

ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:

PROPOSED AMENDMENTS TO
SOLID WASTE DISPOSAL: GENERAL PROVISIONS
35 Ill. Adm. Code 810; and,
STANDARDS FOR NEW SOLID WASTE LANDFILLS
LANDFILLS 35 Ill. Adm. Code 811.

07 008
R 06-
(Rulemaking - Land)

NOTICE OF FILING

TO:

Ms. Dorothy M. Gunn
Pollution Control Board
James R. Thompson Center
100 West Randolph St., Suite 11-500
Chicago, IL 60601

General Counsel
Office of Legal Counsel
Ill. Dept. of Natural Resources
One National Resources Way
Springfield, IL 62702-1271

Mr. Matt Dunn
Environmental Bureau Chief
Office of the Attorney General
James R. Thompson Center
100 W. Randolph, 12th Floor
Chicago, IL 60601

Mr. Alec Messina
General Counsel
Illinois Environmental Protection Agency
1021 North Grand Ave. E.
P. O. Box 19276
Springfield, IL 62794-9276

(PERSONS ON ATTACHED SERVICE LIST)

PLEASE TAKE NOTICE that on July 26, 2006, I filed with the Office of the Clerk of the Illinois Pollution Control Board an original and nine copies each of Proposal to Amend Certain Pollution Control Board Regulations Related to Solid Waste Management Facilities and Request for Waiver of Petition Requirement, copies of which are hereby served upon you.

Dated: July 26, 2006

Respectfully submitted,

NATIONAL SOLID WASTES
MANAGEMENT ASSOCIATION

By: 
One of its Attorneys

Sorling, Northrup, Hanna,
Cullen & Cochran, Ltd.
Charles J. Northrup, of Counsel
Suite 800 Illinois Building
P.O. Box 5131
Springfield, IL 62705
Telephone: 217.544.1144
Fax: 217.522.3173
E-Mail: cjnorthrup@sorlinglaw.com

JUL 27 2006

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

STATE OF ILLINOIS
Pollution Control Board

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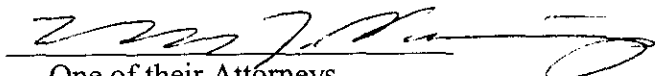
R 07-608
(Rulemaking - Land)

ENTRY OF APPEARANCE

Sorling, Northrup, Hanna, Cullen & Cochran, Ltd., Charles J. Northrup, of Counsel,
hereby enters their appearance in this case as counsel on behalf of the Illinois Chapter of the
National Solid Wastes Management Association.

Respectfully submitted,

NATIONAL SOLID WASTES
MANAGEMENT ASSOCIATION

By: 
One of their Attorneys

Sorling, Northrup, Hanna,
Cullen & Cochran, Ltd.
Charles J. Northrup, of Counsel
Suite 800 Illinois Building
P.O. Box 5131
Springfield, IL 62705
Telephone: 217.544.1144
Fax: 217.522.3173
E-Mail: cjnorthrup@sorlinglaw.com

PROOF OF SERVICE

The undersigned hereby certifies that a copy of the foregoing document was served by placing same in a sealed envelope addressed:

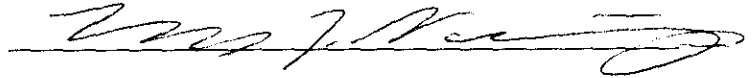
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General Counsel
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Chicago, IL 60601

Mr. Alec Messina
General Counsel
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1021 North Grand Ave. E.
P. O. Box 19276
Springfield, IL 62794-9276

and by depositing same in the United States mail in Springfield, Illinois, on the 26th day of July, 2006, with postage fully prepaid.



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STATE OF ILLINOIS
Pollution Control Board

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(Rulemaking – Land)

REQUEST FOR WAIVER OF PETITION REQUIREMENT

NOW COMES Petitioner, the Illinois Chapter of the National Solid Waste Management Association (“NSWMA”), by and through its attorneys, Sorling, Northrup, Hanna, Cullen & Cochran, Ltd., and hereby requests that the requirement at 35 Ill. Adm. Code 102.202(f) that rulemakings proposed by individuals or entities other than the Illinois Environmental Protection Agency (“Illinois EPA”) or the Illinois Department of Natural Resources include a petition containing 200 signatures be waived. In support, NSWMA states:

1. The NSWMA is a not-for-profit trade association representing companies that provide solid, hazardous and medical waste collecting, recycling and disposal services. The Association was founded in 1962. Its mission is to promote the management of waste in a manner that is environmental responsible, efficient, and ethical, while benefiting the public and protecting employees.

2. The Illinois Chapter of the NSWMA has numerous member companies in Illinois which serve every region of the State of Illinois. The NSWMA’s member organizations and their employees are “persons” within the meaning of 35 Ill. Adm. Code 101.202 and 102.202(f).

3. NSWMA member companies support the NSWMA proposed rulemaking to amend sections 310 and 311 of the Board's solid waste regulations and have in fact requested the NSWMA to submit this proposed rulemaking.

4. The NSWMA has a longstanding history of participating in rulemakings before the Illinois EPA and the Board.

5. Over the last several years, the NSWMA and the Illinois Environmental Protection Agency have met and discussed this proposed rulemaking. The Illinois EPA supports the adoption of the proposed amendments.

6. Requiring NSWMA to prepare, obtain and present a petition with 200 signatures along with its proposed amendments would present an unnecessary burden in both time and expense.

7. The Board has a long standing practice of granting waivers of the 200 signature requirement when a regulatory proposal is being presented by an organizational proponent. Such proponents have in the past included: the NSWMA; the Sierra Club; the Illinois Association of Wastewater Agencies; the Illinois Environmental Regulatory Association; and the Chemical Industry Council of Illinois.

WHEREFORE, Petitioner, the Illinois Chapter of the National Solid Waste Management Association, respectfully requests that the Board grant this Request for Waiver of Petition Requirements, in conjunction with the NSWMA's petition for Rulemaking regarding amendments to certain of the Board's solid waste regulations.

Respectfully submitted,

National Solid Wastes Management Association
Petitioner,

By: 
One Of Its Attorneys

Sorling, Northrup, Hanna,
Cullen & Cochran, Ltd.
Charles J. Northrup, of Counsel
Suite 800 Illinois Building
P.O. Box 5131
Springfield, IL 62705
Telephone: (217) 544-1144
Facsimile: (217) 522-3173

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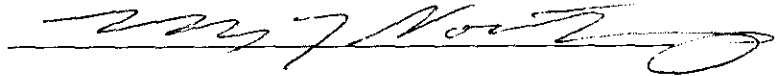
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R 87-008
(Rulemaking - Land)

PROPOSAL TO AMEND CERTAIN POLLUTION CONTROL BOARD
REGULATIONS RELATED TO SOLID WASTE MANAGEMENT FACILITIES

NOW COMES Proponent, the Illinois Chapter of the National Solid Wastes Management Association ("NSWMA") by and through its attorneys, Sorling, Northrup, Hanna, Cullen & Cochran, Ltd., Charles J. Northrup, of Counsel, and pursuant to 35 Ill. Adm. Code 102.200, hereby submits these proposed amendments to certain Illinois Pollution Control Board regulations related to solid waste management facilities found at 35 Ill. Adm Code 810 and 811. In support of to is proposed amendments, the NSWMA provides:

I. INTRODUCTION

This rulemaking is being initiated by the National Solid Wastes Management Association ("NSWMA") to amend certain Sections of the Board's landfill regulations. This rulemaking is the culmination of almost seven years of discussions between the NSWMA and the Illinois Environmental Protection Agency ("Illinois EPA"). The Illinois EPA supports and concurs with all of the proposed amendments, and in fact some of the proposed amendments originated with the Illinois EPA. This rulemaking presents 49 proposed amendments. However, only approximately half of those proposed amendments are substantive.

As will be discussed with greater specificity below, the proposed rules are designed primarily as an update of the Board's existing regulations to meet what has become current and accepted practice in the industry. Many of the rules that are proposed to be amended have been in place since the Board adopted them in 1990 in the R88-7 rulemaking. Since that time, the waste industry and the Illinois EPA have had years of practical experience implementing and following these requirements. In addition, since the adoption of the Board's landfill regulations more and more technical and scientific knowledge has been gained which has also contributed to current practice in the industry which may not be reflected in the existing regulations. These proposed amendments are designed to reflect these changes and experience while maintaining, and in many instances improving, the level of environmental protection that is currently being achieved by the existing

regulations.

Adopting the proposed amendments to the Board's regulations will have a number of positive effects. First, it will eliminate or modify certain regulations that are no longer technically reasonable in that they do not reflect current and accepted practice in the industry. Second, it will lessen the amount of potentially unrepresentative information and data that is submitted and upon which regulatory decisions are made. Stated another way, the proposed amendments will facilitate the generation of more accurate data upon which better regulatory decisions can be made resulting in improved environmental protection. And, finally, the proposed amendments will likely result in greater cost and personnel efficiency to both the regulated community (in terms of reducing costs and personnel time) and the Illinois EPA (in terms of personnel time).

Although rule specific issues are raised in detail below, the Petitioner believes that these amendments present no issues of "technical feasibility". As noted, a significant purpose of the amendments is to update some of the older existing rules to match current practice and guidance. Most of the substantive proposed amendments deal with sampling parameters, sampling frequency, statistical analysis of data, and timing of various submittals. None of these substantive proposals affect "technical" issues. Similarly, with respect to "economic reasonableness," the Petitioner does not believe that any of the proposed amendments will result in any unreasonable increase in costs. In fact, it may be that the greater data accuracy sought by the proposed amendments may result in cost savings to regulated entities. Notwithstanding any cost issues (either increase or decrease), Petitioner believes that the costs will not be unduly burdensome and are nevertheless consistent with other programs and are justified for compliance with the Act.

Perhaps most importantly, all of the positive effects of the proposed amendments can be achieved while improving the current level of environmental protection. In addition, the proposed amendments are consistent with current federal policy requirements. In many cases, the proposed amendments will increase that level of protection by making data more accurate (by reducing the rate of "false positives") and thus a better reflection of landfill conditions. The creation of better data will allow both the operator and the Illinois EPA to focus their respective resources on issues or conditions that pose environmental problems. As such the greater efficiency will result in better environmental protection.

II. PROPOSED RULE AMENDMENT LANGUAGE

A complete proposed rule amendment language is attached to this proposal as Attachment A.

III. STATEMENT OF REASONS SUPPORTING PROPOSED AMENDMENTS

1. Proposed Amendment 1.

810.104(a)(1) -- Updating Federal Regulations Incorporated by Reference.

At the request of the Illinois EPA, and with the agreement of the Petitioner, this Section is proposed to be amended to include an incorporation by reference of federal regulation 40 CFR

258.Appendix I (2006). Throughout these proposed amendments reference is made to the federal Appendix I. This amendment merely identifies the location and date of the referenced material. Any specific justification or discussion of the relevance of Appendix I will be discussed below.

2. Proposed Amendment 2.

810.104(a)(1) -- Updating Federal Regulations Incorporated by Reference

At the request of the Illinois EPA, and with the agreement of the Petitioner, this Section is proposed to be amended to update the incorporation by reference of 40 CFR 258.Appendix II (1997).

This update merely reflects making the reference consistent with the current (2006) version of the federal Appendix II. While some modification has been made between the 1997 and current (2006) version of Appendix II, no substantive changes have been made.

3. Proposed Amendment 3.

810.104(a)(1) -- Updating Federal Guidance Incorporated by Reference

At the request of the Illinois EPA, and with the agreement of the Petitioner, this Section is proposed to be amended solely to update the incorporation by reference of "Test Methods for Evaluating Solid Waste, Physical/Chemical methods, EPA Publications SW-846" to include Updates II, IIA, IIB, III, IIIA, and IIIB which have been adopted up through June, 2005.

4. Proposed Amendment 4.

811.309(g) --- Leachate Monitoring

The Petitioner, at the suggestion of the Illinois EPA (and therefore with its concurrence) , proposes to: (1) amend the frequency of leachate sampling while still collecting an appropriate amount of leachate data that is protective of human health and the environment; (2) specify a default minimum for the number of potential leachate monitoring locations at a landfill unit; and (3) codify current Illinois EPA practice with respect to the minimum constituents that must be sampled for.

