STS recommends that Section 811.710(g)(3) be amended to establish an order of priority in the payment of claims. The following is the suggested change:

3)...closure and postclosure care. In the event the fund is inadequate to pay all claims, the Agency shall pay claims according to the following priorities:

A)Persons with whom the Agency has contracted to perform closure or postclosure care activities;

B)Persons who have completed closure or postclosure care authorized by the Agency;

C)Persons who have completed work which furthered the closure or postclosure care;

D) The operator and related business entities.

Section 811.711 Surety Bond Guaranteeing Payment

1.(e) At subsection (e)(2)(B) the operator may be able to continue operating, even though bankrupt, as in the Johns-Manville situation. The bond should be tied to performance only.

Proposed revision: Delete subsection (e)(2)(B). (NSWMA)

Response:

Section 811.711(e)(2)(B) makes an adjudication of bankruptcy a condition triggering the surety's liability. When an operator enters bankruptcy, whether Chapter 11 or otherwise, there is substantial reason to doubt whether the operator will be able to pay future premiums, obtain renewal of the bond, or provide for closure and post-closure care. (R84-22C, p. 37) Therefore the rules require the surety to pay the principal amount immediately. However, the rules do not require immediate closure of the site. Therefore, the sum paid over to the Agency need not be drawn upon immediately. In the event the operator emerges from bankruptcy, or the site is sold to a new operator, this sum should be refunded to the financial institution pursuant to Section 811.712(h)(2). (R. 200) STS recommends no change.

Because forms have been added to the Appendix, a change is required in subsection (c) as follows:

c)The surety bond must be on forms as specified ~~by the Agency~~ in Appendix A.

2.(g) Proposed revision to subsection (g)(1): "The bond shall be issued for a term of five years and shall be extended only with the express written consent of the surety." (NSWMA)

Response:

The bond provisions in R84-22C were drawn from the USEPA rules in 40 CFR 264.143 and 264.151. The USEPA rules allow cancellation of a bond on a 120 day notice from the surety, but allow USEPA to declare a default if the operator fails to obtain

alternative financial assurance. Sureties objected to this formulation, because of the open-ended liability produced by making failure to renew a condition leading to default. Sureties would be forced to renew to avoid having to pay out the principal amount. (R84-22C, p. 38)

In R84-22C, the Board softened this requirement by deleting the provisions making failure to renew a condition of default in and of itself. However, the Board provided a holdover period for the bond, during which the Agency could file an enforcement action and obtain a closure order.

At the hearing the STS recommended that the holdover period be deleted, but that failure to renew at least one year prior to expiration be made a condition leading to an immediate default. (R. 200, 205)

It appears that there is no consensus as to how to word the term of the bond, the condition of default and the holdover period so as to satisfy both the sureties and the State. On the one hand the sureties want a fixed term liability for a much shorter period than the life of a landfill. On the other hand the State needs to be able to declare a default prior to expiration of the instrument if the operator is going to be unable to renew. This question is not really related to the revised design standards which are the main subject of this rulemaking. It is better therefore to leave these provisions alone, and address them in a separate rulemaking focused on this one issue. However, STS recommends the following minor change to avoid confusion which apparently exists:

g) Term:

1)The bond must be issued for a term of at least five years and must not be cancelable during that term.

2)If the operator fails to provide substitute financial assurance prior to expiration of a bond, the term of the bond must be automatically extended for one twelve-month period starting with the date of expiration of the bond. During such extension the bond will ~~-not-~~cease to serve as financial assurance satisfying the requirements of this Part, and will not excuse the operator from the duty to provide substitute financial assurance.

3.(g) For practical reasons, the Agency believes the five-year surety bond requirement of subsection (g)(1) is too long; the Agency favors a 1-year term with 1-year extension. Longer term bonds are more difficult to obtain and are harder to monitor.

The Agency suggests deletion of the last sentence of subsection (g)(2); without more, an automatically extended bond should be as valid or acceptable as the original. (IEPA)

Response:

The Board arrived at the five-year bond in R84-22C as part of the compromise discussed above. The Board accepted greater difficulty on the part of the State in declaring a default in part in exchange for a fairly long fixed term for the bond. As renewal approaches, the Agency has to watch a facility closely, and be prepared to move quickly to obtain a closure order if the facility fails to renew. With the five year bond, a given facility is under intense review only 20% of the time. With a one year bond, the Agency would have to have all facilities under intense scrutiny 100% of the time: the Agency would always be in a position in which it might not be able to act quickly enough to collect on the bond.

If the requirement to renew coincided with the expiration of the old bond, the Agency would have no way to declare a default, based on failure to renew, while the old bond was still in force. The rules are therefore written to provide an extension period during which the old bond no longer meets the financial assurance requirement. This places the operator in violation of the regulations, allowing the Agency to file an enforcement action, obtain an order directing closure of the site, and force a default before the old bond expires. STS recommends no change.

Section 811.712Surety Bond Guaranteeing Performance

Response:

Because forms have been added to the Appendix, a change is required in subsection (c) as follows:

c)The surety bond must be on forms as specified ~~by the Agency~~ in Appendix A.

1.(a) Consistent with our position on Section 811.711, we propose the following revisions:

Subsection (e)(2)(B): Delete. (NSWMA)

2.(g) Subsection (g)(1): "The bond shall be issued for a term of five years and shall be extended only with the express written consent of the surety." (NSWMA)

3.(g) In subsection (g)(2), the Agency suggests deletion of the last sentence; again, an automatically extended bond should be considered as valid and as acceptable as the original bond, in the absence of contrary indications. (IEPA)

Response:

See the response regarding Section 811.711.

Section 811.713 Letter of Credit

Response:

Because forms have been added to the Appendix, a change is required in subsection (c) as follows:

c)Forms:

1)The letter of credit must be on forms as specified ~~by the Agency~~ in Appendix A.

1.(g) In subsection (g)(1), the Agency again suggests a shorter minimum term, such as 1-year with a 1-year extension; as with the longer bonds, the longer-term letters of credit (LOCs) are difficult to obtain and harder to monitor; presently, the Agency has observed difficulties with banks on four-year LOCs. (IEPA)

Response:

See the response regarding Section 811.711.

The EcIS in R84-22C indicated that 35 of 91 sites which had provided financial assurance under the emergency and temporary rules used letters of credit. (R84-22C, p. 40)

2.(g) In subsection (g)(2), the Agency suggests deletion of the last sentence for reasons stated above regarding surety bond extensions. (IEPA)

Response:

See the response regarding Section 811.711.

Section 811.714Closure Insurance

Response:

With regard to the question of whether failure to pay the premium is a condition of default, STS notes that under the rules as presently structured, IEPA would have to file an enforcement action alleging failure to have financial assurance and obtain a closure order from the Board before collecting on an insurance policy. The IEPA might not be able to obtain such an order before the insurance lapsed. IEPA has suggested that the failure to pay a premium when due should in and of itself be a condition of default, making the face amount immediately payable to the Agency. (R. 207) However, as the rules are presently structured, Section 811.714(g)(2) requires notice of non-payment to the Agency. The Agency should pay the premium, and then file an enforcement action, thereby preserving the insurer's liability under the policy. (R84-22C, p. 41) STS recommends no change.

With regard to the question of how this Section relates to liability insurance, it should be noted that closure insurance should not be confused with third party liability insurance. Because the need for closure and post-closure care is an event which is certain to happen at some time in the future, closure insurance is more akin to life insurance. Policies could be constructed based on the model of either term life or whole life insurance. In the latter case, the "whole life" type policy is really a savings account held by the insurer, which guarantees a pay out even if the "deposits" don't add up to the face amount. The insurer may wish to protect itself against early closure by requiring the operator to indemnify it for any amounts paid out in excess of premiums paid. (R84-22C, p. 40) STS recommends no change, but this issue merits discussion in the Opinion.

Section 811.715Self Insurance

1. Self insurance must be available to all site operators. Limiting the use of the financial test to non-commercial sites discriminates against commercially operated sanitary landfills without a reasonable basis. Under Illinois and Federal RCRA rules the financial test is available to all eligible hazardous waste facilities, commercially operated or generator-owned. If no such distinction is made for hazardous waste facilities, what could possibly justify it for sanitary landfills?

   Since it has been determined that the financial test is a valid way to assure financial assurance, that mechanism should be available to all facilities. The only valid distinction between types of facilities is in the amount of financial assurance required, not the mechanism by which it is guaranteed.

   Our specific objections to the current proposal are:

(d) Gross Revenue Test Limiting the use of the financial test mechanism to those permittees which derive less than 50 percent of their gross revenues from waste services. We believe that this section is unnecessarily restrictive and will only serve to force those firms whose business is primarily solid waste to use a more costly assurance method. This cost will ultimately be passed on to consumers in higher disposal fees without a commensurate increase in the degree of environmental protection.

We believe that a company whose primary revenue source is waste services will have a higher level of commitment to proper facility management out of necessity, since it is the company's livelihood. Such companies are more likely to be aware of and implement state-of-the-art technology in overall facility management than those firms whose revenues are not derived primarily from waste service operations.

Proposed revision to Section 811.715 (d) Gross Revenue Test: Delete.

If an applicant can meet the financial test requirement for self-insurance, a bond should not be needed in addition. (NSWMA)

Response:

Section 21.1 of the Act requires a "bond or other security". It does not require the Board to allow the use of self insurance or a financial test. (R. 202) The financial test was based on the USEPA financial test in 40 CFR 264.143. That test was based on analysis of financial data on a mix of firms which were subject to the RCRA financial assurance requirement, primarily diversified manufacturing businesses. (R84-22C, p. 41, 43) There is no evidence that this test would be a valid predictor of business failure rates for a universe which consists in large measure of commercial waste disposal firms. In R84-22 the Board therefore excluded commercial disposal firms through the use of the "gross revenues" test. (R. 204, 209, 213, 219) At several points the Board has indicated that it would be willing to consider an alternative test, if supported by evidence as to the ability of the test to predict business failures within the commercial disposal business. To date the Board has received none. In any event, this is irrelevant to the main issues in R88-7.