The proposed amendments in 811.309(g)(1) delete the existing requirements with respect to the frequency of leachate monitoring and reference the new frequency requirements (to be found and discussed at 811.309(g)(5)) and codified list of constituents to be sampled for (to be referenced at 811.309(g)(2)(G) and 811.309(g)(3)(D) and found at 811.Appendix C) . The proposed amendments also reference, for the first time, a default minimum number of leachate monitoring locations. Finally, the proposed amendments allows the Illinois EPA to require by permit *less* leachate sampling than might otherwise be required in the regulations as long as compliance with other regulatory provisions is ensured. This amendment is designed merely to allow the Illinois EPA flexibility to accommodate individual site conditions. The regulations currently allow the Illinois EPA the flexibility to require more leachate sampling if it believes it is necessary

5. Proposed Amendment 5.

811.309(g)(2)(G) – List of Monitoring Parameters

The Petitioner, at the suggestion of the Illinois EPA (and therefore with its concurrence) , proposes to amend this subsection by referencing (and requiring) a specific list of leachate monitoring parameters. This proposed list of leachate monitoring parameters consists of 202 constituents likely to be found in leachate. The list is derived by the Illinois EPA from its “Attachment 1” to Appendix C “Instructions for the Groundwater Protection Evaluation for Putrescible and Chemical Waste Landfills” of the Illinois EPA’s LPC-PA2 and LPC-PA19 “Instructions for a Significant Modification Demonstrating Compliance with 35 Ill. Adm. Code, Subtitle G, Part 814, Subpart C.” This list of parameters is the list currently required by permit but is not required by regulation. This amendment increases the level of environmental protection. Including the list will also ensure that it is applicable to all landfills in Illinois and not just permitted landfills.

6. Proposed Amendment 6.

811.309(g)(3)(D) – List of Monitoring Parameters

This is the same proposed amendment as identified above at “Proposed Amendment 5.” The Petitioner, at the suggestion of the Illinois EPA (and therefore with its concurrence) , proposes to amend this subsection by referencing (and requiring) a specific list of leachate monitoring parameters. This proposed list of leachate monitoring parameters consists of 202 constituents likely to be found in leachate. The list is derived by the Illinois EPA from its “Attachment 1” to Appendix C “Instructions for the Groundwater Protection Evaluation for Putrescible and Chemical Waste Landfills” of the Illinois EPA’s LPC-PA2 and LPC-PA19 “Instructions for a Significant Modification Demonstrating Compliance with 35 Ill. Adm. Code, Subtitle G, Part 814, Subpart C.”. This list of parameters is the list currently required by permit and including it in the regulations will simply codify the list. Including the list will also increase the level of environmental protection and ensure that it is applicable to all landfills in Illinois and not just permitted landfills.

7. Proposed Amendment 7.

811.309(g)(4) – Leachate Monitoring Location Network

The Petitioner, at the suggestion of the Illinois EPA (and therefore with its concurrence), proposes to add this new subsection to require a certain minimum number of leachate monitoring locations. Currently, the number of leachate monitoring locations is determined by the Illinois EPA on a case by case basis. Over the years, it has developed that some landfills may have only one leachate monitoring location while others have dozens. This proposed amendment mandates a minimum number of four leachate monitoring locations and at least one for every 25 acres within a landfill units waste boundary unless the operator demonstrates, through the permitting process, that fewer leachate monitoring locations are needed. By this amendment a certain amount of uniformity

will be established. Perhaps more importantly, it is recognized that leachate qualities may differ spatially and temporally within a given landfill. By requiring a certain minimum number of leachate monitoring locations, it is believed that this “spacial variability” of leachate within a landfill can be detected. The result is not only more information and improved environmental protection, but more accurate information upon which better regulatory decisions can be made.

8. Proposed Amendment 8.

811.309(g)(5) – Frequency of Leachate Monitoring

The Petitioner, at the suggestion of the Illinois EPA (and therefore with its concurrence), proposes to add this new subsection to require leachate monitoring semi-annually. Currently, once four quarters of leachate data is collected, leachate sampling is conducted on a semi-annual basis. The amount of data collected under the current regulatory scheme is extensive but has not been demonstrated to result in any greater understanding of leachate conditions at any given landfill. Under the proposed amendments, while 4 quarters of data during initial sampling is eliminated, relevant data are continued to be collected on an appropriate (semi-annual) basis as the existing rule provides. This initial quarterly data collection period occurs at generally an early stage in landfill development and yielded data not necessarily representative of long-term conditions in the landfill. Data collection on a semi-annual basis is sufficient to characterize leachate quality trends. This does serve to slightly lessen the economic cost on landfill operators, but such cost savings are not at the expense of environmental protection. In fact, considerable leachate data continues to be collected as described above.

9. Proposed Amendment 9.

811.Appendix C – List of Leachate Monitoring Parameters

The Petitioner, at the suggestion of the Illinois EPA (and therefore with its concurrence) , proposes to amend this subsection by referencing (and establishing) a specific list of leachate monitoring parameters. This proposed list of leachate monitoring parameters consists of 202 constituents likely to be found in leachate. The list is derived by the Illinois EPA from its “Attachment 1” to Appendix C “Instructions for the Groundwater Protection Evaluation for Putrescible and Chemical Waste Landfills” of the Illinois EPA’s LPC-PA2 and LPC-PA19 “Instructions for a Significant Modification Demonstrating Compliance with 35 Ill. Adm. Code Subtitle G, Part 814, Subpart C.” This list of parameters is the list currently required by permit and including it in the regulations will simply codify the list. Including the list will also increase the level of environmental protection and ensure that it is applicable to all landfills in Illinois.

10. Proposed Amendment 10.

811.315(e)(1)(G)(i) – Groundwater standard

The Petitioner, with the concurrence of the Illinois EPA, proposes to replace the reference to “public or food processing water supply standard at 35 Ill. Adm. Code 302” with a reference to the

groundwater standards found at 35 Ill. Adm. Code 620. The reference to the public or food processing water supply standards was included in the original R88-7 Rulemaking adopted in 1990. With the adoption of the Illinois groundwater rules standards, however, the reference to the public or food processing water supply standards is no longer practically or legally the most appropriate standard. Legally it appears that the public or food processing water supply standards is inapplicable to groundwater. See 35 Ill. Adm. Code 620.130. Practically, as well, groundwater at landfills is now regulated under a more inclusive list of constituents found in the 620 regulations. Here too, as with many of these proposed amendments, technical compliance has become unreasonable with the Board's adoption of a more appropriate standard. In addition, the degree of environmental protection remains the same.

11. Proposed Amendment 11.

811.315(e)(1)(G)(ii) – Groundwater standard

The Petitioner, with the concurrence of the Illinois EPA, proposes to add "(A)" to the cited reference simply to provide a more precise reference to the relevant code section. There is no substantive change to the regulations by this amendment.

12. Proposed Amendment 12.

811.318(e)(6)(B) – Depth of Well Measurements

The Petitioner, with the concurrence of the Illinois EPA, proposes to delete this requirement at this location and replace it at a new Section 811.318(e)(7). As is noted below, this new proposed Section is designed to better reflect current landfill operations and equipment advances, improve data collection and reliability, and thereby improve the existing level of environmental protection.

13. Proposed Amendment 13.

811.318(e)(6)(C) – Ph

The Petitioner, with the concurrence of the Illinois EPA, proposes only to renumber this provision in light of preceding additions and deletions in this Section so as to conform this provision to its proper sequential designation. There is no substantive change to the regulations by this proposed amendment.

14. Proposed Amendment 14.

811.318(e)(6)(D) – Temperature

The Petitioner, with the concurrence of the Illinois EPA, proposes only to renumber this provision in light of preceding additions and deletions in this Section so as to conform this provision to its proper sequential designation. There is no substantive change to the regulations by this proposed amendment.

15. Proposed Amendment 15.

811.318(e)(6)(E) – Specific Conductance

The Petitioner, with the concurrence of the Illinois EPA, proposes only to renumber this provision in light of preceding additions and deletions in this Section so as to conform this provision to its proper sequential designation. There is no substantive change to the regulations by this proposed amendment.

16. Proposed Amendment 16.

811.318(e)(7) – Well Depth

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend this Section by requiring well depth information to be taken on an annual basis for wells without dedicated pumps. For wells with dedicated pumps, the sampling frequency is set at 5 years (or less if the pump is serviced). Since the adoption of the current regulations, a significant amount of scientific literature has commented on the superior qualities of dedicated pumps used in groundwater wells. These pumps, which over the years have become the industry standard, allow sample collection that is more representative of aquifer conditions by collecting more and better data, minimizing turbidity, and minimizing the potential for cross-contamination by reducing the need to remove dedicated systems.

The current Illinois requirement that de facto requires the removal of dedicated pumps to check well depth eliminates these significant benefits. The proposed amendment is therefore justified as a means to collect better and more accurate data at less expense that, in turn, results in better regulatory decisions and greater protection of the environment.

17. Proposed Amendment 17.

811.318(e)(8) – Additional Monitoring Well Requirements for MSWLF

The Petitioner, with the concurrence of the Illinois EPA, proposes only to renumber this provision in light of preceding additions and deletions in this Section so as to conform this provision to its proper sequential designation. There is no substantive change to the regulations by this proposed amendment.

18. Proposed Amendment 18.

811.319(a)(2)(A)(ii) – Public or Food Processing Water Supply Standard

The Petitioner, with the concurrence of the Illinois EPA, proposes to delete the existing provision and replace it with a new subsection (ii) identified below. The existing provision, referencing a number of potential indicator contaminants is proposed to be replaced with a minimum list of specific constituents (see discussion below).

19. Proposed Amendment 19.

811.319(a)(2)(A)(ii) – Monitored Constituents (New Section)

The Petitioner, with the concurrence of the Illinois EPA, proposes to add a specific list of indicator contaminants in lieu of the existing standard.

The proposed amendments add a specific list of indicator parameters. This “new” list of parameters are effective indicators of a leachate release. Current Illinois EPA authority and practice requires quarterly monitoring: dissolved ammonia, arsenic, boron, cadmium, chloride, iron, lead, manganese, nitrate, sulfate, TDS, zinc and total cyanide and phenols.

The proposed list of constituents to be sampled for include: dissolved Ammonia-Nitrogen, dissolved Arsenic, dissolved Boron, dissolved Cadmium, dissolved Chloride, dissolved Chromium, total Cyanide, dissolved Lead, dissolved Magnesium, dissolved Mercury, dissolved Nitrate, dissolved Sulfate, Total Dissolved Solids, and dissolved Zinc. In addition, any facility accepting more than 50% by volume of non-municipal waste would also be required to monitor for additional parameters based upon leachate and waste content. Parameters removed from the quarterly sampling list include dissolved Iron and Manganese. In general terms, the proposed list of constituents to be sampled for tend to be mobile, and/or exist at better concentration contrast between leachate and background groundwater, which make them effective and reliable detection monitoring parameters.

Under this proposal, a number of total metals currently monitored on an annual basis will be removed from the detection monitoring program. The total metals to be removed are: Antimony, Barium, Beryllium, Cobalt, Copper, Nickel, Selenium, Silver, Thallium, and Vanadium. In general, monitoring for these total metals, which have often been rendered immobile due to physical or chemical processes, is not effective for monitoring mobility and therefore an indication of groundwater problems. As such, the removal of these total metals from the detection monitoring program will not have a deleterious effect on groundwater monitoring programs in Illinois. In fact, it is believed that by focusing on certain inorganic parameters and VOC's shown to be reliable indicators of a release (as proposed), detection monitoring will be enhanced by minimizing the false-positive rate. Finally, it must be noted that monitoring for these specific total metals is included in any assessment monitoring program.

By limiting the number of parameters to only those most indicative of a landfill release, the monitoring program remains effective but less burdensome to facility operators and regulatory personnel in terms of cost and time resources. Removal of the parameters noted above will streamline monitoring without compromising environmental protection.

20. Proposed Amendment 20.

811.319(a)(3)(A)(i) – Monitored Organic Constituents (New Section)

The Petitioner proposes, with the concurrence of the Illinois EPA, to add a specific list of

organic chemicals that must be monitored on a semi-annual basis. Currently, organic monitoring is performed once every year. This proposed amendment will increase that frequency to semi-annually and thus result in the receipt of data more indicative of landfill impact, which in turn enhances the level of environmental protection. The list of parameters itself essentially incorporates the federal 40 CFR 258. Appendix I organics in addition to the 40 CFR 141.40 organics. The list does eliminate certain, less mobile, semi-volatile, pesticide/herbicides, and PCBs though incorporates phenols and oil and grease. The elimination of these parameters from this list would not significantly reduce the degree of environmental protection in that nearly all detections of the listed organic compounds are represented on the proposed list. Conversely, by doubling the frequency of the most commonly detected anthropogenic and mobile constituents, the level of environmental protection afforded by the ground water monitoring program is greatly improved.

21. Proposed Amendment 21.

811.319(a)(3)(B) – Monitoring Frequency

The Petitioner, with the concurrence of the Illinois EPA, proposes to revise the existing reference to Section 811.319(a)(1)(A) to a reference to the section requiring monitoring of organic parameters at 811.319(a)(3). The Petitioner and the Illinois EPA believe that this revision merely corrects a typographical error and makes the intent of the regulations clear. There is no substantive change to the regulations by this proposed amendment.

22. Proposed Amendment 22.

811.319(a)(3)(C) – Organic Monitoring Frequency

The Petitioner, with the concurrence of the Illinois EPA, proposes two changes. First, the proposal revises the existing reference to Section 811.319(a)(1)(A) to a reference to the section requiring monitoring of organic parameters at 811.319(a)(3). The Petitioner and the Illinois EPA believe that this revision merely corrects a typographical error and makes the intent of the regulations clear. There is no substantive change to the regulations by this proposed amendment. This is the same proposed amendment as referenced in “Proposed Amendment 21.” Second, the proposed amendment increases the frequency of the referenced sampling from annual to semi-annual. This increase in sampling frequency serves to enhance the collection of relevant data. While the cost of such sampling does increase, the degree of environmental protection is also increased.

23. Proposed Amendment 23.

811.319(a)(4)(A)(i) – Confirmation Monitoring

The Petitioner, with the concurrence of the Illinois EPA, proposes two changes to this subsection. Currently, the subsection requires that confirmation monitoring shall be instituted where any constituent monitored shows a progressive increase over four monitoring events. The proposed amendments provide that confirmation monitoring shall be instituted only where any inorganic constituent monitored shows a progressive increase over eight, rather than four, consecutive

monitoring events. These proposed amendments are designed to provide greater assurance based upon statistical reliability that any identified progressive increases are due to actual contamination rather than chance. Under the current four consecutive event rule, frequent false positives are identified. Eight consecutive monitoring events reduce the chance of false positives to approximately 5% which is consistent with current US EPA guidance and best practices. This results in better and more accurate data which ultimately results in better regulatory and operational decisions. The degree of environmental protection remains at its high level and is not affected by this proposed amendment.

24. Proposed Amendment 24.

811.319(a)(4)(B)(i) -- Verification Samples

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend this subsection by allowing adequate time to verify observed constituent concentration increases and to clarify the start time for that verification. Currently, the subsection provides that an operator shall verify observed increases within 45 days of the initial observation of an increase. This 45 day window in which to sample and verify an increase is difficult to satisfy while following all the requisite data quality assurance and quality control procedures consistent with US EPA guidance. The result is increased review time, by both the operator and Illinois EPA, of data that may not be necessary. Allowing a 90 day verification process allows adequate time for an operator to sample, analyze and complete the requisite data quality assurance and quality control procedures. The 90 day verification process also allows verification sampling to potentially be conducted during the next routine quarterly sampling event, thus maximizing an operator's efficiency. Amending the initiation of the verification process from the currently required "initial observation" to the proposed "initial sampling event" is designed merely to clarify the starting point for the 90 day verification process. Neither of these proposed amendments alters the purpose, effect, or degree of environmental protection reflected in the rule. In fact, completion of important quality control functions insures more reliable data are collected at the site and used to populate statistical control programs and data management programs which results in improved environmental protection and a better basis for regulatory decisions.

25. Proposed Amendment 25.

811.319(a)(4)(B)(iii) -- Notice of Confirmation and Source Determination

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend this subsection by requiring an operator that has confirmed an increase in the concentration of a constituent to submit its determination as to the source of the increase within 180 days of the original sampling event. In addition, this submittal must be in the form of a "significant permit modification." This proposed amendment establishes a much more rigorous procedure than is now in place and is therefore more protective of the environment. Current practice is for an operator to submit a letter to the Illinois EPA discussing the confirmed increase and the operator's determination as to the source of the increase. Under the proposed amendment, the 180 day time frame from the original sampling event accounts for the 90 day resample date and allows the operator sufficient time to

adequately investigate the increase. In addition, the requirement that the notification be submitted as a significant modification permit submittal provides the Illinois EPA with an appropriate procedural mechanism to review, comment, and ultimately approve (or disapprove) the submittal thereby ensuring a quality review and administrative finality.

26. Proposed Amendment 26.

811.319(b)(2) -- Assessment Monitoring, Timing of Plan Filing

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend this subsection by requiring an operator that is required to submit an assessment monitoring program plan to submit such plans within 180 days of the original sampling event. The proposed amendment also requires implementation of the assessment monitoring program within that same 180 days from the original sampling event for unpermitted facilities and 45 days after Illinois EPA approval of the program for permitted facilities. This proposed amendment establishes a much more specific timeline for action.

Currently, no specific time frame is required for submittal of the assessment monitoring program plans for either permitted or unpermitted facilities. Rather, the only time frame in the current rule is that the assessment monitoring program must be implemented within 90 days of monitored increase confirmation at unpermitted facilities and within 90 days of Illinois EPA approval of the significant permit modification submittal at permitted facilities. By amending the rule as proposed (tied to the original sampling event) a much more definite implementation time is established for unpermitted facilities to implement the assessment monitoring program. Likewise, the proposed amendment establishes a faster implementation time for permitted facilities as well reducing the time for implementation of the assessment monitoring program from 90 to 45 days. Both proposed amendments result in more expeditious response to confirmed monitored increases which in turn enhances environmental protection.

27. Proposed Amendment 27.

811.319(b)(5)(A) – Assessment Monitoring, Additional Constituents

The Petitioner, at the suggestion of the Illinois EPA (and therefore with its concurrence) , proposes to amend this subsection by making certain minor clarifications. First, a reference to subsection (b)(1)(A) is amended by deleting the reference to “(A)”. This amendment, retaining the reference to (b)(1) simply corrects a typographical error and broadens the reference to include (b)(1)(A), (B), and (C). Second, the word “shall” has been replaced with “must.” Third, the subsection is amended to include a reference to additional constituents (in addition to those constituents currently referenced at 40 CFR 258. Appendix II) that must be tested for by referencing 35 Ill. Adm. Code 620.410. These additional constituents serve to increase environmental protection.

28. Proposed Amendment 28.

811.319(b)(5)(D) – Assessment Monitoring, Timing

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend this subsection by clarifying that the expanded list of constituents to be monitored for must be monitored on an annual basis, and that any constituents detected under the expanded monitoring list must be monitored on a semi-annual basis. The first proposed amendment simply changes the term “shall” to “must.” This amendment is being proposed at the suggestion of the Illinois EPA to reflect the Pollution Control Board’s current usage. The second amendment provides that any constituents on the expanded monitoring list (40 CFR 258.Appendix II and 35 Ill.Adm. Code 620.410) that are detected in the initial sampling must be monitored for on a semi-annual basis. The third amendment proposes that the expanded monitoring list be monitored on an annual basis. These changes are designed to generate more accurate information. The degree of environmental protection is increased in light of the expanded mandatory list of constituents to be monitored for, while focusing on those constituents of concern that have been identified. The proposed amendment retains testing on a comprehensive basis annually.

29. Proposed Amendment 29.

811.319(b)(5)(E) – Assessment Monitoring, Constituents

The Petitioner, with the concurrence of the Illinois EPA proposes to amend this subsection merely to reflect the expanded list of constituents to be monitored for during an assessment program, namely the addition of those constituents appearing at 35 Ill.Adm. Code 620.410, and to keep the requirements of this subsection consistent with earlier (proposed) amendments. There is no substantive change to the regulations by this proposed amendment.

30. Proposed Amendment 30.

811.319(b)(5)(G) – Assessment Monitoring, Constituents

The Petitioner, with the concurrence of the Illinois EPA proposes to amend this subsection merely to reflect the expanded list of constituents to be monitored for during an assessment program, namely the addition of those constituents appearing at 35 Ill.Adm. Code 620.410, and to keep the requirements of this subsection consistent with earlier (proposed) amendments. There is no substantive change to the regulations by this proposed amendment.

31. Proposed Amendment 31.

811.319(d)(1)(A) -- Assessment Monitoring, Capitalization Correction.

The Petitioner, with the concurrence of the Illinois EPA, proposes only to correct an error in capitalization. There is no substantive change to the regulations by this proposed amendment.

32. Proposed Amendment 32.

811.319(d)(3)(A) -- Assessment Monitoring, Reference Clarification

The Petitioner, with the concurrence of the Illinois EPA, proposes only to correct a typographical error. The word “assessment” was previously omitted. The change simply provides consistency with related regulations, such as 811.319(c). There is no substantive change to the regulations by this proposed amendment.

33. Proposed Amendment 33.

811.320(a)(3)(B) – Groundwater Quality Standards, Board Established Standards

At this Section the Petitioner, with the concurrence of the Illinois EPA, proposes to replace the reference to “public or food processing water supply standard at 35 Ill. Adm. Code 302” with a reference to the groundwater standards found at 35 Ill. Adm. Code 620. The reference to the public or food processing water supply standards was included in the original R88-7 Rulemaking adopted in 1990. Subsequently, with the adoption of the Illinois groundwater rules, the 620 standard with respect to groundwater has been adopted. The reference to the public or food processing standard is no longer practically or legally the most appropriate standard. Legally it appears that the public or food processing water supply standards is inapplicable to groundwater. See 35 Ill. Adm. Code 620.130. Practically, as well, groundwater at landfills is regulated under a more inclusive list of constituents found in the 620 regulations. This proposed amendment mirrors the proposed amendment at 811.315(e)(1)(G)(i).

34. Proposed Amendment 34.

811.320(b)(2) – Adjusted Groundwater Quality Standards

The Petitioner, with the concurrence of the Illinois EPA, proposes to replace the reference to 35 Ill. Adm. Code 302.301, 304 and 305 (which are “public or food processing water supply standards) with the newer groundwater quality standards at 620.410, 420, 430 and 440. This proposed amendment is designed merely to update the regulations and bring them more in line with current practice. Referencing the groundwater standards appears to be consistent with the exemptions of 35 Ill. Adm. Code 620.130 limiting the applicability of public or food processing water supply standards to groundwater. Referencing the groundwater quality standards is also more inclusive than the public or food processing water supply standards and thus these proposed amendments are more protective of the environment.

35. Proposed Amendment 35.

811.320(b)(4) – Adjusted Groundwater Quality Standards

The Petitioner, with the concurrence of the Illinois EPA, proposes to replace the reference to 35 Ill. Adm. Code 302.301, 304 and 305 (which are “public or food processing water supply standards) with the newer groundwater quality standards at 620.410, 420, 430 and 440. This proposed amendment is designed merely to update the regulations and bring them more in line with current practice. Referencing the groundwater standards appears to be consistent with the exemptions of 35 Ill. Adm. Code 620.130 limiting the applicability of public or food processing water supply standards

to groundwater. Referencing the groundwater quality standards is also more inclusive than the public or food processing water supply standards and thus these proposed amendments are more protective of the environment.

36. Proposed Amendment 36.

811.320(d)(1) – Establishment of Groundwater Background Concentration

The Petitioner, with the concurrence of the Illinois EPA, proposes to revise existing section 311.320(d) related to the establishment of background concentrations into 3 separate subsections. The substantive revisions contained in proposed subsections (d)(1) and (d)(2) are designed to allow more appropriate and accurate characterization of site background conditions consistent with US EPA guidance and current practice. This is accomplished by allowing the Illinois EPA to review more than one years worth of quarterly sampling data and, given the potential for a greater number of sampling events, by allowing non-consecutive data in certain limited circumstances. Allowing, but not requiring, more than one year of quarterly sampling is justified by the simple principle that more data provides an improved statistical basis for comparisons. The more accurate data generated by the additional data will, in the long run, reduce the frequency of both false positive and false negative results. In addition, given the increase in quarterly sampling, the proposed amendment will allow the Illinois EPA to consider non-consecutive data as long as only one quarterly sampling is absent and that the remaining data is nevertheless representative of consecutive data. In providing the opportunity to undertake more accurate statistical comparisons and a resultant improvement in both the false positive and false negative rate, the amendment provides a higher level of environmental protection. In addition, these proposed amendments reflect current US EPA guidance as well as current literature and industry practice.