Although it may be true that commercial firms have a "higher level commitment to proper facility management" than non-commercial firms, this misses the point for several reasons. First, the financial assurance requirement is aimed primarily at providing coverage for the expected costs of closure, rather

than liability for accidents or contingencies resulting from improper operation. (R84-22C, p. 26) Second, the financial assurance requirement is aimed at protecting against business failure as well as improper operation. Even assuming that the noncommercial operator mismanages the site so that closure is ordered, if the operator meets the financial test, there is reason to expect that there will be a continuing stream of revenues from unrelated operations with which to fund closure. On the other hand, if a commercial operator is ordered to close, this is likely to mean that there will be no further revenues to pay for closure and post-closure care.

Section 811.715(c) requires a bond without surety for operators using the financial test. Since no surety is required, there is no premium, so that this requirement poses a minimal burden. The bond obligates the operator to pay the amount of the cost estimate, unless the operator provides the required closure and post-closure care. The bond allows the IEPA to easily sue and collect the amount of the cost estimate in the event of a default. (R. 209) (R84-22C, p. 41, 44) In the absence of this provision, the IEPA would have to prove up the amount of damages through a difficult and costly procedure in order to provide closure and post-closure care. Since post-closure care may extend over a 30 year period, it might otherwise be necessary for IEPA to sue every few years to collect post-closure care costs as they accrued. STS recommends no change.

2.(e) Financial Test In subsection (e)(1)(A)(ii) a net working capital and tangible net worth requirement of "at least six times the sum or the owner's current closure and post-closure cost estimates" is an excessive requirement. This is identical to that required for hazardous waste facilities. Two times the estimate would be more appropriate in relation to the relative risks associated with non-hazardous wastes. (NSWMA)

In subsection (e)(1)(A)(iii) a requirement for a tangible net worth of $10 million is too restrictive. This is another requirement lifted directly from the RCRA rules which are linked to a much higher risk scenario. In the context of nonhazardous wastes, this figure should be scaled down to $2 million.

Financial Test should be available to all site operations and must be restructured.

Proposed revision: "Financial test is available to the owners of all the facility types.

To pass the financial test the owner/operator must meet the criteria of either (i) or (ii) listed below:

(i)Two (2) of the following three (3) ratios: a ratio of total liabilities to net worth less than 2.0; a ratio of the sum of net income plus depreciation, depletion, and amortization to total liabilities greater than 0.1; and a ratio of current assets to current liabilities greater than 1.5;

Tangible net worth at least 2.0 times the sum of the current closure and post closure cost estimates covered by the test;

Assets in the United States amounting to at least ninety percent (90%) of his/her total assets or at least 2.0 times the sum of the current closure and post-closure cost estimates covered by the test;

Tangible net worth of at least 2 million dollars.

(ii)A current rating for his/her most recent bond issuance of AAA, AA, A or BBB as issued by Standard and Poor's or Aaa, Aa, A or Baa as issued by Moody's;

Tangible net worth at least 2.0 times the sum of the current closure and post-closure cost estimates covered by the test;

Assets located in the United States amounting to at least ninety percent (90%) of his/her total assets or at least 2.0 times the sum of the current closure and post-closure cost estimates covered by the test." (NSWMA)

Response:

As to the detailed revisions to the financial test itself, STS recommends that the Board not adopt modified financial ratios until someone provides evidence as to what the failure rates will be for businesses which meet these tests. (R. 205) (R84-22C, p. 43) To the extent hazardous waste involves a "higher risk scenario", the higher risk is addressed through the liability insurance requirement, rather than the closure and post-closure care assurance requirement, which is based on the expected cost of closure and post-closure care. (R. 205) STS recommends no change.

3.Define "commercial disposal". (WMI)

Response:

In discussing the gross revenues test it is convenient to use the term "commercial disposal company" to describe firms which fail to meet the gross revenues test of Section 811.715(d).

However, there is no need to define the term as such. (R. 209, 213) STS recommends no change.

4.What is the test for whether revenues are derived from disposal? (WMI)

Response:

The existing and proposed rules are vague as to the test for whether revenues are derived from waste disposal. This may be important in view of the increase in cost estimates expected as a result of R88-7.
STS recommends the addition of language specifying that revenues are "from commercial disposal" if they would stop upon cessation of the operator's waste disposal operations. For example, an operator which had a hauling or recycling operation which was independent of the disposal operations would be able to count this toward meeting the gross revenues test. (R. 204, 213) STS recommends the following language:

d)Gross Revenue Test. The operator shall demonstrate that less than one-half of its gross revenues are derived from waste disposal operations. Revenue is "from waste disposal operations" if it would stop upon cessation of the operator's waste disposal operations.

WMI also suggested that the operator should be allowed to isolate individual disposal operations for the gross revenues test. The effect of this would be to allow an operator with several disposal operations to meet the gross revenues test, and hence become eligible for self-insurance. This makes some sense, in that the operator could expect to draw revenues for closure and post-closure care from the other disposal operations in the event one were forced to close. However, such an operator would still be within a narrow line of business, waste disposal, such that the financial test would not necessarily predict future solvency. (R. 213, 219)

With regard to the current definition of "Generally accepted accounting principles," STS notes that the cited reference is no longer available and needs to be updated. Since the current reference is no longer available to the public, STS recommends the following to subsection (a):

"Generally accepted accounting principles" means Accounting Standards, General Standards, As of June 1, 1988, Financial Accounting Standards Board, 401 Merrit 7, P.O. Box 5116, Norwalk, CT 06856-5116, 1988/89 Edition, ~~June 1984,~~ which is hereby

incorporated by reference. This incorporation includes no later amendments or editions.

Because forms have been added to the Appendix, a change is required in subsection (c) as follows:

c)Bond Without Surety. An operator utilizing self-insurance shall provide a bond without surety on forms specified ~~by the Agency~~ in Appendix A. The operator...care plans.

STS also recommends the following addition to the Gross revenue test in subsection (d):

d)Gross Revenue Test. The operator...disposal operations. Revenue is "from waste dispsosal operations" if it would stop upon cessation of the operator's waste disposal operations.

Because forms have been added to the Appendix, a change is required in subsection (e)(2)(A) as follows:

A)A letter...and worded as specified ~~by the Agency~~ in Appendix A; and

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Section 811.716Letter of Credit

1. What is the Board's intention here? Is text to be provided later? (IEPA)

Response:

The text concerning letters of credit is at Section 811.713. The extra heading was a typo. STS recommends that it be dropped.

~~Section 811.716Letter of Credit~~

PART 812
INFORMATION TO BE SUBMITTED IN A PERMIT APPLICATION

SUBPART A: GENERAL INFORMATION REQUIRED FOR ALL LANDFILLS

1. Final Note

The Agency observes that the Part 812 rules are quite uneven in their description of permit application requirements. Many, if not most, of these Part 812 requirements are rooted in Part 811 standards (e.g., the location standards of Section 811.102 are reflected in the application requirements of Section 812.109). Yet many of these Part 812 rules do not reference the applicable standard (e.g., Section 812.108(r) does not mention the standard for a vector control plan provided in Section 811.107(i)) while others do (e.g., Section 812.315 does mention the standard for plugging drill holes provided in Section 811.316). There are a number of ways to deal with this drafting problem; any way that eliminates the potential for misinterpretation and confusion by restoring uniformity will be an improvement. (IEPA)

Response:

Sections in Part 812 are being revised to include references to Part 811 rules as needed. However, STS notes that the permit application requirements of Part 812 are meant to be read in conjunction with the other parts which specify the design and performance standards that must be met. Thus even where no specific reference to a standard in Part 811 is included in Part 812, such reference is implicit in these regulations.

Section 812.101 Scope and Applicability

1a. Note that the requirement for submission of any information requested by the Agency could be interpreted to negate the statutory deadlines for Agency action if such information is requested after submission of the initial application but the request is held to restart the statutory period. (WMI and NSWMA)

1b. The Board should clarify that the Agency's statutory deadlines are not extended in any manner by this provision. (NSWMA)

Response:

If the Agency requests information after an application has been submitted, it is an indication that sufficient information has not been provided to make a suitable determination on the application for a permit. In such a situation, it is reasonable to have the statutory period restarted after the complete

application is submitted to the Agency. In any case, the operator could reduce such delays by following Agency guidelines on permitting requirements and providing all the information required to be included in the permit application as specified in the regulations.

2.The Agency notes that the term "development permit" is used; is this the intent? (IEPA)

Response:

The intent is the issuance of a permit for the development and operation of a landfill. STS suggests that the language of this section be changed to read as follows:

All persons, except those.....shall submit to the Agency an application for a ~~development~~ permit to develop and operate a landfill. This Subpart A ..... of this Part and the Act.

Section 812.102 Certification by Professional Engineer

1.The state should require a qualification statement from all engineers who plan to do design work. The engineer should be screened that he is competent by training or experience, and that the engineer has adequate professional liability insurance. All design work should be performed by an outside engineering firm and not by employees of the operator. An engineering firm needs to be married to the landfill from start to finish so that there are no hassles if problems develop at a later date. (CCL)

Response:

It is in the operator's monetary best interest to hire competent professionals with the experience and background needed to design and construct a landfill according to specifications that are consistent with the requirements of these landfill regulations. Such designs have to be approved by the IEPA before a development and operating permit can be issued. STS believes that some of the requirements which specify exactly who must do the design work, as suggested by CCL are unduly restrictive and would not necessarily achieve the intended goals. However, this Section does contain requirements for certification of designs by a professional engineer registered in the state of Illinois.