37. Proposed Amendment 37.

811.320(d)(2) – Adjustment to Background Concentrations

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend existing by clarifying when adjustments to background concentrations can be made. The existing rule provides that adjustments to background concentrations can be made if changes in the background concentrations are “statistically significant.” The proposed amendments simply clarifies that in addition to being “statistically significant,” the changes must be due to either a natural temporal or spatial variability or otherwise due to an off-site source not associated with the landfill or landfill activities. This ensures that no adjustments are made that might be related to landfill operations, thus improving environmental protection. The proposal also provides that such changes may only be made once every two years. The proposed amendment also references the availability of using non-consecutive data to adjust background concentrations as long as the Illinois EPA approves. Finally, the proposed revision prohibits any adjustment under this subsection until two years after this amendment becomes final unless specifically required by the Illinois EPA.

38. Proposed Amendment 38.

811.320(d)(3) – Background Concentrations

The Petitioner, with the concurrence of the Illinois EPA, proposes only to renumber this provision currently contained within existing section 811.320(d)(1) in light of preceding additions and deletions in this Section so as to conform this provision to its proper sequential designation. There is no substantive change to the regulations by this proposed amendment.

39. Proposed Amendment 39.

811.320(d)(4) – Background Concentrations, Monitoring Wells

The Petitioner, with the concurrence of the Illinois EPA, proposes only to renumber this provision in light of preceding additions and deletions in this Section so as to conform this provision to its proper sequential designation. There is no substantive change to the regulations by this proposed amendment.

40. Proposed Amendment 40.

811.320(d)(5) – Background Concentrations, Non-Hydraulically Upgradient

The Petitioner, with the concurrence of the Illinois EPA, proposes only to renumber this provision in light of preceding additions and deletions in this Section so as to conform this provision to its proper sequential designation. There is no substantive change to the regulations by this proposed amendment.

41. Proposed Amendment 41.

811.320(d)(6) – Background Concentrations, Alternatives

The Petitioner, with the concurrence of the Illinois EPA, proposes only to renumber this provision in light of preceding additions and deletions in this Section so as to conform this provision to its proper sequential designation. There is no substantive change to the regulations by this proposed amendment.

42. Proposed Amendment 42.

811.320(e)(1) – Statistical Analysis of Groundwater Data

The Petitioner, with the concurrence of the Illinois EPA, proposes to delete existing references to specific “normal theory statistical tests” and “nonparametric statistical tests” set out in the regulations. This proposed amendment is designed to eliminate references to inappropriate tests while allowing the use of more appropriate tests consistent with US EPA guidance and practice. The

proposed amendment will not alter the regulatory scheme or impact protection to human health and the environment.

43. Proposed Amendment 43.

811.320(e)(3) – Use of the Practical Quantification Limit (“PQL”)

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend this subsection to recognize that the practical quantification limit (“PQL”) is the appropriate “level of detection” when reporting monitoring data. References to the “method detection limit” are proposed to be replaced with the use of the “practical quantification limit” (“PQL”) as the recognized “level of detection.” This codifies the present monitoring approach of reporting data to the PQL. The PQL is recognized as the lowest limit at which the analytical result can be quantified. The U.S. EPA recognizes the limits of using the method detection limit and has provided that PQL’s are much more appropriate. It also provides consistency with existing regulation 811.319(a)(4)(A). This proposed amendment is therefore designed to reflect the state of current thought and sound and practical practice in analyzing groundwater monitoring data. To ensure that the use of PQL’s remain protective of human health and the environment, the proposed amendment also provides that any established PQL shall not in any case be higher than any level established by the Board as a groundwater quality standard under the Illinois Groundwater Protection Act.

44. Proposed Amendment 44.

811.320(e)(3)(A) – Use of PQL’s

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend this subsection to reflect the changes proposed above in Section 811.320(e)(3) by deleting the reference to MDL’s and substituting the PQL. The proposed amendment also deletes a reference to the use of certain statistical tests identified at section 811.320(e)(4). As noted below, the reference to the specific statistical tests identified at section 811.320(e)(4) are proposed to be deleted and replaced by allowing additional types of statistical tests that can be demonstrated to meet current regulatory requirements and which are approved by the Illinois EPA. This proposed amendment is designed to allow more a wider range of statistical tests that may be more suitable for individual site conditions while still achieving the same, if not enhanced, data for operator and regulatory review.

45. Proposed Amendment 45.

811.320(e)(3)(B) – Alternative Groundwater Analysis Procedures

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend this subsection by deleting the reference to “data transformations,” thus making this subsection consistent with its companion section 811.320(e)(3)(A) and the usage of particular tests. The proposed amendment also allows the use of “Atchison’s adjustment” as well as the existing Cohen’s adjustment in analyzing groundwater data. This amendment merely adds an additional adjustment method (Atchison’s) that has become a standard in the industry. It is currently widely accepted. Finally, the reference to the

specific statistical tests identified at section 811.320(e)(4) are proposed to be deleted allowing additional types of statistical tests that can be demonstrated to meet current regulatory requirements and which are approved by the Illinois EPA. This proposed amendment is designed to allow more a wider range of statistical tests that may be more suitable for individual site conditions while still achieving the same, if not enhanced, data for operator and regulatory review.

46. Proposed Amendment 46.

811.320(e)(3)(C) – Alternative Groundwater Analysis Procedures

The Petitioner, with the concurrence of the Illinois EPA, proposes to amend this subsection by deleting the reference to the “test of proportions.” As noted above, the specific statistical tests currently referenced are to be deleted, thus allowing additional types of statistical tests that can be demonstrated to meet current regulatory requirements and which are approved by the Illinois EPA. This proposed amendment is designed to allow more a wider range of statistical tests that may be more suitable for individual site conditions while still achieving the same, if not enhanced, data for operator and regulatory review.

47. Proposed Amendment 47.

811.320(e)(4) – Specific Normal Theory Statistical Tests

The Petitioner, with the concurrence of the Illinois EPA, proposes to delete the majority of existing section 811.320(e)(4) which identifies specific normal theory statistical tests. Revised subsection 811.320 (e)(1) and 811.320 (e)(3) provide adequate direction to statistical procedures for normal or transformed data sets without specifying, what in some cases are, inappropriate test methods. This proposed amendment is designed simply to allow the use of more appropriate tests. The proposed amendment will not alter the regulatory scheme or impact protection to human health and the environment.

48. Proposed Amendment 48.

811.320(e)(5) – Nonparametric Statistical Tests

The Petitioner, with the concurrence of the Illinois EPA, proposes to delete portions of the section that referenced specific statistical methods and reference the use of any such tests that meet the requirements of 35 Ill. Adm. Code 724.197(i). This subsection is renumbered as 811.320(e)(4). The use of statistical tests meeting the requirements of 35 Ill. Adm. Code 724.197(i) is currently allowed. This proposed amendment is designed simply to clarify that the use of non-specified statistical tests may be allowed by the Illinois EPA where appropriate. The proposed amendment will not alter the regulatory scheme or impact protection to human health and the environment.

49. Proposed Amendment 49.

811.320(e)(6) – Other Available Statistical Tests

The Petitioner, with the concurrence of the Illinois EPA, proposes to delete existing subsection 811.320(e)(6) which allows the use of statistical tests that meet the requirements of 35 Ill. Adm. Code 724.197(i). Reference to the use of tests meeting 35 Ill. Adm. Code 724.197(i) has been incorporated into new subsection 811.320(e)(4). The proposed amendment will not alter the regulatory scheme or impact protection to human health and the environment.

IV. SYNOPSIS OF TESTIMONY

NSWMA will present testimony in support of this proposal, as may representatives of one or more of its member companies. It is also anticipated that one or more Illinois EPA witnesses will testify in support of the proposed amendments as well. This testimony will be filed with the Board in accordance with any applicable hearing officer schedule.

V. MATERIALS TO BE INCORPORATED BY REFERENCE

A complete set of materials to be incorporated by reference within the proposed rule amendment are not attached. The materials incorporated by reference in Section 810.104 are portions of federal regulations and US EPA documents consisting of approximately 1,000 pages. This reference material is likely available at the IEPA/Board library and is readily available on-line. Therefore, the Petitioner respectfully requests that the Board waive the submission of copies of the referenced incorporated materials as required under 35 Ill. Adm. Code 102.202 (d).

VI. PUBLISHED STUDIES

In conjunction with the presentation of testimony, witnesses may reference published studies or research reports used or considered in the development of these proposed amendments. At the time such testimony is pre-filed, it will also include titles and descriptions of any studies and reports relied upon by the witnesses.

VII. PETITION OF 200 SIGNATURES

Filed contemporaneously with this Petition is a Motion seeking to waive the requirements that the Petition be accompanied by 200 signatures in support of the rulemaking.

VIII. STATEMENT OF AMENDMENT OF MOST RECENT RULE VERSION

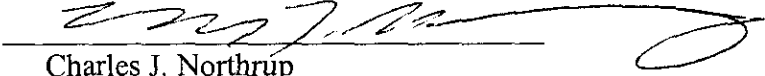
In accordance with Board Rule 101.202(h), Proponent NSWMA hereby certifies, by its attorney's signature below, that the portions of 35 Ill. Adm. Code 810 and 811 cited above and to be amended by this proposal are the most recent versions of those regulations as published on the Board's web site.

IX. **CONCLUSION**

WHEREFORE, Proponent, National Solid Wastes Management Association, with the concurrence and support of the Illinois Environmental Protection Agency, respectfully requests that the Board amend its solid waste regulations as proposed in this proposal.

Respectfully submitted

NATIONAL SOLID WASTES MANAGEMENT
ASSOCIATION

By: 
Charles J. Northrup

Sorling, Northrup, Hanna,
Cullen & Cochran, Ltd.
Charles J. Northrup, of Counsel
Suite 800 Illinois Building
P.O. Box 5131
Springfield, IL 62705
Telephone: 217.544.1144
Fax: 217.522.3173
E-Mail: cjnorthrup@sorlinglaw.com

PROOF OF SERVICE

The undersigned hereby certifies that a copy of the foregoing document was served by placing same in a sealed envelope addressed:

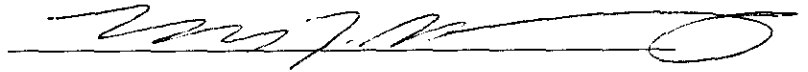
Ms. Dorothy M. Gunn
Pollution Control Board
James R. Thompson Center
100 West Randolph St., Suite 11-500
Chicago, IL 60601

General Counsel
Office of Legal Counsel
Ill. Dept. of Natural Resources
One National Resources Way
Springfield, IL 62702-1271

Mr. Matt Dunn
Environmental Bureau Chief
Office of the Attorney General
James R. Thompson Center
100 W. Randolph, 12th Floor
Chicago, IL 60601

Mr. Alec Messina
General Counsel
Illinois Environmental Protection Agency
1021 North Grand Ave. E.
P. O. Box 19276
Springfield, IL 62794-9276

and by depositing same in the United States mail in Springfield, Illinois, on the 26th day of July, 2006, with postage fully prepaid.

A handwritten signature in black ink, appearing to be "Alec Messina", written over a horizontal line.

Section 810.104 Incorporation by Reference

- a) The Board incorporates the following material by reference:
- 1) Code of Federal Regulations:

40 CFR 141.40 (1997).
40 CFR 258.Appendix I(2006).
40 CFR 258.Appendix II (~~1997~~2006).
 - 2) American Institute of Certified Public Accountants, 1211 Avenue of the Americas, New York NY 10036:

Auditing Standards--Current Text, August 1, 1990 Edition.
 - 3) ASTM. American Society for Testing and Materials, 1700 Race Street, Philadelphia PA 19103 215-299-5585:

Method D2234-76, Test Method for Collection of Gross Samples of Coal.

Method D3987-85, Standard Test Method for Shake Extraction of Solid Waste with Water.
 - 4) GASB. Government Accounting Standards Board, 401 Merritt 7, P.O. Box 5116, Norwalk CT 06856-5116:

Statement 18.
 - 5) U.S. Army Corps of Engineers, Publication Department, 2803 52nd Ave., Hyattville, Maryland 20781, 301-394-0081:

Engineering Manual 1110-2-1906 Appendix VII, Falling-Head Permeability Cylinder (1986).
 - 6) U.S. Government Printing Office, Washington, D.C. 20402, Ph: 202-783-3238:

Test Methods for Evaluating Solid Waste,
Physical/Chemical methods, EPA Publication SW-846
(Third Edition, 1986 as amended by Update I (~~November, 1990, II, II A, II B, III, III A, and III B (June, 2005):~~
- b) This incorporation includes no later amendments or editions.