Section 812.104Required Signatures

1.The Agency notes that neither the property's owner nor his authorized agent is required to sign an application. Is this an oversight? If not, how can the Agency be assured that the property owner is aware of the nature of the operation sought to be permitted? What is the purpose of requiring the application be notarized? Finally, if a corporate principal executive officer, a proprietor, or ranking public agency official signs a permit application, must "evidence of authority to sign the application" nevertheless be submitted? (IEPA)

Response:

STS agrees that the signature of the property owner or his authorized agent is required on the permit applications and should be added in subsection (b) (see below). With regard to the last question, STS believes that all authorized agents must provide an affidavit attesting to authority to sign the permit application.

STS suggests the following addition to this subsection (b):

b)All permit applications shall be signed by a duly authorized agent of the operator and the property owner, shall be accompanied by ~~evidence of~~ an affidavit attesting to authority to sign the application and shall be notarized. The following persons are considered duly authorized agents:

Section 812.105 Approval by Unit of Local Government

1.While there are questions about the intent and operation of this section it does not seem to offer some useful ideas. (WMI)

Response:

The intent of this comment is not clear. The idea behind this section is to indicate in the application whether it meets the site location suitability criteria of Sections 39(c) and 39.2 of the Act and whether local approval has been granted or is pending.

2.Automatic Stay of Agency decision deadline for appealed approved local siting? (IEPA)

Response:

STS will defer to the statutory requirements to answer this question.

Section 812.106Site Location Map

1.The site plan should show the direction and amount of present runoff. It should then include the same information on runoff during the operation of the unit/facility, followed by projected runoff after closure. If the plan shows increased water will run into adjacent property owner/s property, then the operator should have a written statement that the operator has permission to run water onto adjacent property. (CCL)

Response:

This comment on runoff affecting adjacent property appears to be in the wrong section and belongs in Section 812.110.

2.Where the "all" is used herein to qualify a requirement (e.g., "all" historic sites), what limits should the applicant achieve? Would the Board object to specifying some radius for this purpose? In addition, in some cases a 7 1/2 minute scale map may be overwhelmed by the requirements of this Section; the Agency suggests that this scale be imposed as a minimum, so that some larger scale may be used where appropriate to aid detail. Finally, the Agency believes that residential areas should also be specifically required to be shown on the map. (IEPA)

Response:

STS agrees that the requirement of a single 7 1/2 minute scale map may be inadequate and that all adjacent areas, whether residential or not, should be included in the map. The Agency's suggestion that a radius be specified may still not encompass all the portions required on a map. STS recommends that adjacent property be included. With regard to the extent, STS suggests for consideration a distance of around 3000 ft (1000 m) beyond the facility boundary for consideration. The suggested changed is as follows:

All permit applications shall contain a site location map on a USGS 7 1/2 minute topographical quadrangle or other scale necessary to show~~ing~~ the following information:

a)The permit area and all adjacent property, extending at least 1000 meters beyond the boundary of the facility.

Section 812.107Site Plan Map

1.As previously discussed, the fire protection plan should be described in detail. Also, all roads to the facility should be from a state highway or an interstate service road. (CCL)

Response:

A description of a fire protection plan is required in Section 812.108(s). The comment on access roads belongs in Section 812.108, where it will be addressed.

2.Consistent with our proposed revision to the definition of "disturbed areas", we propose the following revisions to Subsections (d) and (e):

d) "Boundaries of all areas to receive waste"
e) "...a delineation of the approximate area to receive waste each year and areas expected..."(NSWMA)

Response:

As explained in the response to the definition of "disturbed areas" in Section 810.103, above, no change is needed in its definition. The boundary of the unit, included in (b), is the boundary within which wastes are placed. STS is not convinced that a change is warranted.

3.Would the Board object to requiring specifications of vertical as well as horizontal boundaries in order to clarify the "area" to be permitted for siting purposes? (IEPA)

Response:

The requirements included in 812.106 and 812.107 of Subpart A are general requirements for what needs to be included in the Site Location and Site Plan maps. Additional requirements for the preparation of maps to describe the hydrogeology are prescribed in separate subparts. However, STS recommends that the Site Plan Map include one or more maps showing the geological strata under the permit area. Taking into account the response presented in Section 812.106, STS suggests the following changes:

The application shall contain ~~a site plan map, or~~ maps, including cross sectional maps of the site boundaries, showing the location of the facility on a scale no smaller than 1 inch=200 feet containing a 2-foot contour interval. The following information shall be shown:

a)The entire permit area;

b)The boundaries, both above and below ground level, of the facility and all units included in the facility needed to establish the permit area;

Section 812.108Narrative Description of the Facility

1.The narrative should discuss in detail the site barriers along with a description of what will be in place prior to operation of the facility. The site barrier should be around the perimeter of the facility. The narrative should describe how adjoining property owners had input and comment into the suggested site barriers being proposed by the operator. (CCL)

Response:

The inclusion of information on site barriers in the narrative description is not needed here. However, the Agency may request such information if it is necessary for the issuance of the permit.

2.The Agency notes that there is no requirement in this Section for a description of how the applicant will demonstrate compliance with the compaction requirement of Section 811.104 (sic) or the open burning requirements of 811.107(f), where applicable; the Agency urges inclusion of such requirements in this or another Part 812 section. (IEPA)

Response:

The compaction requirement is in Section 811.105. STS will add this reference in subsection (c). Similarly, 811.107 (f) and (g) will be referenced in subsection (o). For consistency, these and other subsections that require a reference to a section in Part 811 will be made.

STS also wishes to address the comment made by CCL earlier in Section 812.107 by suggesting that a transportation plan describing roadway use be added by including a new subsection (t). The intent of the subsection is to complement other plans such as the air quality plan, the noise control plan and to prevent mud tracking. The subsection (t) language suggested by STS is for Board consideration

In addition, STS notes that the intent of Section 812.108 is to include in the permit application a complete description of various aspects of the facility's construction, operation and maintenance that are needed throughout the design period of a facility in order to comply with the standards set forth in Part 811 as well as other Board regulations. STS recommends the

inclusion of the new subsection (t) and the specific references noted above. In addition, clarifying language is suggested to better reflect the intent of this section as follows:

The permit application shall contain a written description of the facility with supporting data and, if necessary, calculations describing the procedures and plans that will be used at the facility to comply with the requirements of Part 811 and any other applicable Board regulations. Such descriptions shall include, but not be limited to, the following:

c)The manner in wich waste will be placed and compacted to comply with 35 Ill. Adm. Code 811.105;

i)A description of all equipment to be used at the facility, the purpose of each piece, and a demonstration that the equipment is adequate to operate the facility in compliance with all Board regulations and the Act.

j)A litter control plan for complying with 35 Ill. Adm. Code 811.107(k);

o)An air quality plan describing the methods to be used to comply with the open burning requirements of 35 Ill. Adm. Code 811.107(f) and for controlling dust in compliance with 35 Ill. Adm. Code 811.107(g);

r)A vector control plan to comply with 35 Ill. Adm Code 811.107(i) and;

t)A transportation plan that includes all existing and planned roads in the facility that will be used during the operation of the landfill facility; the size and type of such roads and the frequency with which they will be used.

Section 812.110 Surface Water Control

1.Adjoining property owners should receive a copy at no cost of the surface water control plan. Operators as well as IEPA should not allow runoff water onto adjacent property without written permission of the property owner. (CCL)

2.Additionally, in order to maintain parallel rule structure and assure appropriate flexibility in implementation, the Agency suggests that the words "which demonstrates compliance" be inserted in the first sentence of this Section in lieu of the words "in accordance." (IEPA)

Response:

This comment mirrors the earlier comment made by CCL in Section 812.106 regarding concerns about runoff. In general, the Agency would have to approve any surface water control programs proposed in the permit application. STS agrees with the language changes suggested by IEPA and believes that the impacts on all areas impacted by the runoff should be assessed and included in the plan for controlling surface water runoff and suggests the addition of the following language to this section:

The permit application shall contain a plan for controlling surface water ~~in accordance~~ which demonstrates compliance with 35 Ill. Adm Code 811.103, and which shall include~~s~~ at least the following ~~information~~:

b)A map showing the location of all structures affected by the surface water runoff from disturbed areas on the facility;

3.It is unreasonable and unrealistic to require an NPDES permit before application for the initial site permit. It is believed that the Agency will not issue an NPDES permit at this stage. Even if it would agree to do so this extra step could extend the permit process substantially (e.g., by 180 days). (WMI and NSWMA)

4.In subsection (a), the Agency strongly urges the Board to insert "or a copy of the NPDES permit application" following "NPDES permit". The point of this change is to facilitate and encourage the co-ordinated review of permit applications within and among the responsible State and federal agencies. Absent this change, an NPDES permit would be required to be obtained first. This would essentially put the NPDES process in a vacuum with regards to associated but non-NPDES environmental concerns while putting the solid waste permitting process at an opposite disadvantage, namely, having some solid waste permitting concerns "answered" without appropriate consideration. (IEPA)

Response:

STS agrees that it may be unrealistic to require an approved NPDES permit at this stage of the permitting process and agrees with the Agency that a copy of the NPDES permit application is sufficient if such permits are pending. The suggested language is as follows:

a) A copy of the approved NPDES permit or if a permit is pending, a copy of the NPDES permit application to discharge runoff from all disturbed areas.

Section 812.111 Daily Cover

1. Since improper or inadequate daily cover creates odor problems, any alternative plan should receive approval from property owners within a mile radius of the facility prior to approval by the IEPA. Cover placement overnight and removal the next day should not be allowed since this procedure will create potential odor problems. Also, this loophole will also probably be abused.