(Source: Amended at 21 Ill.Reg. 15825, effective November 25, 1997)

Section 811.309 Leachate Treatment and Disposal Systems

- a) Leachate shall be allowed to flow freely from the drainage and collection system. The operator is responsible for the operation of a leachate management system designed to handle all leachate as it drains from the collection system. The leachate management system shall consist of any combination of storage, treatment, pretreatment, and disposal options designed and constructed in compliance with the requirements of this Section.
- b) The leachate management system shall consist of any combination of multiple treatment and storage structures, to allow the management and disposal of leachate during routine maintenance and repairs.
- c) Standards for Onsite Treatment and Pretreatment
 - 1) All onsite treatment or pretreatment systems shall be considered part of the facility.
 - 2) The onsite treatment or pretreatment system shall be designed in accordance with the expected characteristics of the leachate. The design may include modifications to the system necessary to accommodate changing leachate characteristics.
 - 3) The onsite treatment or pretreatment system shall be designed to function for the entire design period.
 - 4) All of the facility's unit operations, tanks, ponds, lagoons and basins shall be designed and constructed with liners or containment structures to control seepage to groundwater.
 - 5) All treated effluent discharged to waters of the State shall meet the requirements of 35 Ill. Adm. Code 309.
 - 6) The treatment system shall be operated by an operator certified under the requirements of 35 Ill. Adm. Code 312.
- d) Standards for Leachate Storage Systems
 - 1) Except as otherwise provided in subsection (d)(6) of this Section, the leachate storage facility must be able to store a minimum of at least five days' worth of accumulated leachate at the maximum generation rate used in designing the leachate drainage system in accordance with Section 811.307. The minimum storage capacity may be built up over time and in stages, so long as the capacity for five consecutive days of accumulated leachate is available at any time during the design period of the facility.

- 2) All leachate storage tanks shall be equipped with secondary containment systems equivalent to the protection provided by a clay liner 0.61 meter (2 feet thick) having a permeability no greater than 10^{-7} centimeters per second.
 - 3) Leachate storage systems shall be fabricated from material compatible with the leachate expected to be generated and resistant to temperature extremes.
 - 4) The leachate storage system shall not cause or contribute to a malodor.
 - 5) The leachate drainage and collection system shall not be used for the purpose of storing leachate.
 - 6) A facility may have less than five days' worth of storage capacity for accumulated leachate as required by subsection (d)(1) of this Section, if the owner or operator of the facility demonstrates that multiple treatment, storage and disposal options in the facility's approved leachate management system developed in accordance with subsection (b) of this Section will achieve equivalent performance. Such options shall consist of not less than one day's worth of storage capacity for accumulated leachate plus at least two alternative means of managing accumulated leachate through treatment or disposal, or both treatment and disposal, each of which means is capable of treating or disposing of all leachate generated at the maximum generation rate on a daily basis.
- e) Standards for Discharge to an Offsite Treatment Works
- 1) Leachate may be discharged to an offsite treatment works that meets the following requirements:
 - A) All discharges of effluent from the treatment works shall meet the requirements of 35 Ill. Adm. Code 309.
 - B) The treatment systems shall be operated by an operator certified under the requirements of 35 Ill. Adm. Code 312.
 - C) No more than 50 percent of the average daily influent flow can be attributable to leachate from the solid waste disposal facility. Otherwise, the treatment works shall be considered a part of the solid waste disposal facility.
 - 2) The operator is responsible for securing permission from the offsite treatment works for authority to discharge to the treatment works.

- 3) All discharges to a treatment works shall meet the requirements of 35 III. Adm. Code 310.
 - 4) Pumps, meters, valves and monitoring stations that control and monitor the flow of leachate from the unit and which are under the control of the operator shall be considered part of the facility and shall be accessible to the operator at all times.
 - 5) Leachate shall be allowed to flow into the sewage 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).
 - 6) Where leachate is not directly discharged into a sewerage system, the operator shall provide storage capacity sufficient to transfer all leachate to an offsite treatment works. The storage system shall meet the requirements of subsection (d).
- f) Standards for Leachate Recycling Systems
- 1) Leachate recycling systems may be utilized only at permitted waste disposal units that meet the following requirements:
 - A) The unit must have a liner designed, constructed and maintained to meet the minimum standards of Section 811.306.
 - B) The unit must have a leachate collection system in place and operating in accordance with Section 811.307.
 - C) A gas management system, equipped with a mechanical device such as a compressor to withdraw gas, must be implemented to control odors and prevent migration of methane in accordance with Section 811.311.
 - D) The topography must be such that any accidental leachate runoff can be controlled by ditches, berms or other equivalent control means.
 - 2) Leachate shall not be recycled during precipitation events or in volumes large enough to cause runoff or surface seeps.
 - 3) The amount of leachate added to the unit shall not exceed the ability of the waste and cover soils to transmit leachate flow downward. All other leachate shall be considered excess leachate, and a leachate management system capable of disposing of all excess leachate must be available.

- 4) The leachate storage and distribution system shall be designed to avoid exposure of leachate to air unless aeration or functionally equivalent devices are utilized.
- 5) The distribution system shall be designed to allow leachate to be evenly distributed beneath the surface over the recycle area.
- 6) Daily and intermediate cover shall be permeable to the extent necessary to prevent the accumulation of water and formation of perched watertables and gas buildup; alternatively cover shall be removed prior to additional waste placement.
- 7) Daily and intermediate cover shall slope away from the perimeter of the site to minimize surface discharges.

g) Leachate Monitoring

- 1) Representative samples of leachate shall be collected from each established leachate monitoring location ~~and tested in accordance with subsection (g)(5) and tested for the parameters referenced in (g)(2)(G) and (g)(3)(D) at a frequency of once per quarter until such time as samples have been obtained and tested for at least eight quarters. If for any reason insufficient leachate is obtained to yield a sample for testing during a given quarterly monitoring attempt, such attempt shall not count toward the eight quarters' leachate monitoring requirement. Thereafter, the frequency of testing shall be changed to semi-annual for any monitored constituent while the leachate management system is in operation. However, the~~ The Agency may, by permit condition, require additional, or allow less, leachate sampling and testing as necessary to ensure compliance with this Section and Sections 811.312, 811.317, and 811.319.
- 2) Discharges of leachate from units that dispose of putrescible wastes shall be tested for the following constituents prior to treatment or pretreatment:
 - A) Five day biochemical oxygen demand (BOD₅);
 - B) Chemical oxygen demand;
 - C) Total Suspended Solids;
 - D) Total Iron;
 - E) pH;
 - F) Any other constituents listed in the operator's National Pollution Discharge Elimination System (NPDES) discharge permit,

pursuant to 35 Ill. Adm. Code 304, or required by a publicly owned treatment works, pursuant to 35 Ill. Adm. Code 310; and

- G) ~~All of the indicator constituents chosen in accordance with Section 811.319(a)(2)(B) and used by the operator for groundwater monitoring~~ the monitoring parameters listed in Section 811. Appendix C, unless an alternate monitoring list has been approved by the Agency.
- 3) Discharges of leachate from units which dispose only chemical wastes shall be monitored for constituents determined by the characteristics of the chemical waste to be disposed of in the unit. They shall include, as a minimum:
- A) pH;
 - B) Total Dissolved Solids;
 - C) Any other constituents listed in the operator's NPDES discharge permit, pursuant to 35 Ill. Adm. Code 304, or required by a publicly owned treatment works, pursuant to 35 Ill. Adm. Code 310; and
 - D) ~~All of the indicator constituents chosen in accordance with Section 811.319(a)(2)(B) and used by the operator for groundwater monitoring.~~ All the monitoring parameters listed in Section 811. Appendix C, unless an alternate monitoring list has been approved by the Agency.
- 4) A network of leachate monitoring locations shall be established, capable of characterizing the leachate produced by the unit. Unless an alternate network has been approved by the Agency, the network of leachate monitoring locations shall include:
- A) At least four leachate monitoring locations; and
 - B) At least one leachate monitoring location for every 25 acres within the unit's waste boundaries.
- 5) Leachate monitoring shall be performed at least once every six months and each established leachate monitoring location shall be monitored at least once every two years.

h) Time of Operation of the Leachate Management System

- 1) The operator shall collect and dispose of leachate for a minimum of five years after closure and thereafter until treatment is no longer necessary.
- 2) Treatment is no longer necessary if the leachate constituents do not exceed the wastewater effluent standards in 35 Ill. Adm. Code 304.124, 304.125, 304.126 and do not contain a BODE[5] concentration greater than 30 mg/L for six consecutive months.
- 3) Leachate collection at a MSWLF unit shall be continued for a minimum period of 30 years after closure, except as otherwise provided by subsections (h)(4) and (h)(5), below.
- 4) The Agency may reduce the leachate collection period at a MSWLF unit upon a demonstration by the owner or operator that the reduced period is sufficient to protect human health and environment.
- 5) The owner or operator of a MSWLF unit shall petition the Board for an adjusted standard in accordance with Section 811.303, if the owner or operator seeks a reduction of the postclosure care monitoring period for all of the following requirements:
 - i) Inspection and maintenance (Section 811.111);
 - ii) Leachate collection (Section 811.309);
 - iii) Gas monitoring (Section 811.130); and
 - iv) Groundwater monitoring (Section 811.319).

BOARD NOTE: Subsection (h) is derived from 40 CFR 258.61 (1992).

(Source: Amended at 22 Ill. Reg. 11491, effective June 23, 1998)

Section 811.Appendix C

Elevation Leachate Surface
Bottom of Well Elevation
Leachate Level from Measuring Point
1,1,1,2-Tetrachloroethane
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1,2-Trichloroethane
1,1-Dichloroethane
1,1-Dichloroethylene
1,1-Dichloropropene
1,2,3-Trichlorobenzene
1,2,3-Trichloropropane
1,2,4-Trichlorobenzene
1,2,4-Trimethylbenzene
1,2-Dibromo-3-Chloropropane
1,2-Dichloroethane
1,2-Dichloropropane
1,3,5-Trimethylbenzene
1,3-Dichloropropane
1,3-Dichloropropene
1,4-Dichloro-2-Butene
1-Propanol
2,2-Dichloropropane
2,4,5-tp (Silvex)
2,4,6-Trichlorophenol
2,4-Dichlorophenol
2,4-Dichlorophenoxyacetic Acid (2,4-D)
2,4-Dimethylphenol
2,4-Dinitrotoluene
2,4-Dinitrophenol
2,6-Dinitrotoluene
2-Chloroethyl Vinyl Ether
2-Chloronaphthalene
2-Chlorophenol
2-Hexanone
2-Propanol (Isopropyl Alcohol)
3,3-Dichlorobenzidine
4,4-DDD
4,4-DDE
4,4-DDT
4,6-Dinitro-O-Cresol
4-Bromophenyl Phenyl Ether
4-Chlorophenyl Phenyl Ether
4-Methyl-2-Pentanone

Carbon Disulfide
Carbon Tetrachloride
Chemical Oxygen Demand (COD)
Chlordane
Chloride mg/l
Chlorobenzene
Chloroethane
Chloroform
Chloromethane
Chromium (hexavalent)
Chromium (total)
Chrysene
Cis-1,2-Dichloroethylene
Cobalt (total)
Copper (total)
Cyanide
DDT
Delta – BHC
Di-N-Butyl Phthalate
Di-N-Octyl Phthalate
Dibenzo (a,h) Anthracene
Dibromochloromethane
Dibromomethane
Dichlorodifluormethane
Dieldrin
Diethyl Phthalate
Dimethyl Phthalate
Endosulfan I
Endosulfan II
Endosulfan Sulfate
Endrin
Endrin Aldehyde
Ethyl Acetate
Ethylbenzene
Ethylene Dibromide (EDB)
Fluoranthene
Fluorene
Fluoride
Heptachlor Epoxide
Heptachlor
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Ideno (1,2,3-cd) Pyrene
Iodomethane

Isopropylbenzene
Lead (total)
Lindane
Magnesium (total)
Manganese (total)
Mercury (total)
Methoxychlor
Methyl Chloride
Methyl Ethyl Ketone
Methylene Bromide
Methylene Chloride
Naphthalene
Nickel (total)
Nitrate-Nitrogen
Nitrobenzene
Oil, Hexane Soluble (or Equivalent)
Parathion
Pentachlorophenol
Phenanthrene
Phenols
Phosphorous
Polychlorinated Biphenyls
Potassium
Pyrene
Selenium
Silver (total)
Specific Conductance
Sodium
Styrene
Sulfate
Temperature of Leachate Sample
Tert-Butylbenzene
Tetrachlorodibenzo-p-Dioxins
Tetrachloroethylene
Tetrahydrofuran
Thallium
Tin
Toluene
Total Organic Carbon (TOC)
Total Suspended Solids
Toxaphene
Trans-1,2-Dichloroethylene
Trans-1,3-Dichloropropene
Trichloroethylene
Trichlorofluoromethane
Vinyl Acetate

Vinyl Chloride
Xylene
Zinc (total)
m-Dichlorobenzene
m-Xylene
n-Butylbenzene
n-Nitrosodimethylamine
n-Nitrosodiphenylamine
n-Nitrosodipropylamine
n-Propylbenzene
o-Chlorotoluene
o-Dichlorobenzene
o-Nitrophenol
o-Xylene
p-Chlorotoluene
p-Cresol
p-Dichlorobenzene
p-Isopropyltoluene
p-Nitrophenol
p-Xylene
sec-Butylbenzene

Note: All parameters shall be determined from unfiltered samples.