Response:

This section is intended to allow the use of alternative materials or procedures that can meet the minimum requirements of 811.106 (b). Such alternatives are to be included in the permit application for review. STS does not believe that a change in this section is warranted.

Section 812.112 Legal Description

1. The Agency suggests that any legal description designate the nature and location of all stakes and monuments required by Section 811.104. (IEPA)

Response:

STS agrees with the IEPA and suggests the inclusion of a reference to Section 811.104 as follows:

The permit application shall contain a legal description of the permit boundary and the boundaries of all units included in the facility. This legal description shall identify the nature and location of all stakes and monuments required by Section 811.104 and shall be prepared by or under the supervision of a professional surveyor, who shall certify the work.

Section 812.113 Proof of Property Ownership

1. The Agency believes that either in this Section or elsewhere (perhaps Part 813), the Board must provide for closer oversight of owners. As written, this Section could be satisfied by a lease ending tomorrow. Further, rule 35 Ill. Adm. Code 745.201 prohibits certain persons from being owners of a facility if their prior conduct certification has been denied, cancelled or revoked.

Absent some requirement that the Agency be kept appraised of ownership changes and lease expirations, it will be impossible to meaningfully enforce the law or identify responsible parties. (IEPA)

Response:

STS believes that the lease should extend to at least the design period of the landfill facility and will be included in this section to address the first concern expressed by IEPA. When there is a change in ownership, a permit transfer is required (which is considered a "significant modification") triggering the need for compliance with the requirements of Part 813. The approvals required in Part 813 by the Agency provides for oversight. Additional oversight can be provided by requiring the owner or operator of the facility to state whether their prior conduct certification has been denied, cancelled or revoked. There may be a need to notify the Agency if conditions in the lease changes or there is a change in ownership. STS suggests the following changes:

Section 812.113Proof of Property Ownership and Certification

The permit application shall contain a certificate of ownership of the permit area, or a copy of the lease. The lease should clearly specify that the owner authorizes the construction of a waste disposal facility and that the duration of the lease will be at least as long as the design period of the landfill. Prior conduct certifications issued to the owner or operator shall be included in the permit application. The owner or operator shall certify that the Agency will be notified within seven days of any changes in ownership or conditions in the lease affecting the permit area.

Section 812.114Closure Plans

1.The application should include use of the property after closure. If there are changes, then property owners within one-half mile of the facility should be notified prior to any approval by IEPA. (CCL)

Response:

The applicant may wish to include possible uses of the property after closure in its closure plan. However, STS believes that such plans are really long-term, that do not necessarily have to be included in a closure plan.

2.The Agency believes the Board erroneously omitted mention of a written "closure", not just postclosure, plan. (IEPA)

Response:

The IEPA is correct in that the word "postclosure" was used instead of "closure". Post
closure care plans are included in Section 812.115. The error will be corrected as follows:

The permit application shall contain a written ~~post~~closure plan which contains, at a minimum, the following:

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

Section 812.301 Scope and Applicability

1.The words "chemical waste" should be deleted. There are already enough hazardous wastes in putrescible household waste without adding additional chemical waste. (CCL)

Response:

This has been addressed earlier in the definition section, 810.103.

STS notes that the word "waste" is missing after the word "chemical" in this section and should be corrected to read as follows:

In addition to the information required in Subpart A, an application for a permit to develop a putrescible or chemical waste landfill shall contain the information required in this Subpart.

Section 812.303 Site Location Map

1.In addition to public water supply wells, the site plan should include all wells used for drinking water within a mile radius of the facility. Also include site barrier for county and township roads. (CCL)

2.This section sets forth mapping requirements, but also includes (at subsection (d)) a documentation requirement which has nothing to do with mapping. The Agency suggests that a new section be created to cover the documentation requirements. In this new section the Board could place (in addition to what is now 812.303(d)) a requirement for including documentation of any approvals obtained under Section 811.302(d) as well as other

add-on documentation requirements, such as Section 812.304. (IEPA)

Response:

STS agrees that the location of private wells used for drinking water should also be included in the map.

As pointed out by the Agency, this section needs to be corrected to properly separate the documentation issue from the items required in the site location map. STS suggests the following changes (a):

Section 812.203Site Location ~~Map~~ Requirements

a)The permit application shall contain a site location map showing the location of the following structures or areas located within one mile of the facility:

~~a)~~1)All ~~public~~ water supply wells in use for drinking water;
~~b)~~2)All setback zones established...or 14.3 of the Act;
~~c)~~3)Any area or region where a ~~A~~ Sole Source Aquifer Determination ~~containing:~~
~~1)~~has ~~documentation~~ demonstrat~~inged~~ that no sole source aquifers are located beneath the facility~~;~~ or
~~2)a demonstration~~ that an impervious strata exists between the facility and the aquifer that meets the minimum requiremetns of 35 Ill. Adm. Code 811.302 (b).
~~d)~~4)~~Documentation that any u~~Units located within a setback zone established pursuant to Section 14.2 or 14.3 of the Act showing that the location still meets the minimum requirements of 35 Ill. Adm. Code 811.302 (b).
~~e)~~5)All State and Federal...recreational areas;
~~f)~~6)All State or Interstate...Adm. Code 811.302 (c);
~~g)~~7)All occupied...schools; and
~~h)~~8)All airports

b)If any areas or structures included in a site location map, in accordance with subsection (a), requires a demonstration or showing, then documentation of the demonstration or showing must accompany the site location map.

Section 812.304Waste Shredding

1. Does Bd intend to so favor shredded wastes, even where baled?

Response:

It is not clear what is meant by this comment. The intent of this section is that if waste shredding (independent of whether

it is baled or not) is part of the landfill facility's operation, then the design period specified in 811.303 (b) applies to such a facility. In order to clarify this section, the following changes are suggested:

If ~~a~~ waste shredding ~~operation~~ is planned for the facility's operation, then the application shall contain all documentation.....

Section 812.308 Leachate Management System

1. Recycling leachate should not be permitted as well as on-site treatment since these two items will contribute to the odor problems. (CCL)

Response:

Plans for leachate recycling and/on-site treatment at a landfill facility are submitted as part of an overall set of plans, one of which is the requirement to submit odor control plans in accordance with 812.108(g).

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2. It is extremely unlikely that an NPDES permit would already have been obtained at this stage. In some situations, of course, no such permit will be involved. (WMI & NSWMA)

Response:

A similar comment earlier with regard to surface water control was made. In like fashion, the following change is suggested:

1) Leachate Disposal Methods including:

A) The approved NPDES permit or, if the permit is pending, a NPDES permit application;

Section 812.309 Landfill Gas Monitoring System

1. The reference to predictive gas modeling should be deleted. (WMI & NSWMA)

Response:

STS finds no persuasive support for changing this requirement.

Section 812.310 Gas Collection Systems

1.Subsection a): The exact location of collection points cannot be determined prior to waste disposal and probe monitoring. One cannot reasonably be expected to have a plan for a problem which does not exist. A Gas Collection System can be designed generally, but the specifics of all the machinery, compressors, flares, piping, and other appurtenances necessary to the system cannot be realistically predicted before the problem arises. (NSWMA)

Response:

This section is a requirement for developing a plan for collecting landfill gas which must be submitted as part of the permit application. STS believes that NSWMA's characterization as the "plan for a problem that does not exist" is wrong. The plan is for design and planning purposes and to prevent a problem from arising. STS recognizes that some of the specifics of a plan will change in time as monitoring data become available. At such time, revisions to the plan can be submitted.

Section 812.311 Landfill Gas Disposal

1a.The issued air discharge permit should not be required at this stage. (NSWMA & WMI)

1b. It is unreasonable to expect this permit as a prerequisite. (NSWMA)

Response:

This is in the same vein as earlier comments relating to (other media) permits which may not be approved at the time of the permit application. The following change is suggested:

a) The approved air discharge permit or, if the permit is pending, a copy of the air discharge permit application, if necessary.

Section 812.313 Design of the Final Cover System

1.The permit should include use of the facility after closure. If there are changes, then property owners within one-half mile of the facility should be notified prior to any approval by IEPA. (CCL)

Response:

This issue appears to be wrongly placed in this section. This comment was made by CCL in Section 812.114.

Section 812.314Description of the Hydrogeology

1.Copies of all tests and engineering information concerning water bearing strata, groundwater flow velocities and direction should be made available upon request to property owners within one-half mile radius of the facility, with all costs borne by the operator. (CCL)

Response:

Such information requests can be directed to the Agency. Requirements such as these regarding public notification appear to be related to legal issues that are outside the scope of the technical standards that are being proposed for adoption by the Board. The public participation process in landfill siting and permitting has been addressed in the February 25, 1988 First Notice.

2.Subsection b): Again this information is excessive and of no beneficial use.

In subsection c), a cross section depicting all water bearing strata beneath the permit areas is excessive and of no beneficial use (NSWMA).

Response:

STS does not agree. Much of this information is critical to the characterization of subsurface strata needed in predicting groundwater flow and contaminant transport.

Section 812.317Groundwater Monitoring Program

1.The groundwater monitoring plan should be made available upon request to property owners within one-half mile radius of the facility, with all costs borne by the operator. (CCL)

Response:

Such information requests can be directed to the Agency.

STS suggests the addition of a reference to Section 811.319 for completeness as follows:

The permit application shall...which demonstrates compliance with 35 Ill. Adm. Code 811.318 and 35 Ill. Adm. Code 811.319 and includes the following information:

PART 813
PROCEDURAL REQUIREMENTS FOR PERMITTED LANDFILLS

SUBPART A: GENERAL PROCEDURES

Section 813.103 Agency Decision Deadlines

1. Property owners within one-fourth mile of the facility should be advised of any modification of the original application prior to approval. (CCL)

Response:

Such information requests can be directed to the Agency. However, requirements such as these regarding public participation or notification appear to be related to legal issues that are outside the scope of the technical standards that are being proposed for adoption by the Board. The public participation process in landfill siting and permitting has been addressed in the February 25, 1988 First Notice.

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2. Since time to appeal runs from the date of Agency decision, prompt notification of Agency action is essential to protect the applicant's rights. The Agency request in R84-17 that the time run from the date of signature rather than the date of mailing because there are significant delays in the mailing process illustrates the problem rather than justifying the Agency's proposed solution. We believe that the Act and basic principles of due process do not permit the time to run from the date of signature, a date which the applicant and the Board are incapable of verifying and which has the effect of creating an Agency "action" which no one knows about. (NSWMA & WMI)

Response:

STS agrees that the date that a notice is signed is not easily verifiable. The date of mailing, however, is verifiable. This is incorporated in the following suggested changes:

d) The Agency shall ~~send~~ mail all notices of final action by registered or certified mail, post marked with a date stamp and with return receipt requested. Final action shall be deemed to have taken place on the post marked date that such notice is ~~signed~~ mailed.

Section 813.108 Term of Permit

1. We strongly endorse a five year operating permit. A ten year permit may be well past the half life of a landfill located near a large urban center that generates large volumes of solid waste, thereby making any shortfall in operating, or monitoring procedure much more serious than if it had been reviewed and corrected in five years, when only a few cells had been in place. In addition to being well into its operating life in ten years, the nature of the waste stream being deposited could change significantly in that time span. For example, a landfill that had been receiving predominantly household refuse could start receiving sludge as community sewage treatment plants are expanded or upgraded, or they may start receiving special wastes as industry changes and moves into the area. These changes would require adjustments in operating procedure, which could be done in a more timely manner with a five-year permit.

   One of the subcommittee members who is the St. Clair County Health Director and thus in charge of the St. Clair County landfill inspectors hired under the IEPA Landfill Inspection and Enforcement Grant commented that the five year permit renewal should also take into consideration the responsible day to day operation of the landfill. If the landfill blatantly and routinely violates standards such as lack of cover, litter control, etc., the application should be denied. (SCC)

2. The term of permit as described in this part and explained on page 20 of the PCB opinion is unrealistic. The PCB explains that the five year term begins at the date of issuance of the development permit not the day of operating acceptance for a unit. Based on the acceptance criteria outlined, a site may not "come on line" for many years after a development permit is issued.

   The concept of a five year permit for each facility permitted under this proposed rule is too restrictive. We understand that the Board's intent in proposing a five year permit period is to allow for the periodic review of the technology and/or methods used in the landfill operation. It is presumed that the operator will be given an opportunity to make changes in the permit bringing the operations up-to-date with changes in accepted technology and methodology.

   In light of this fact and the cost of such permits, the five year term is unrealistic. Hazardous waste permits under IAC 724 are issued for up to 10 years. A discussed, a solution to this problem could be a five year "technical review." This would allow the Agency to review the design, construction, and operation of the facility on a timely basis. (NSWMA)

3.The concept of a five year permit for each facility is too restrictive. We believe that a permit issued for the life of the site would be more appropriate as long as there exists a requirement for a five year review of methods and practices used in the operation of the site. A required five year update or permit review would be more appropriate and less burdensome to the applicant and the reviewer. (LLC)

4.There has been much testimony regarding the proposed 5-year permit term provided by subsection (a) of this rule (e.g., see R. 1641-42). The Agency should not be understood as endorsing any particular term of years, although a ten-year term would, for practical reasons, appear to the Agency to be the longest term minimally acceptable in view of advancements in the science relative to solid waste landfills. (IEPA)

Response:

STS notes that Section 813.108 already provides for an issued permit to have a term of no more than 5 years.

STS does not agree that a five year period for a permit renewal is too restrictive. It is not clear what the "technical review", as proposed by NSWMA, would entail. The reason for a permit renewal is the review of any new information (technological changes as well as updates on the facility's operational and monitored data) obtained since the last issuance of a permit. Such reviews may necessitate changes in the operation of the landfill that may need to be included in the permit. This issue has also been previously addressed in STS comments (Ex. 11).

Section 813.109 Transfer of Permits

1.We suggest the use of the RCRA Subtitle C standard for permit transfer. Transfer is allowed if the transferee can meet the conditions of the permit and provide adequate financial assurance. (NSWMA & WMI)

Response:

STS believes that the Agency has the discretion to approve or deny permit transfers. It is up to the Agency, if they wish, to use the RCRA Subtitle C regulations or any other procedures as guidelines in such a determination. This Section is intended to set out the basic conditions that any person seeking a transfer must meet; which is the ability to comply with the existing permit conditions inlcuding the financial assurance requirements. STS suggests the following changes for Board consideration:

No permit is transferable from one person to another except as approved by the Agency. Approval shall be granted only if ~~A~~ a new operator seeking transfer of a permit ~~shall~~ can demonstrate the ability to compl~~iancey~~ with all permit conditions including applicable financial assurance requirements.

2.Section 813.109 Transfer of Permits should be amended to indicate this transfer must be to an operator who has undergone prior conduct certification pursuant to Part 745.

Following the intent of our comments we believe the issue of certification of the operator for sites in post-closure care should be clarified. If the logic of the certification program is followed it is possible for an owner to be denied certification while the site is in post-closure and not being able to own the site. Thus he must sell the site, highly unlikely, or the Agency will be forced to take his financial instrument and close his site for him. Although this may sound a bit far-fetched we should point out this is how Part 745 is written and appears to be the Agency's interpretation. We suggest the Board reword Part 745 to indicate the certification is only required for active sites. This also appears to be the intent of the Statute also.

One final issue on certification is the apparent intent of the Agency to grant certification only to persons attached to a specific site. This is apparent from the form produced by the Agency which does not have a place to indicate the applicant is just seeking certification and not as the form states for a particular site. In the Opinion in R81-18, the Board indicated on page 7 its intent to allow anyone to be certified and not necessarily attached to a particular site. We suggest the Board produce a form which reflects the intent of Part 745. (JSC)

Response:

Note the responses to comment #1 above and the changes made to this section. In addition, STS considers this an amendment relating more to the certification process, that might be better addressed in another proceeding.

Section 813.110Adjusted Standards to Engage in Experimental Practices

1.We support the provision for authorization of experimental practices but object to the subsection f) definition which requires that in order to be considered successful, and therefore relied on in the future, the experiment must comply with the criteria for success originally submitted. Such a definition of "success" is entirely artificial and is inconsistent with the common experience that many experiments which do not work out the way

they were planned are nonetheless effective and successful by any reasonable definition of the term.

The Agency's access to all experimental results will be an effective means of assuring that success is not misrepresented. (NSWMA & WMI)

2.The Agency will not repeat its objections to many of the facets of this Section; these objections are fully stated in the Record. The Agency notes that subsection (e) calls for an application for significant modification to be filed with the Agency prior to implementation of an experimental practice; presumably, this is the Board's attempt to bring the Agency into the process. It is an improvement, although the Agency is not overtly brought into the process until Board approval of the experimental practice has already been achieved.

In subsections (d)(3) and (d)(4), the Board continues to use the "it is possible" criteria for review rather than an "it will be done" standard; if one accepts the notion that with unlimited resources virtually anything is possible, these criteria as stated are meaningless. Moreover, the most significant criteria, in the Agency's view, is missing: will the experiment cause a violation of the Act?
Finally, the rule provides no express "payoff" to the applicant should the expriment succeed. The Agency suggests the Board add a new subsection (g?) to expressly authorize permanent modification of the permit in such cases. (IEPA)

Response:

Some of the comments presented here have been addressed in STS responses (see Ex. 11). Only new issues or those issues that need further clarification will be considered further.

Although not explicitly stated, the procedural rules relating to adjusted standards of 35 Ill. Adm. Code Part 106 allows the Agency discretion in choosing to participate in the process. Certainly, the Board's decisions in adjusted standard procedures is likely to be enhanced by Agency participation and involvement, at an early stage, in any experimental practice being contemplated by the owner or operator of a landfill.

The comments regarding the "success" or "failure" of an experiment needs to be addressed. There is some ambiguity with the use these terms without relating it to the expected performance of the experimental practice. The word "success" as used in these rules was intended to convey the idea that the performance of the experimental practice was such that it would be acceptable for implementation. Further, there is no intent

to limit the Agency's access to all of the experimental results when it evaluates the performance of the experimental practice.

STS agrees that the criteria in subsections (d)(3) and (d)(4) should be changed as suggested by the Agency. The additon of another criterion that there will be "no violation of the Act", however, is not needed since the request to conduct experimental practices is required to be in accordance with Section 28.1 of the Act along with the additional criteria listed in (d) (1-4).

Additions to the language in subsection (f) authorizing permanent permit modifications of "successful" experimental practices as suggested by the Agency is reasonable and will be added in subsection (f)(2).

The following are the clarifying language changes suggested for subsections (c)(1), (c)(4), (d)(3), (d)(4), f(1) and (f)(2):

c)The petition for adjusted standard shall contain the following information:

1)A narrative description of the experiment, describing the necessity of this experiment and an assessment of the ~~chances of success~~ expected outcome of this experiment.