Section 811.315 Hydrogeologic Site Investigations

a) Purpose

The operator shall conduct a hydrogeologic investigation to develop hydrogeologic information for the following uses:

- 1) Provide information to perform a groundwater impact assessment; and
- 2) Provide information to establish a groundwater monitoring system.

b) General Requirements

- 1) The investigation shall be conducted in a minimum of three phases prior to submission of any application to the Agency for a permit to develop and operate a landfill facility.
- 2) The study area shall consist of the entire area occupied by the facility and any adjacent related areas, if necessary for the purposes of the hydrogeological investigation set forth in subsection (a).
- 3) All borings shall be sampled continuously at all recognizable points of geologic variation, except that where continuous sampling is impossible or where non-continuous sampling can provide equivalent information, samples shall be obtained at intervals no greater than 1.52 meters (five feet) in homogeneous strata.

c) Minimum Requirements For a Phase I Investigation

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

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

d) Minimum Requirements For A Phase II Investigation

1) Information to be developed

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

- A) Structural characteristics and distribution of underlying strata including bedrock;
- B) Chemical and physical properties including, but not limited to, lithology, mineralogy, and hydraulic characteristics of underlying strata including those below the uppermost aquifer;
- C) Soil characteristics, including soil types, distribution, geochemical and geophysical characteristics;
- D) The hydraulic conductivities of the uppermost aquifer and all strata above it;
- E) The vertical extent of the uppermost aquifer;
- F) The direction and rate of groundwater flow.

2) Specific Requirements

- A) One boring shall be located as close as feasible to the topographical high point, and another shall be located as close as feasible to the topographical low point of the study area.
 - B) At least one boring shall be at or near each corner of the site. Where the property is irregularly shaped the borings shall be located near the boundary in a pattern and spacing necessary to obtain data over the entire study area.
 - C) Additional borings may be located at intermediate points at locations and spacings necessary to establish the continuity of the stratigraphic units.
 - D) Piezometers and groundwater monitoring wells shall be established to determine the direction and flow characteristics of the groundwater in all strata and extending down to the bottom of the uppermost aquifer. Groundwater samples taken from such monitoring wells shall be used to develop preliminary information needed for establishing background concentrations in accordance with subsection (e)(1)(G).
 - E) Other methods may be utilized to confirm or accumulate additional information. Such methods may be used only as a supplement to, not in lieu of, site-specific boring information. Other methods include, but are not limited to, geophysical well logs, geophysical surveys, aerial photography, age dating, and test pits.
- e) Minimum Standards For A Phase III Investigation
- 1) Using the information developed during the Phase I and Phase II Investigations, the operator shall conduct a Phase III Investigation. This investigation shall be conducted to collect or augment the site-specific information needed to carry out the following:
 - A) Verification and reconciliation of the information collected in the Phase I and II investigations;
 - B) Characterization of potential pathways for contaminant migration;
 - C) Correlation of stratigraphic units between borings;
 - D) Continuity of petrographic features including, but not limited to, sorting, grain size distribution, cementation and hydraulic conductivity;

- E) Identification of zones of potentially high hydraulic conductivity;
 - F) Identification of the confining layer, if present;
 - G) Concentrations of chemical constituents present in the groundwater below the unit, down to the bottom of the uppermost aquifer, using a broad range of chemical analysis and detection procedures such as, gas chromatographic and mass spectrometric scanning. However, additional measurements and procedures shall be carried out to establish background concentrations, in accordance with Section 811.320(d), for:
 - i) Any constituent for which there is a ~~public or food processing water supply~~ standard at 35 Ill. Adm. Code ~~302620~~ established by the Board and which is expected to appear in the leachate; and
 - ii) Any other constituent for which there is no Board-established standard, but which is expected to appear in the leachate at concentrations above PQL, as defined in Section 811.319(a)(4)(A) for that constituent;
 - H) Characterization of the seasonal and temporal, naturally and artificially induced, variations in groundwater quality and groundwater flow; and
 - I) Identification of unusual or unpredicted geologic features, including: fault zones, fracture traces, facies changes, solution channels, buried stream deposits, cross cutting structures and other geologic features that may affect the ability of the operator to monitor the groundwater or predict the impact of the disposal facility on groundwater.
- 2) In addition to the specific requirements applicable to phase I and II investigations, the operator shall collect information needed to meet the minimum standards of a phase III investigation by using methods that may include, but not limited to excavation of test pits, additional borings located at intermediate points between boreholes placed during phase I and II investigations, placement of piezometers and monitoring wells, and institution of procedures for sampling and analysis.
- f) The operator may conduct the hydrogeologic investigation in any number of alternative ways provided that the necessary information is collected in a systematic sequence consisting of at least three phases that is equal to or superior to the investigation procedures of this Section.

Section 811.318

Design, Construction, and Operation of Groundwater Monitoring Systems

- a) All potential sources of discharges to groundwater within the facility, including, but not limited to, all waste disposal units and the leachate management system, shall be identified and studied through a network of monitoring wells operated during the active life of the unit and for the time after closure specified in accordance with Section 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 well location, well size, type of well, the design and construction practice used in its installation and well and screen depths.

- b) Standards for the Location of Monitoring Points
 - 1) A network of monitoring points shall be established at sufficient locations downgradient with respect to groundwater flow and not excluding the downward direction, to detect any discharge of contaminants from any part of a potential source of discharge.
 - 2) Monitoring wells shall be located in stratigraphic horizons that could serve as contaminant migration pathways.
 - 3) Monitoring wells shall be established as close to the potential source of discharge as possible without interfering with the waste disposal operations, and within half the distance from the edge of the potential source of discharge to the edge of the zone of attenuation downgradient, with respect to groundwater flow, from the source.
 - 4) The network of monitoring points of several potential sources of discharge within a single facility may be combined into a single monitoring network, provided that discharges from any part of all potential sources can be detected.
 - 5) A minimum of at least one monitoring well shall be established at the edge of the zone of attenuation and shall be located downgradient with respect to groundwater flow and not excluding the downward direction, from the unit. Such well or wells shall be used to monitor any statistically significant increase in the concentration of any constituent, in accordance with Section 811.320(e) and shall be used for determining compliance with an applicable groundwater quality standard of Section 811.320. An observed statistically significant increase above the applicable groundwater quality standards of Section 811.320 in a well located at or beyond the compliance boundary shall constitute a violation.

- c) Maximum Allowable Predicted Concentrations

The operator shall use the same calculation methods, data, and assumptions as used in the groundwater impact assessment to 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 concentrations (MAPC) at each monitoring point. The MAPCs calculated in this subsection shall be applicable within the zone of attenuation.

d) Standards for Monitoring Well Design and Construction

- 1) All monitoring wells shall be cased in a manner that maintains the integrity of the bore hole. The casing material shall be inert so as not to affect the water sample. Casing requiring solvent-cement type couplings shall not be used.
- 2) Wells shall be screened to allow sampling only at the desired interval. Annular space between the borehole wall and well screen section shall be packed with gravel sized to avoid clogging by the material in the zone being monitored. The slot size of the screen shall be designed to minimize clogging. Screens shall be fabricated from material expected to be inert with respect to the constituents of the groundwater to be sampled.
- 3) Annular space above the well screen section shall be sealed with a relatively impermeable, expandable material such as a cement/bentonite grout, which does not react with or in any way affect the sample, in order to prevent contamination of samples and groundwater and avoid interconnections. The seal shall extend to the highest known seasonal groundwater level.
- 4) The annular space shall be back-filled with expanding cement grout from an elevation below the frost line and mounded above the surface and sloped away from the casing so as to divert surface water away.
- 5) The annular space between the upper and lower seals and in the unsaturated zone may be back-filled with uncontaminated cuttings.
- 6) All wells shall be covered with vented caps and equipped with devices to protect against tampering and damage.
- 7) All wells shall be developed to allow free entry of water, minimize turbidity of the sample, and minimize clogging.
- 8) The transmissivity of the zone surrounding all well screens shall be established by field testing techniques.

- 9) Other sampling methods and well construction techniques may be utilized if they provide equal or superior performance to the requirements of this subsection.

e) Standards for Sample Collection and Analysis

- 1) The groundwater monitoring program shall include consistent sampling and analysis procedures to assure that monitoring results can be relied upon to provide data representative of groundwater quality in the zone being monitored.
- 2) The operator shall utilize procedures and techniques to insure that collected samples are representative of the zone being monitored and that prevent cross contamination of samples from other monitoring wells or from other samples. At least 95 percent of a collected sample shall consist of groundwater from the zone being monitored.
- 3) The operator shall establish a quality assurance program that provides quantitative detection limits and the degree of error for analysis of each chemical constituent.
- 4) The operator shall establish a sample preservation and shipment procedure that maintains the reliability of the sample collected for analysis.
- 5) The operator shall institute a chain of custody procedure to prevent tampering and contamination of the collected samples prior to completion of analysis.
- 6) At a minimum, the operator shall sample the following parameters at all wells at the time of sample collection and immediately before filtering and preserving samples for shipment:
 - A) The elevation of the water table;
 - ~~B) The depth of the well below ground;~~
 - B) pH;
 - C) ~~pH;~~ D) The temperature of the sample; and
 - E) Specific Conductance.
- 7) The operator must measure the depth of the well below ground on an annual basis, at wells that do not contain dedicated pumps. The operator must measure the depth of the well below ground every 5 years, or whenever the pump is pulled, in wells with dedicated pumps.

8) In addition to the requirements of subsections (e)(1) through (e)(6), the following requirements shall apply to MSWLF units:

A) Each time groundwater is sampled, an owner or operator of a MSWLF unit shall:

- i) Measure the groundwater elevations in each well immediately prior to purging; and
- ii) Determine the rate and direction of ground-water flow.

B) An owner or operator shall measure groundwater elevations in wells which monitor the same waste management area within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.

BOARD NOTE: Subsection (e)(7) is derived from 40 CFR 258.53(d) (1992).