4)Criteria for evaluating the ~~success or failure of the~~ experimental practice. The criteria shall be specific enough to allow the Agency to evaluate the ~~success of the~~ performance of the experimental practice from the monitoring results;

d)The Board will review....following criteria:

3)~~It is possible to implement a~~ A monitoring plan to evaluate the experiment will be implemented; and

4)~~It will be possible to restore t~~The site of the experiment will be restored to meet all requirements of 35 Ill. Adm. Code 811, should the experiment fail.

f)Evaluation of Experimental Practice

1)After completion of the experiment all monitoring data shall be submitted to the Agency ~~to be compared~~ for evaluation of the experimental practice in accordance with the criteria provided in subsection (c)(4) above. The Agency shall determine ~~the success or failure of~~ if the experimental practice is acceptable for implementation by using the following additional criteria:

A)An experimental practice ~~is successful~~ shall be considered acceptable for implementation if the monitoring results meet or exceed the criteria in subsection (c)(4) above for ~~success~~ evaluating the experimental practice ~~set at the beginning of the experiment~~; and

2)Upon completion of the experiment and an Agency determination that the experimental practice is acceptable for implementation, the Agency shall return the financial assurance instrument to the operator and, upon the request of the operator, shall approve permit modifications allowing the operation of the experimental practice ~~if the Agency determines that the experiment is a success~~. If the experimental practice is ~~a failure~~ determined to be unacceptable for implementation, then the Agency shall return the financial assurance instrument when the facility ~~is~~ has been restored to comply~~iance~~ with all Board regulations.

Section 813.111Procedures for Contaminant Transport Models Used for Groundwater Imapct Assessment

1.The Agency has strenously objected to the concept, apparently embodied in subsection (a), of pre-approved groundwater contaminant transport models. It believes that this rule will greatly burden its resources as competing engineering and consulting firms apply for IEPA approval of their respective models. A single engineering firm could submit dozens of models and/or combinations of models for Agency approval; any such firm possessing a family of models approved for use throughout the State would have a very valuable commodity. The Agency suggests that all models should be site-specific; no element of Section 811.317 should be bypassed. (IEPA)

Response:

This issue has been addressed and responded to earlier in Ex. 11. However, STS believes that the designation of a model as being acceptable should be accompanied by the limitations of the model, particularly its scope and applicability, both in terms of geographical location and conditions under which it can or cannot be used. STS notes that subsections 811.317 (c) (1), (2) and (3) requests the submission of the basic documentation of a model; once such a model has been accepted for modeling purposes, the basic documentation need not be submitted again. The validation (calibration and sensitivity analysis) requirements in the remaining subsections of 811.317 must still be provided with the permit application.

STS also believes that subsection (b) should precede subsection (a). Therefore STS suggests interchanging (a) with (b). The following changes to subsections (a) and (b) (previously subsections (b) and (a) respectively) are suggested:

a)At the request of any person, the Agency may review a groundwater contaminant transport (GCT) model for acceptance. The person shall demonstrate that the model meets the minimum requirements of 35 Ill. Adm. Code 811.317 (c) (1), (2), and (3).

b)The Agency may designate ~~groundwater contaminant~~ GCT models as acceptable for use by the applicant for a groundwater impact assessment. Such Agency designations shall be accompanied by limitations or conditions under which the model can or cannot be used. The applicant shall be relieved from demonstrating compliance with 35 Ill. Adm. Code 811.317 (c) (1), (2), and (3) in a permit application if a model accepted by the Agency has been used.

SUBPART B: ADDITIONAL PROCEDURES FOR SIGNIFICANT MODIFICATION OF PERMITS

Section 813.201Initiation of a Significant Modification

1.In subsection (b), there is no provision for Agency-initiated modifications where either the law (including rules) has changed or circumstances at a facility have been altered such that informtion or assumptions formerly relied upon are no longer valid (e.g., material changes in equipment and operations, or discovery of anomalous hydrogeology). The Agency urges inclusion of such provisions. (IEPA)

Response:

STS agrees that modifications required by changed circumstances related to statutes or regulations may need to be initiated by the Agency. As presently written, discovery of new information, which constitues a significant modification requires an operator initiated permit modification. STS agrees that when the Agency makes the discovery, they should require the operator to submit an application for a significant modification of the permit. In addition, STS suggests the following changes in the manner in which the conditions are stated:

b)Agency initiated Modifications

1)The Agency may modify a permit under the following conditions:

A)~~Correct~~ Discovery of a typrographical or calculation error;

B)~~Correct~~ Discovery that a determination or condition was based upon outdated, false or misleading information;~~or~~

C)~~Upon~~ An order of the Board~~.~~; or

D)Promulgation of new statutes or regulations affecting the permit.

2.The provisions for Agency modification of existing permits, which are for some reason placed in this section, are improper and are not authorized by the Act. Correction of a "calculation error" or a determination based on so-called "false or misleading information" would appear to allow the entire permit to be reopened by the Agency at any time. This is not authorized by the Act.

The Act does provide for action upon a permit in response to an enforcement case brought by the Agency. This obviously is the correct procedure and the only one authorized by law. The procedure contemplated by subsection b)2) appears to be some type of hybrid permit appeal and is not authorized under the Act. (NSWMA & WMI)

The Board fails to explain, and the record fails to justify, why modifications initiated by the Agency are not effective until after 45 days of receipt by the operator. (NSWMA)

Response:

STS will not address this comment since it calls for a legal interpretation.

Section 813.203Specific Information Required for a Significant Modification to Obtain Operating Authorization

1.Subsection (a) esentially states a prohibition, yet is part of an informational requirement; the Agency suggests it be relocated for clarity.

In subsection (b), the reference to Section 811.605(d) appears to be erroneous; the Agency believes Section 811.505(d) was intended. Also, is the Agency correct in assuming that it has 90 days to review an application for an "operating authorization" for a new structure? In other words, is an "operating authorization" a "significant modification?" (IEPA)

Response:

STS believes that subsections (a) and (b) need to be rewritten to clarify the intent of this section. The two subsections will be combined in the corrected version. In addition, the Agency correctly points out that in subsection (b), reference to Section 811.505(d) was intended rather than 811.605(d). The following new language, after deleting (a) and (b), is suggested to clarify this section as follows:

~~a)The operator shall...issued by the Agency.~~

~~b)Prior to placing a structure...of 35 Ill. Adm. Code 811.605 (d).~~

Prior to placing into service any structure to be constructed at a landfill, pursuant to a construction quality assurance program, the applicant shall submit an acceptance report prepared in accordance with the requirements of 35 Ill. Adm. Code 811.505 (d) in order to obtain an operating authorization issued by the Agency.

2.We object to the requirement of a significant permit modification to obtain operating authorization. If a structure is completed according to the design and performance criteria of 811 and the construction quality assurance is completed and documented under 812, the Agency's review for an operating authorization should be a rather simple and straight forward process. Prolonging approval of any structure by the requirements of 813 Subpart A would prevent the use of either much needed airspace, or a needed improvement to an environmental control structure by 90 days at least. Depending upon the nature of the structure, this requirement may have adverse environmental impact. Fifteen days is ample time to conduct a site observation of the structure as well as review the final acceptance report. (NSWMA)

Response:

STS agrees that the Agency's review for an operating authorization should be simple and straight forward and not be delayed. Agency comments, however, are solicited regarding NSWMA's amendment to this section of a 15-day time limit within which an operating authorization would have to be issued or, if the Agency does not respond within 15 days, the authorization would become effective by default.

SUBPART C: ADDITIONAL PROCEDURES FOR THE RENEWAL OF PERMITS

Section 813.301Time of Filing

1.Under what circumstances would the 180-day action deadline apply? Does this requirement apply to experimental permits also? Will all types of permits have expiration dates? (IEPA)

Response:

Section 39(a) of the Act describes the conditions under which the 90-day and the 180-day action deadlines apply. An experimental practice authorized, under an adjusted standard proceeding, by the Board is still treated as a significant modification, which is included by the Agency as conditions to the permit. Such a permit is still subject to the filing deadlines. There are no separate experimental permits. The last question needs some clarification. It is not clear what is meant by "all types of permits."

Section 813.304 Updated Groundwater Impact Assessment

1.The impact and application of this section are unclear. Further explanation is requested at hearing. (WMI)

Response:

The intent of this section is that if any of a number of conditions specified increases the probability of exceeding a groundwater quality standard, then a new or updated groundwater impact assessment is required. STS notes that the word "or" is wrongly placed at the end of (a) (5) and should be deleted. The period at the end of (a)(4) should be a semicolon, while the semicolon at the end of (a)(5) should be a period. These corrections follow:

4)Changes due to modified groundwater conditions due to offsite activity~~.~~;

5)Changes due to leachate characteristics~~; or~~.

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

Section 813.403 Termination of the Permit

1.The Agency suggests, as to subsections (b) and (c), that the Board retain a 90-day deadline (rather than 60 day deadline) for the respective Agency actions. The Agency is aware of no reason stated in the Record as to why the usual 90-day period should not be kept for uniformity and clarity. Moreover, the Agency will have a considerable body of data to assimilate and a

substantial amount of coordination of review activities to accomplish; it will be able to productively use the additional time in many cases. (IEPA)

Response:

The 60-day deadline was included since the review for terminating a permit is likely to be less time consuming. However, STS has no objections to using the 90-day deadline in subsections (b) and (c) as suggested by the Agency. The suggested changes are as follows:

b) Within ~~6~~90 days after....and this Part.

c) If the operator....then within ~~6~~90 days after ....this Part.

2.The certification required under subpart a) is both generalized and at times illogical. No professional engineer can certify that a closed sanitary landfill is no longer subject to settling and erosion. (NSWMA)

Response:

The changes suggested by NSWMA to (a)(1) and (a)(2) specifying sections of Part 811 are not necessary. STS believes, however, that this section is intended to list those activities that will no longer be needed or operable at the end of the post closure period of a facility. The certification is aimed at providing documentation, including specific references to procedures in sections contained in other Parts, that such activities are no longer needed. While STS does not agree that a change in (a)(1) and (a)(2) are required, it does agree that certification relating to settling and erosion as stated may be difficult but the intent is to have a professional engineer provide assurance that will allow postclosure care related to settling or erosion to be terminated. No revision is recommended.

SUBPART E: REPORTS TO BE FILED WITH THE AGENCY

Section 813.501Annual Reports

1.The Agency suggests that subsection (b)'s deadlines for Agency (or applicant) action are confusing and, in this case, unnecessary. Annual reports can vary in volume and complexity from site to site; deadlines for action and responses are, therefore, properly the subject of permit conditions, in the Agency's view.

Moreover, catch-all deadlines such as proposed by the Board could result in an avalanche of annual reports arriving at one time during the year; a staggered pattern of deadlines would be better (monthly, quarterly, etc.) and one which the Agency could control through permit conditions would be best. (IEPA)

Response:

In order to make the arrival and review of the annual reports less onerous, STS suggests that the Agency choose a specific month for each facility, which is specified in the permit, as the month in which the annual report is due. STS suggests the following changes to subsection (a) to allow the Agency to make such choices:

a)All permitted landfills shall submit annual reports to the Agency during operation and for the entire postclosure monitoring period. Such annual reports shall be filed each year by the first day of the month chosen and specified by the Agency in the permit.

2.As discussed in the general comments annual reports should be filed by all facilities, not just permitted facilities. Reporting is the most basic and most essential means to ensure that the regulations are being complied with and that groundwater impacts are within standards. (NSWMA & WMI)

It would appear to be preferable to treat a failure to provide information as an enforcement matter in subsection (b)(4). Most overbroad requests for information will likely be worked out over time. the subsection would lead to unnecessary and premature "protective" permit appeals.

Note that the list of data supplied in the annual report, e.g., Subsection (c) (2) (C), changes to the monitoring program, also supports the argument that the definition of "significant modification" may be unintentionally overbroad. (WMI)

Response:

There is merit in requiring all landfills to submit annual reports. STS supports such a concept and notes that Part 815, Subpart C contains requirements for all landfills exempt from permits.

STS views a failure to submit information on an Agency request as egregious, the consequences of which is the denial of the permit. This may be followed by enforcement action, if necessary.

With respect to the comments in the third paragraph, above, STS does not agree with WMI that the requirements of Subsection (c)(2)(C) in any way supports arguments regarding the definition of "significant modification". There is no reason why changes to the monitoring program should be excluded in an annual report.

Section 813.502 Quarterly Groundwater Reports

1.The Agency suggests that the Agency be authorized to prescribe the form of Quarterly Groundwater reports. This will assure efficient review of reports and continue the Agency's current practice of providing data input sheets to reporting sites. (IEPA)

Response:

STS agrees that the Agency should prescribe the form of the Quarterly Groundwater reports and suggest the following changes to accomodate this request:

All groundwater monitoring data shall be submitted to the Agency on a quarterly basis, in a form prescribed by the Agency, and in accordance with a schedule approved in the permit.

2.Such reports should be supplied by all facilities, not just permitted facilities. (NSWMA)

Response:

As noted earlier, STS points the commentor to Part 815, Subpart D requirements.

Section 813.503Information to be Retained at on Near the Waste Disposal Facility

1.The requirement that records be maintained at the facility for inspection by the Agency should apply to all facilities, not just permitted facilities. (NSWMA)

Response:

Again, STS points the commentor to Part 815, Subpart E requirements.

PART 814
INTERIM STANDARDS FOR EXISTING LANDFILLS AND UNITS

1.We find the requirements that landfills that cannot meet interim standards be closed in two to seven years to be a fair and balanced way to insure that Illinois operating landfills are environmentally sound. It makes no sense to continue operating a landfill that already is or has the potential of polluting groundwater. This is true whether the problem is a bad geological location, or bad design and operation.

The economic competitiveness of a landfill, or the lack thereof, should have no bearing on the Board's efforts to either bring them up to minimum standards or close them down. The Board's overriding responsibility should be to ensure the health and welfare of Illinois citizens. It should also be noted that the comprehensive groundwater quality standards, due to be implemented in 1991, would preclude the operation of many of these landfills. While it is likely that we will lose some capacity in St. Clair County and the surrounding area, the implementation of subparts C, D and of part 814 will propell other landfills toward meeting the requirements of the comprehensive groundwater quality standards to avoid being closed in the future. (SCC)

Response:

STS thanks SCC for their comments.

2.The Board's proposed standard for existing landfills contained in Section 814 will have a drastic impact upon Illinois industry. In order to remain open more than 7 years, a landfill would have to be retrofited with leachate collection. To remain open for more than 2 years, it would have to meet groundwater standards set forth at Section 814, Part 401, and 402(b)(3), together with elaborate program for determining the location of a zone of attenuation. As already pointed out, these water quality standards would include standards for dissolved solids. Section 814.401(b) would limit landfills allowed to exist for up to 7 years to their existing supplemental waste stream permits. This would apparently mean that industry presently served by other facilities and not having a supplemental waste stream permit for a particular landfill would not be able to send their waste to this location. Thus, those presently going to landfills which would have to close within two years under the Board's provision would not be able to shift to those existing landfills allowed to operate for up to 7 years. These wastes would apparently be confined either to landfills which would retrofit leachate collection or which are designed, built, and sited under the

new regulations. The Board is well aware of the difficulty, if not impossibility, of siting new regional pollution control facilities under existing law. Thus, industry prohibited from using their existing landfills would not be able to go to anything but new or newly designed landfills and would in effect be precluded from waste disposal in Illinois. If adopted, most special waste will have no legal disposal options. It is clear that these provisions would have a critical, if presently unquantified, impact on industry. IERG requests the opportunity to present additional data and information at the hearings on this proposal and subsequent comments. IERG futher requests that the proponents of this regulation address the impact of these proposals on Illinois industry as a whole. (IERG)

Response:

The economic impacts of adoption of the proposed regulations were presented during the Economic Impact hearings. The issues raised at those hearings as well as subsequent comments will be considered by the Board before these regulations are adopted.

SUBPART A: GENERAL REQUIREMENTS

Section 814.101Scope and Applicability

Response:

STS recommends some clarifying corrections to this section. All the requirements of Subpart A cannot be applicable to all existing landfills since some sections are concerned only with permitted facilities. These distinctions will be made clear with the following suggested changes:

a)This part establishes the standards applicable to all existing landfill~~s~~ facilities which includes facilities that are not considered to be new as defined at 35 Ill. Adm. Code 810.103 ~~are disposing of waste as of the effective date of this Part~~. This Part establishes ~~different~~ requirements for both new ~~disposal units~~ and existing disposal units within such existing landfill~~s~~ facilities. Landfill operators are required to determine...contained in this Part.

b)The requirements of Sections 814.104, 814.105 and 814.106 of this Subpart apply only to those landfill facilities identified as existing facilities in subsection (a) and which require an Agency issued permit.

Section 814.103Notification to Agency of Facilities Status

Response:

STS suggests the following corrections to this section as follows:

No later than ~~S~~six months after the effective date...date of closure of ~~pre-~~existing units, and whether the facility...Subpart D, or Subpart E.

Section 814.104Applications for Significant Modification of Permits for Existing Facilities

1. This section essentially requires all existing sites not closing within two years of the effective date of these rules to submit an application for significant modification within 48 months of that effective date. The Agency suggests some provision is needed to cover sites that fall within the "gap", namely, those that close within 2-4 years, so that the Agency is not faced with the prospect of reviewing significant modification applications for sites which have already commenced closure. (IEPA)

Response:

Units that must close within two years are not required to file a significant modification permit application. Such units are required to meet the notification requirement of Subpart A and the standards of Subpart D. Those units that must close within 7 years, but no earlier than 2 year after the effective date of the regulations are required to meet the standards of Subpart D. The "gap" as stated by the Agency would exist if the Agency fails to use the notification of facility status information that they receive (see Section 814.103) to ask facilities (see subsection 814.104(c) planning to close within 2-4 years to submit a significant modification application earlier than the 48 month period specified.

SUBPART B: STANDARDS FOR UNITS ACCEPTING INERT WASTES

Section 814.201Scope and Applicability

Response:

In this Section as well as in 814.301 and 814.401, the statement, "...landfills...that accept..." does not clearly indicate that the acceptance of wastes in the past (i.e. prior to the effective

date of these regulations) is also a criterion for classifying the landfill as an "existing." STS suggests a change is subsection (a) as follows:

a)The standards in this Subpart...of the Act, that have accepted or accept only inert waste. Units...after the effective date of these regulations.

Section 814.202Applicable Standards

Response:

STS suggests the following minor correcton:

Units which accept only inert waste shall be subject to all of the requirements of Subparts A and B of 35 Ill. Adm. Code 811.

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

Section 814.301Scope and Applicability

Response:

STS suggests clarifying that the indefinite period of time is the period after seven years after the effective date of the regulations. As noted in the response in Section 814.201, a change to include past and present activities is needed. The following change to subsection (a) is suggested:

a)The standards in this Subpart are applicable to all...of the Act, that have accepted or accept...remain open for an indefinite period of time beyond seven years after the effective date of these regulations.

Section 814.302Applicable Standards

Response:
STS notes the need to refer to Section 811.319 in addition to 811.318 in subsection (a)(5) and suggests the following addition:

5)The hydrogeological site...in accordance with 35 Ill. Adm. Code 811.318 and 35 Ill. Adm. Code 319 and establish...pursuant to 35 Ill. Adm. Code 811.320; and

STS also notes that a minor clarification to subsection (b)(1) is needed to specify the nature of the performance standard as follows:

1)The unit must be equipped with a system ~~to~~ which will effectively drain and collect...with the requirements of 35 Ill. Adm. Code 811.307 and 35 Ill. Adm. Code 811.308.