(Source: Amended in R93-10 at 18 Ill. Reg. 1308, effective January 13, 1994)

Section 811.319 Groundwater Monitoring Programs

a) Detection Monitoring Program

Any use of the term maximum allowable predicted concentration in this Section is a reference to Section 811.318(c). The operator shall implement a detection monitoring program in accordance with the following requirements:

1) Monitoring Schedule and Frequency

- A) The monitoring period shall begin as soon as waste is placed into the unit of a new landfill or within one year of the effective date of this Part for an existing landfill. Monitoring shall continue for a minimum period of fifteen years after closure, or in the case of MSWLF units, a minimum period of 30 years after closure, except as otherwise provided by subsection (a)(1)(C) of this Section. The operator shall sample all monitoring points for all potential sources of contamination on a quarterly basis except as specified in subsection (a)(3), for a period of five years from the date of issuance of the initial permit for significant modification under 35 Ill. Adm. Code 814.104 or a permit for a new unit pursuant to 35 Ill. Adm. Code 813.104. After the initial five-year period, the sampling frequency for each monitoring point shall be reduced to a semi-annual basis, provided the operator has submitted the certification described in 35 Ill. Adm. Code 813.304(b). Alternatively, after the initial five-year period, the Agency shall allow sampling on a semi-annual basis where the operator demonstrates that monitoring effectiveness has not been compromised, that sufficient quarterly data has been collected to characterize groundwater, and that leachate from the monitored unit does not constitute a threat to groundwater. For the purposes of this Section, the source shall be considered a threat to groundwater if the results of the monitoring indicate either that the concentrations of any of the constituents monitored within the zone of attenuation is above the maximum allowable predicted concentration for that constituent or, for existing landfills, subject to 35 Ill. Adm. Code 814, Subpart D, that the concentration of any constituent has exceeded the applicable standard at the compliance boundary as defined in 35 Ill. Adm. Code 814.402(b)(3).
- B) Beginning fifteen years after closure of the unit, or five years after all other potential sources of discharge no longer constitute a threat to groundwater, as defined in subsection (a)(1)(A), the monitoring frequency may change on a well by well basis to an annual schedule if either of the following conditions exist. However, monitoring shall return to a quarterly schedule at any well where a

statistically significant increase is determined to have occurred in accordance with Section 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 ten percent of the maximum allowable predicted concentration; or
 - ii) All constituents monitored within the zone of attenuation are less than or equal to their maximum allowable predicted concentration for eight consecutive quarters.
- C) Monitoring shall be continued for a minimum period of: thirty years after closure at MSWLF units, except as otherwise provided by subsections (a)(1)(D) and (a)(1)(E), below; five years after closure at landfills, other than MSWLF units, which are used exclusively for disposing waste generated at the site; or fifteen years after closure at all other landfills regulated under this Part. Monitoring, beyond the minimum period, may be discontinued under the following conditions:
- i) No statistically significant increase is detected in the concentration of any constituent above that measured and recorded during the immediately preceding scheduled sampling for three consecutive years, after changing to an annual monitoring frequency; or
 - ii) Immediately after contaminated leachate is no longer generated by the unit.
- D) The Agency may reduce the groundwater monitoring period at a MSWLF unit upon a demonstration by the owner or operator that the reduced period is sufficient to protect human health and environment.
- E) An owner or operator of a MSWLF unit shall petition the Board for an adjusted standard in accordance with Section 811.303, if the owner or operator seeks a reduction of the postclosure care monitoring period for all of the following requirements:
- i) Inspection and maintenance (Section 811.111);
 - ii) Leachate collection (Section 811.309);
 - iii) Gas monitoring (Section 811.310); and

- iv) Groundwater monitoring (Section 811.319).

BOARD NOTE: Changes to subsections (a)(1)(A) and (a)(1)(C), and subsections (a)(1)(D) and (a)(1)(E) are derived from 40 CFR 258.61 (1992).

2) Criteria for Choosing Constituents to be Monitored

- A) The operator shall monitor each well for constituents that will provide a means for detecting groundwater contamination. Constituents shall be chosen for monitoring if they meet the following requirements:

- i) The constituent appears in, or is expected to be in, the leachate; and
- ii) Is contained within the following list of constituents.

Ammonia – Nitrogen (dissolved)
Arsenic (dissolved)
Boron (dissolved)
Cadmium (dissolved)
Chloride (dissolved)
Chromium (dissolved)
Cyanide (total)
Lead (dissolved)
Magnesium (dissolved)
Mercury (dissolved)
Nitrate (dissolved)
Sulfate (dissolved)
Total Dissolved Solids (TDS)
Zinc (dissolved)

- ~~ii) The Board has established for the constituent a public or food processing water supply standard, at 35 Ill. Adm. Code 302, the Board has established a groundwater quality standard under the Illinois Groundwater Protection Act [415 ILCS 55], or the constituent may otherwise cause or contribute to groundwater contamination.~~

Note: This is the minimum list for MSWLFs. Any facility accepting more than 50% by volume non-municipal must determine additional indicator parameters based upon leachate characteristic and waste content.

- B) One or more indicator constituents, representative of the transport processes of constituents in the leachate, may be chosen for

monitoring in place of the constituents it represents. The use of such indicator constituents must be included in an Agency approved permit.

3) Organic Chemicals Monitoring

The operator shall monitor each existing well that is being used as a part of the monitoring well network at the facility within one year of the effective date of this Part, and monitor each new well within the three months of its establishment. The monitoring required by this subsection shall be 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 tests for;

i) The 51 organic chemicals in drinking water described at 40 CFR 141.40 (1988) and 40 CFR 258. Appendix I (2005), incorporated by reference at 35 Ill. Adm. Code 810.104; and

ii) ~~Any other organic chemical for which a groundwater quality standard or criterion has been adopted pursuant to Section 14.4 of the Act or Section 8 of the Illinois Groundwater Protection Act.~~

Acetone

Acrylonitrile

Benzene

Bromobenzene

Bromochloromethane

Bromodichloromethane

Bromoform; Tribromomethane

n-Butylbenzene

sec-Butylbenzene

tert-Butylbenzene

Carbon disulfide

Carbon tetrachloride

Chlorobenzene

Chloroethane

Chloroform; Trichloromethane

o-Chlorotoluene

p-Chlorotoluene

Dibromochloromethane

1,2-Dibromo-3-chloropropane

1,2-Dibromoethane

1,2-Dichlorobenzene

1,3-Dichlorobenzene
1,4-Dichlorobenzene
trans-1,4-Dichloro-2-butene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
cis-1,2-Dichloroethylene
trans-1,2-Dichloroethylene
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene
1,3-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
Hexachlorobutadiene
2-Hexanone; Methyl butyl ketone
Isopropylbenzene
p-Isopropyltoluene
Methyl bromide; Bromomethane
Methyl chloride; Chloromethane
Methylene bromide; Dibromomethane
Dichloromethane
Methyl ethyl ketone
Methyl iodide; Iodomethane
4-Methyl-2-pentanone
Naphthalene
Oil and Grease (hexane soluble)
n-Propylbenzene
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethylene
Tetrahydrofuran
Toluene
Total Phenolics
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethylene
Trichlorofluoromethane
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene

1,3,5-Trimethylbenzene

Vinyl acetate

Vinyl chloride

Xylenes

- B) At least once every two years, the operator shall monitor each well in accordance with subsection (a)(~~1~~3)(A).
- C) The operator of a MSWLF unit shall monitor each well in accordance with subsection (a)(~~1~~3)(A) on a semi-annual basis.

BOARD NOTE: Subsection (a)(3)(C) is derived from 40 CFR 258.54(b) (1992).

4) Confirmation of Monitored Increase

- A) The confirmation procedures of this subsection shall be used only if the concentrations of the constituents monitored can be measured at or above the practical quantitation limit (PQL). The PQL is defined as the lowest concentration that can be reliably measured within specified limits of precision and accuracy, under routine laboratory operating conditions. The operator shall institute the confirmation procedures of subsection (a)(4)(B) after notifying the Agency in writing, within ten days, of observed increases:
 - i) The concentration of any inorganic constituent monitored in accordance with subsection (a)(1) and (a)(2) shows a progressive increase over ~~four~~eight consecutive monitoring events;
 - 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 standards of Section 811.320.
- B) The confirmation procedures shall include the following:

- i) The operator shall verify any observed increase by taking additional samples within ~~45~~90 days of the initial ~~observationsampling event~~ and ensure that the samples and sampling protocol used will detect any statistically significant increase in the concentration of the suspect constituent in accordance with Section 811.320(e), so as to confirm the observed increase. The operator shall notify the Agency of any confirmed increase before the end of the next business day following the confirmation.
- ii) The operator shall determine the source of any confirmed increase, which may include, but shall not be limited to, natural phenomena, sampling or analysis errors, or an offsite source.
- iii) The operator shall notify the Agency in writing of any confirmed increase ~~and~~. The notification must state the source of the confirmed increase and provide the rationale used in such a determination within ten days of the determination. The notification must be submitted to the Agency no later than 180 days of the original sampling event. If the facility is permitted by the Agency, the notification must be filed for review as a significant permit modification pursuant to 35 Ill. Adm. Code 813.Subpart B.

b) Assessment Monitoring

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 assessment in accordance with subsection (c). The assessment monitoring program shall be conducted in accordance with the following requirements:

- 1) The assessment monitoring shall be conducted in accordance with this subsection to collect information to assess the nature and extent of groundwater contamination. The owner or operator of a MSWLF unit shall comply with the additional requirements prescribed in subsection (b)(5). The assessment monitoring shall consist of monitoring of additional constituents that might indicate the source and extent of contamination. In addition, assessment monitoring may include any other investigative techniques that will assist in determining the source, nature and extent of the contamination, which may consist of, but need not be limited to:
 - A) More frequent sampling of the wells in which the observation occurred;

- B) More frequent sampling of any surrounding wells; and
 - C) The placement of additional monitoring wells to determine the source and extent of the contamination.
- 2) ~~The~~ Except as provided for in 811.319(a)(4)(B)(iii), the operator of the facility for which assessment monitoring is required shall file the plans for an assessment monitoring program with the Agency. If the facility is permitted by the Agency, then the plans shall be filed for review as a significant permit modification pursuant to 35 Ill. Adm. Code 813. Subpart B within 180 days of the original sampling event. The assessment monitoring program shall be implemented within ~~90~~180 days of ~~confirmation of any monitored increase~~ the original sampling event in accordance with subsection (a)(4) or, in the case of permitted facilities, within ~~90~~45 days of Agency approval.
- 3) If the analysis of the assessment monitoring data shows that the concentration of one or more constituents, monitored at or beyond the zone of attenuation is above the applicable groundwater quality standards of Section 811.320 and is attributable to the solid waste disposal facility, then the operator shall determine the nature and extent of the groundwater contamination including an assessment of the potential impact on the groundwater should waste continue to be accepted at the facility and shall implement the remedial action in accordance with subsection (d).
- 4) If the analysis of the assessment monitoring data shows that the concentration of one or more constituents is attributable to the solid waste disposal facility and exceeds the maximum allowable predicted concentration within the zone of attenuation, then the operator shall conduct a groundwater impact assessment in accordance with the requirements of subsection (c).
- 5) In addition to the requirements of subsection (b)(1), to collect information to assess the nature and extent of groundwater contamination, the following requirements are applicable to MSWLF units:
- A) The monitoring of additional constituents pursuant to (b)(1)(A) shall must include, at a minimum (except as otherwise provided in subsection (b)(5)(E) of this Section), the constituents listed in 40 CFR 258. Appendix II, incorporated by reference at 35 Ill. Adm. Code 810.104.810.104 and constituents from 35 Ill. Adm. Code 620.410.

BOARD NOTE: Subsection (b)(5)(A) is derived from 40 CFR 258.55(b) (1992).

B) Within 14 days of obtaining the results of sampling required under subsection (b)(5)(A), the owner or operator shall:

- i) Place a notice in the operating record identifying the constituents that have been detected; and
- ii) Notify the Agency that such a notice has been placed in the operating record.

BOARD NOTE: Subsection (b)(5)(B) is derived from 40 CFR 258.55(d)(1) (1992).

C) The owner or operator shall establish background concentrations for any constituents detected pursuant to subsection (b)(5)(A) in accordance with Section 811.320(e).

BOARD NOTE: Subsection (b)(5)(C) is derived from 40 CFR 258.55(d)(3) (1992).

D) Within 90 days of the initial monitoring in accordance with subsection (b)(5)(A), the owner or operator ~~shall~~must monitor for the detected constituents listed in 40 CFR 258. Appendix II and 35 Ill. Adm. Code 620.410 on a semiannual basis during the assessment monitoring. The operator must monitor all the constituents listed in 40 CFR 258. Appendix II and 35 Ill. Adm. Code 620.410 on an annual basis during assessment monitoring.

BOARD NOTE: Subsection (b)(5)(D) is derived from 40 CFR 258.55(d)(2) (1992).

E) The owner or operator may request the Agency to delete any of the 40 CFR 258. Appendix II and 35 Ill. Adm. Code 620.410 constituents by demonstrating to the Agency that the deleted constituents are not reasonably expected to be in or derived from the waste contained in the leachate.

BOARD NOTE: Subsection (b)(5)(E) is derived from 40 CFR 258.55(b) (1992).

F) Within 14 days of finding an exceedance above the applicable groundwater quality standards in accordance with subsection (b)(3), the owner or operator shall:

- i) Place a notice in the operating record that identifies the constituents monitored under subsection (b)(1)(D) that have exceeded the groundwater quality standard;
- ii) Notify the Agency and the appropriate officials of the local municipality or county within whose boundaries the site is located that such a notice has been placed in the operating record; and
- iii) Notify all persons who own land or reside on land that directly overlies any part of the plume of contamination if contaminants have migrated off-site.

BOARD NOTE: Subsection (b)(5)(F) is derived from 40 CFR 258.55(g)(1)(i) through (iii) (1992).

- G) If the concentrations of all 40 CFR 258. Appendix II and 35 Ill. Adm. Code 620.410 constituents are shown to be at or below background values, using the statistical procedures in Section 811.320(e), for two consecutive sampling events, the owner or operator shall notify the Agency of this finding and may stop monitoring the 40 CFR 258. Appendix II and 35 Ill. Adm. Code 620.410 constituents.

BOARD NOTE: Subsection (b)(5)(G) is derived from 40 CFR 258.55(e) (1992).

- c) Assessment of Potential Groundwater Impact. An operator required to conduct a groundwater impact assessment in accordance with subsection (b)(4) shall assess the potential impacts outside the zone of attenuation that may result from confirmed increases above the maximum allowable predicted concentration within the zone of attenuation, attributable to the facility, in order to determine if there is need for remedial action. In addition to the requirements of Section 811.317, the following shall apply:
 - 1) The operator shall utilize any new information developed since the initial assessment and information from the detection and assessment monitoring programs and such information may be used for the recalibration of the GCT model; and
 - 2) The operator shall submit the groundwater impact assessment and any proposed remedial action plans determined necessary pursuant to subsection (d) to the Agency within 180 days of the start of the assessment monitoring program.

- d) Remedial Action. The owner or operator of a MSWLF unit shall conduct corrective action in accordance with Sections 811.324, 811.325, and 811.326. The owner or operator of a landfill facility, other than a MSWLF unit, shall conduct remedial action in accordance with this subsection.
- 1) The operator shall submit plans for the remedial action to the Agency. Such plans and all supporting information including data collected during the assessment monitoring shall be submitted within 90 days of determination of either of the following:
 - A) The groundwater impact assessment, performed in accordance with subsection (c), indicates that remedial action is needed; or
 - B) Any confirmed increase above the applicable groundwater quality standards of Section 811.320 is determined to be attributable to the solid waste disposal facility in accordance with subsection (b).
 - 2) If the facility has been issued a permit by the Agency, then the operator shall submit this information as an application for significant modification to the permit;
 - 3) The operator shall implement the plan for remedial action program within 90 days of the following:
 - A) Completion of the groundwater impact assessment that requires remedial action;
 - B) Establishing that a violation of an applicable groundwater quality standard of Section 811.320 is attributable to the solid waste disposal facility in accordance with subsection (b)(3); or
 - C) Agency approval of the remedial action plan, where the facility has been permitted by the Agency.
 - 4) The remedial action program shall consist of one or a combination of one of more of the following solutions:
 - A) Retrofit additional groundwater protective measures within the unit;
 - B) Construct an additional hydraulic barrier, such as a cutoff wall or slurry wall system
 - C) Pump and treat the contaminated groundwater; or

- D) Any other equivalent technique which will prevent further contamination of groundwater.
- 5) Termination of the Remedial Action Program
- A) The remedial action program shall continue in accordance with the plan until monitoring shows that the concentrations of all monitored constituents are below the maximum allowable predicted concentration within the zone of attenuation, below the applicable groundwater quality standards of Section 811.320 at or beyond the zone of attenuation, over a period of four consecutive quarters no longer exist.
 - B) The operator shall submit to the Agency all information collected under subsection (d)(5)(A). If the facility is permitted then the operator shall submit this information as a significant modification of the permit.

(Source: Amended at 22 Ill. Reg. 11491, effective June 23, 1998)

Section 811.320 Groundwater Quality Standards

- a) Applicable Groundwater Quality Standards
 - 1) Groundwater quality shall be maintained at each constituent's background concentration, at or beyond the zone of attenuation. The applicable groundwater quality standard established for any constituent shall be:
 - A) The background concentration; or
 - B) The Board established standard adjusted by the Board in accordance with the justification procedure of subsection (b).
 - 2) Any statistically significant increase above an applicable groundwater quality standard established pursuant to subsection (a) that is attributable to the facility and which occurs at or beyond the zone of attenuation within 100 years after closure of the last unit accepting waste within such a facility shall constitute a violation.
 - 3) For the purposes of this Part:
 - A) "Background concentration" means that concentration of a constituent that is established as the background in 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 supplies under 35 Ill. Adm. Code 302 or as a groundwater quality standard adopted by the Board pursuant to Section 14.4 of the Act or Section 8 of the Illinois Groundwater Protection Act, whichever is lower.
- b) Justification for Adjusted Groundwater Quality Standards
 - 1) An operator may petition the Board for an adjusted groundwater quality standard in accordance with the procedures specified in Section 28.1 of the Act and 35 Ill. Adm. Code 106.410 through 106.416.
 - 2) For groundwater which contains naturally occurring constituents which meet the applicable requirements of 35 Ill. Adm. Code ~~302.301, 302.304, and 302.305~~, 620.410, 620.420, 620.430, or 620.440 the Board will specify adjusted groundwater quality standards no greater than those of 35 Ill. Adm. Code ~~302.301, 302.304, and 302.305~~, 620.410, 620.420, 620.430 or 620.440, respectively, upon a demonstration by the operator that:

- A) The change in standards will not interfere with, or become injurious to, any present or potential beneficial uses for such water;
 - B) The change in standards is necessary for economic or social development, by providing information including, but not limited to, the impacts of the standards on the regional economy, social disbenefits such as loss of jobs or closing of landfills, and economic analysis contrasting the health and environmental benefits with costs likely to be incurred in meeting the standards.
 - C) All technically feasible and economically reasonable methods are being used to prevent the degradation of the groundwater quality.
- 3) Notwithstanding subsection (b)(2), in no case shall the Board specify adjusted groundwater quality standards for a MSWLF unit greater than the levels set forth below:

<u>Chemical</u>	<u>Concentration (mg/l)</u>
Arsenic	0.05
Barium	1.0
Benzene	0.005
Cadmium	0.01
Carbon tetrachloride	0.005
Chromium (hexavalent)	0.05
2,4-Dichlorophenoxy acetic acid	0.1
1,4-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
Endrin	0.0002
Fluoride	4
Lindane	0.004
Lead	0.05
Mercury	0.002
Methoxychlor	0.1
Nitrate	10
Selenium	0.01
Silver	0.05
Toxaphene	0.005
1,1,1-Trichloromethane	0.2
Trichloroethylene	0.005
2,4,5-Trichlorophenoxy acetic acid	0.01
Vinyl Chloride	0.002

- 4) For groundwater which contains naturally occurring constituents which do not meet the standards of 35 Ill. Adm. Code ~~302.301, 302.304,~~ and

~~302.305.620.410, 620.420, 620.430 or 620.440~~, the Board will specify adjusted groundwater quality standards, upon a demonstration by the operator that:

- A) The groundwater does not presently serve as a source of drinking water
 - B) The change in standards will not interfere with, or become injurious to, any present or potential beneficial uses for such waters;
 - C) The change in standards is necessary for economic or social development, by providing information including, but not limited to, the impacts of the standards on the regional economy, social disbenefits such as loss of jobs or closing of landfills, and economic analysis contrasting the health and environmental benefits with costs likely to be incurred in meeting the standards; and
 - D) The groundwater cannot presently, and will not in the future, serve as a source of drinking water because:
 - i) It is impossible to remove water in usable quantities;
 - ii) The groundwater is situated at a depth or location such that recovery of water for drinking purposes is not technologically feasible or economically reasonable;
 - iii) The groundwater is so contaminated that it would be economically or technologically impractical to render that water fit for human consumption;
 - iv) The total dissolved solids content of the groundwater is more than 3,000 mg/l and that water will not be used to serve a public water supply system; or
 - v) The total dissolved solids content of the groundwater exceeds 10,000 mg/l.
- c) Determination of the Zone of Attenuation
- 1) The zone of attenuation, within which concentrations of constituents in leachate discharged from the unit may exceed the applicable groundwater quality standard of this Section, is a volume bounded by a vertical plane at the property boundary or 100 feet from the edge of the unit, whichever is

less, extending from the ground surface to the bottom of the uppermost aquifer and excluding the volume occupied by the waste.

- 2) Zones of attenuation shall not extend to the annual high water mark of navigable surface waters.
- 3) Overlapping zones of attenuation from units within a single facility may be combined into a single zone for the purposes of establishing a monitoring network.

d) Establishment of Background Concentrations

- 1) The initial monitoring to determine background concentrations shall commence during the hydrogeological assessment required by Section 811.315. The background concentrations for those parameters identified in Sections 811.315(e)(1)(G) and 811.319(a)(2) and (a)(3) shall be established based on consecutive quarterly sampling of wells for a minimum of one year, monitored in accordance with the requirements of subsections (d)(2), (d)(3) and (d)(4), ~~which may be adjusted during the operation of a facility.~~ Non-consecutive data may be considered by the Agency, if only one data point from a quarterly event is missing, and it can be demonstrated that the remaining data set is representative of consecutive data in terms of any seasonal or temporal variation. Statistical tests and procedures shall be employed, in accordance with subsection (e), depending on the number, type and frequency of samples collected from the wells, to establish the background concentrations.
- 2) ~~Adjustments to the background concentrations shall be made only if changes in the concentrations of constituents observed in upgradient background wells over time are determined, in accordance with subsection (e), to be statistically significant—, and due to natural temporal or spatial variability or due to an off-site source not associated with the landfill or the landfill activities.~~ Such adjustments may be conducted no more frequently than once every two years during the operation of a facility and modified subject to approval by the Agency. Non-consecutive data may be used for an adjustment upon Agency approval. Adjustments to the background concentration shall not be initiated prior to 2 years after final rule unless required by the Agency.
- 3) Background concentrations determined in accordance with this subsection shall 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 facility, shall submit a copy of the list to the Agency for establishing standards in

accordance with subsection (a), and shall provide updates to the list within ten days of any change to the list.

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

e) Statistical Analysis of Groundwater Monitoring Data

- 1) Statistical tests shall be used to analyze groundwater monitoring data. One or more of the normal theory statistical tests listed in subsection (e)(4) shall be chosen first for analyzing the data set or transformations of the data set. Where such normal theory tests are demonstrated to be inappropriate, tests listed in subsection (e)(5) or a test in accordance with subsection (e)(6) shall be used. Any statistical test chosen from subsections (e)(4) or (e)(5), 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, the establishment of background concentrations and the determination of whether statistically significant changes have occurred in:

- A) The concentration of any chemical constituent with respect to the background concentration or 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 practical quantitation limit (PQL), and shall be the lowest 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) that is protective of human health and the environment, and can be achieved within specified limits of precision and accuracy during routine laboratory operating conditions. In no case, shall the PQL be established above the level that the Board has established for a groundwater quality standard under the Illinois Groundwater Protection Act [415 ILCS 55]. The following procedures shall be used to analyze such data, unless an alternative procedure in accordance with subsection (e)(~~6~~4), is shown to be applicable:
- A) Where the percentage of nondetects in the data base used is less than 15 percent, the operator shall replace NDs with the MDL/PQL divided by two, 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 ~~or data transformations used~~ is between 15 and 50 percent, and the data are normally distributed, the operator shall use Cohen's or Aitchison's adjustment to the sample mean and standard deviation, followed by ~~one or more of the tests listed in subsection (e)(4)(C).~~ However, where data are not normally distributed, the operator shall use an applicable nonparametric test from subsection ~~(e)(5);~~ an applicable statistical procedure;
 - C) Where the percentage of nondetects in the database used is above 50 percent, then the owner or operator shall use ~~the test of proportions listed in~~ an alternative procedure in accordance with subsection (e)(4).

4) ~~Normal theory statistical tests:~~

- A) ~~Student t test including, but not limited to, Cochran's Approximation to the Behren-Fisher (CABF) t-test and Averaged Replicate (AR) t test.~~
- B) ~~Parametric analysis of variance (ANOVA) followed by one or more of the multiple comparison procedures including, but not limited to, Fisher's Least Significant Difference (LSD), Student Mewman-Kuel procedure, Duncan's New Multiple-Range Test and Tukey's W procedure.~~
- C) ~~Control Charts, Prediction Intervals and Tolerance Intervals, for which the type I error levels shall be specified by the Agency in accordance with the requirements of 35 Ill. Adm. Code 724.197(i).~~
- 5) Nonparametric statistical tests shall include: Mann-Whitney U test, Kruskal-Wallis test, a nonparametric analysis of variance (ANOVA) for multiple comparisons or the Wilcoxon-Rank-Sum test.
- 6) ~~Any or any other statistical test based on the distribution of the sampling data may be used, if it is demonstrated to meet the requirements of 35 Ill. Adm. Code 724.197(i).~~

BOARD NOTE: Subsection (b)(3) is derived from 40 CFR 258.40 Table 1. (1992).

(Source: Amended in R93-10 at 18 Ill. Reg. 1308, effective January 13, 1994)