STS further notes that the requirement of Section 22.17 of the Act requires changes to be made to subsection (b)(3). Further some corrections to (b)(3)(B) are also needed. The changes suggested are as follows:

3)Calculation of the Design Period

A)The design period shall be no less than the operating life of the landfill plus fi~~ve~~fteen years of post closure 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 in 35 Ill. Adm. Code 811 (For example, an existing unit with ~~an~~ expected operating lives~~fe~~ of 3, 7 or 12 years after the effective date of these regulations would be required to provide financial assurance during operation and for a postclosure care period of~~or 2~~either 15 years ~~of postclosure care, 21=7x3. For a unit...applicable design period~~ since 3x3 = 9 years is less than the 15 year minimum specified in subsection (b)(3)(A); 21 years since 3x7 = 21 years; or 30 years since 3 x 12 = 36 years is greater than the 30 years specified in Section 811.303 (a), respectively); and

C)The design period may not be reduced as allowed by 35 Ill. Adm. Code 811.303 (b) and (c).

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

Section 814.401Scope and Applicability

1.The Agency believes that much confusion could be elminated if the respective "Scope and Applicability" sections were more clearly interrelated. For instance, Section 814.401(a) states that "the standards in this Subpart ar applicable to all existing units." This is only partly true: some units (those which can also meet

the standards of Subpart C) are subject to that subpart, not to Subpart D or E, but it is not clear from a reading of subsections (a) and (b) that this is so. (IEPA)

Response:

Changes have already been made in the Scope and Applicablity sections of Subparts A, B and C. This Subpart applies to units initiating closure within 7 years but not less than two years after the effective date of the regulations. As noted in the response in Section 814.201, a change to include past and present activities is needed. These issues will be clarified by the following suggested changes:

a)The standards of this Subpart are applicable to all existing units...of the Act, that have accepted or accept...meet the requirements of this Subpart shall initiate closure ~~within~~ between two and seven years after the effective date of these regulations.

Section 814.402 Applicable Standards

1.(b)(1) This section must be changed to allow the operation of a facility to continue within the permitted boundary during the remaining seven years or less. The term "disturbed area" should be modified and is not propoer for use in this section. If this section is not changed, an incentive will exist for landfill operators to prematurely disturb areas that normally would not be subject to other requirements of this section until a later date. At present, the site will terminate its operation within a short period of time and should be allowed to continue its operation or continue the development in permitted sections only. (LLC)

2.(b)(1) In subsection (b)(1), what exactly is included in the "area disturbed prior to the effective date of these regulations?" Is it enough for the operator to drive a tractor over the area? Must the disturbance be substantial and/or in furtherance of permitted activity? (IEPA)

Response:

STS agrees with the commentors' concern and suggest the following change to subsection (b)(1):

1)No new units shall be opened and an existing ~~The~~ unit may not expand beyond the area ~~disturbed~~ included in a permit prior to the effective date of these regulations or, in the case of permit exempt facilities, beyond the area

needed for landfilling to continue until closure is initiated;

3.(b)(2) Land and Lakes Company believes that to restrict the permitting of new special waste to only those facilities with a remaining capacity in excess of seven years is not necessary. It is given that the regulations will force those facilities with limited life expectancy to cease from operating in a short time. The fact that special waste will continue to be disposed of in short term as well as long term facilities remains. The only difference is the incentive to use long term facilities. We suggest that the Board consider the number of new waste streams permitted annually by the Agency and realize that these streams will all have to go to a limited number of sites.

In addition, should all new waste streams only be limited to a few sites, there may pose a concern over the volumes and even the capability for handling the material. In essence, some new waste streams may not have a home. The new waste streams will include generators who are attempting to modify their waste streams in the form of dewatering or solidifying. Any changes internally in what they process will also require a new permit. The Board should continue to insure that enough facilities are available to handle all of the special waste so that this material does not pose a threat to the health and safety of the general public. (LLC)

Response:

The ration necessary to prevent new special waste streams from being added to such landfills. No change is recommended.

4.(b)(3) In subsection (b)(3)(A), what is meant by the term "compliance boundary" as opposed to the term "edge of the zone of compliance?" Why are both terms used here? What if the groundwater at the compliance boundary is not a source of drinking water? Finally, is the term "exceed" used here in the statistical sense or in the regulatory (i.e., absolute) sense? (IEPA)

Response:

The term compliance boundary was intended to mean the entire outer edge of the unit, both at the ground surface as well as below ground. An alternative "compliance boundary" may be requested and/or adjusted by the Board if the groundwater at the compliance boundary is not a source of drinking water and after consideration of the factors listed in this subsection. The terms "eged of the zone of compliance" and "zone of

compliance" are not needed and should be removed in subsection (b)(3)(A). STS suggest some changes which include additional clarifying language as follows:

A)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 water quality standards specified in 35 Ill. Adm. Code 302.301, 302.303, 302.304, and 302.305 ~~at the edge of the zone of compliance.~~ Tht Board may provide for a zone of attenuation and adjust the ~~zone of~~ compliance boundary in accordance with Section 28.1 and the Procedures of 35 Ill. Adm. Code 106.410 to 106.416 of the Act upon demonstration by the operator that the alternative ~~zone~~ compliance boundary ~~would~~ will not result in contamination of groundwater which may be needed or used for human consumption. The Board shall consider the following factors:

PART 815: PROCEDURAL REQUIREMENTS FOR ALL LANDFILLS EXEMPT FROM PERMITS

1. WMI supports the institution of reporting requirements for landfills exempt from permitting. Such reporting should be as complete as the information available through the permitting process for onsite facilities. (WMI)

Response:

STS considers the present requirements to be adequate; however the Board may wish to consider whether identical reporting requirements are needed for both permitted and exempt from permitting facilities.

SUBPART A: GENERAL REQUIREMENTS

1. The Agency notes that the title of this section [815.301 of Subpart C] does not comport with its subject, which is "Annual Reports." In addition, the Agency notes that this rule fails to indicate when the annual reports are due, particularly the first such report. The Agency urges the Board to specify this requirement, and in doing so to allow a reasonable time for initiating the data collection process as well as for assembling and reporting such data. Some kind of staggered reporting deadline requirements would avoid the Agency being deluged with such reports at one time. Finally, the Agency suggests that the Board specify the units of volume (cubic yards, gallons, etc) to be used, for uniformity. (IEPA)

Response:

With regard to the specification of units, STS notes that the Agency can specifiy the format that must be followed by the facility in filing a report. Specification of any specific unit of measurement is not necessary. However, STS suggests for Board consideration the addition of "...in a form specified by the Agency..." to give the Agency the flexibility it needs.

STS agrees that the Scope and Applicability Section 815.301 of Subpart C as well as 815.101 of Subpart A, 815.201 of Subpart B, 815.401 of Subpart D and 815.501 of Subpart E need some minor modifications for the purpose of clarity. The scope and applicablility section under the General Requirements of Subpart A in Section 815.101 are amended to indicate that reports must be filed with the Agency along with the other changes to Section 815.101 and changes to 815.201, 815.301, 815.401 and 815.501 are recommended. However the requirement suggested in 815.401 to file modifications to the list of background concentrations established pursuant to Section 811.320(d)(1) is an optional

addition for Board consideration. The suggested changes are as follows:

Section 815.101Scope and Applicability

The requirements of this Part are applicable to all landfills exempt from permits pursuant to Section 21 (d) of the Environmental Protection Act (Act), Ill. Rev. Stat. 1985, ch. 111 1/2, par. 1021(d). All reports and information required under this Part shall be filed with the Agency or retained on site in accordance with the requirements set forth in each Subpart.

SUBPART B: INITIAL FACILITY REPORT

Section 815.201Scope and Applicability

All landfills regulated...report with the Agency in accordance with the filing deadline of Section 815.202.

SUBPART C: ANNUAL REPORTS

Section 815.301Scope and Applicablility

All landfills regulated...report with the Agency. The first annual report shall be filed on the first of January that follows the year in which the initial facility report is filed. The Agency may specify an alternate filing date no later than one year after the initial facility report has been filed.

Section 815.303Information to be Submitted

The change to subsection (b) is suggested to ensure that all the monitoring data, and not just the summary information, is provided. The change is as follows:

b)All raw ~~M~~monitoring ~~D~~data collected at the facility from the leachate collection system, groundwater monitoring network, gas monitoring system and other monitoring ~~data~~ required by the Agency, and in addition shall include~~ing~~:

SUBPART D: QUARTERLY GROUNDWATER REPORTS

Section 815.401Scope and Applicability

All landfills regulated under this Part shall file all groundwater monitoring data with the Agency in accordance with the filing schedule of ~~containing the information required in~~ this Subpart, and file modificatons, since the last quarterly report, to any list of background concentrations prepared in accordance with 35 Ill. Adm. Code 811.320 (d) (1).

Section 815.402 Filing Schedule

1.The Agency suggests that the proposed timetable for reports is untenable. In the Agency's experience, few contract laboratories could turn around their monitoring data in time to allow the landfill operator to timely comply with the Section. The Agency suggests that 45 days be allowed, either by moving the respective report deadlines back by one month or by allowing the original samples to be taken during the first two months of each quarter (with the next 45 days alloted to shipment, analysis, resampling where needed, and transmittal of reports.) (IEPA)

Response:

Based on the Agency's comment, STS recommends moving the deadline back one month as follows:

The reports shall be submitted to the Agency on a quarterly basis, in accordance with the following schedule:

a)~~April~~May 15 for activities...and March;
b)~~July~~August 15 for activities...and June;
c)~~October~~November 15 for activities...and September; and
d)~~January~~February 15 for activities...and December.

Section 815.501 Scope and Applicability

Response:

As noted earlier, the following clarifying change is suggested for this section:

All facilities exempt from permits pursuant to Section 21 (d) of the Act shall retain, for Agency inspection, the information required to be collected by the operator, pursuant to this Subpart, onsite ~~the site~~ for the entire postclosure care period.
