



**Metro Waste Authority**

*No Wasted Resources*

March 5, 2007

*Delivered via email: alex.moon@dnr.state.ia.us*

Mr. Alex Moon  
Iowa Department of Natural Resources  
Energy & Waste Management Bureau  
Wallace State Office Building  
502 East 9th Street  
Des Moines, Iowa 50319-0034

*RE: Comments to Notice of Intended Action  
Proposed Chapter 113 – Sanitary Landfills for Municipal Solid Waste:*

Dear Mr. Moon:

Metro Waste Authority (MWA) appreciates the numerous opportunities made available to affected stakeholders to provide comments. MWA, and others, have made significant and sometimes arduous progress in providing better environmental protection since first notified of the intention to revise Chapter 113 in July of 2003. MWA supports the Iowa Department of Natural Resources (DNR) in revising the solid waste rules and bringing all landfills in Iowa in compliance with the Federal Subtitle D rules.

MWA has completed a comprehensive review of the proposed rules with the goal of providing constructive suggestions and comments for DNR consideration. Comments are presented by identifying the rule section followed by MWA's comments. Changes to the proposed rules are shown with additions in *underlined italics* and deletions as ~~strikethrough~~.

**Deletion of Chapter 102 Amendments.**

102.15 General postclosure requirements for municipal solid waste landfills.

**Discussion:**

MWA agrees with the DNR's verbal commitment to delete all proposed amendments to Chapter 102 which address landfills that have closed within the timeline established by the initial promulgation of EPA Subtitle D.

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**Proposed change to 113.2(4).**

113.2(4). This chapter does not apply to MSWLF units that did not receive waste after ~~October 9, 1991~~ October 9, 1994. ~~A general closure permit issued pursuant to 567— Chapter 102 shall govern such landfills~~ The closure permit issued in accordance with the rules in effect at the time of closure shall govern such landfills.

**Discussion:**

These rules should not apply to MSWLF Units that stopped accepting waste prior to October 9, 1994. Landfills that completed closure prior to the effective date of the new proposed rules should be governed by the applicable closure permit. It is impractical for a previously constructed MSWLF Unit, filled with waste, and with a final cover to comply with many of the new design standards.

**Proposed change to 113.2.5**

113.2.5. MSWLF units that received waste after October 9, 1991~~4~~, but stopped receiving waste before October 1, 2007 ~~October 9, 1994~~, are exempt from all the requirements of this chapter, except the final cover requirement specified in subrule 113.12(1) or 113.12(2). The closure permit issued in accordance with the rules in effect at the time of closure shall govern such landfills. The final cover must have been installed ~~by~~ within one year after October 1, 2007 ~~October 9, 1994~~. Owners or operators of MSWLF units described in this subrule that failed to complete cover installation within one year after October 1, 2007 ~~October 9, 1994~~, will be subject to all the requirements of this chapter, unless otherwise specified.

**Discussion:**

Numerous MSWLF Units will cease accepting waste and plan to complete final closure during the subsequent construction season. These MSWLF Units should be governed by the applicable closure permit. It is impractical for a previously constructed MSWLF Unit that is filled with waste to comply with many of the new design standards. §103.2(10) of the current regulations provides for changes to monitoring frequencies and parameters during postclosure. This provides the ability to require monitoring similar to the new rules, as needed, to closed MSWLF Units.

**Proposed deletion of 113.2(6)**

~~113.2(6). MSWLF units failing to satisfy these criteria are considered open dumps for purposes of state solid waste management planning under RCRA. MSWLF units failing to satisfy these criteria constitute open dumps, which are prohibited under Section 4005 of RCRA.~~

**Discussion:**

This section is an outdated reference to open dumps that operated prior to the implementation of Subtitle D and the current rules in effect. The use of the term “open dump” is not appropriate in characterizing the engineered & constructed landfills operated under the current regulations.

**Proposed change to 113.2(9) Closure of existing MSWLF units.**

113.2(9)”b”. Existing MSWLF units that do not *have a functioning leachate collection system and a composite liner, or an alternative liner approved by the Department, comply with the leachate collection and liner requirements of subrule 113.7(5)* shall *cease accepting waste* ~~close~~ by October 1, 2007., and close in accordance with rule 113.2.512(455B). ~~and conduct postclosure activities in accordance with rule 113.13(455B). If a new MSWLF unit is constructed, the construction of the new compliant MSWLF unit shall be completed by October 1, 2007, and at least 4 feet of select MSW placed over the basal portion of the MSWLF unit liner before December 31, 2007.~~ No MSW shall be placed *above a* ~~in an~~ MSWLF unit that does not *have a functioning leachate collection system and a composite liner, or an alternative liner approved by the Department* ~~comply with the leachate collection and liner requirements of subrule 113.7(5)~~ after October 1, 2007.

**Discussion:**

The majority of approved and permitted composite lined MSWLF Units will not meet all the requirements of §113.7(5). MWA, and other solid waste agencies, have invested significant resources into newly designed and constructed composite lined MSWLF units, which may not meet all of the new revisions to 113.7(5). The rules need to provide for the continued disposal above previously permitted and constructed MSWLF Units that include leachate collection and a composite liner. The continued use of currently constructed alternative liners should be permitted only upon the demonstration that the alternative liner complies with all citations of §113.7(5)”a”(2).

MWA strongly supports the RCRA Subtitle D liner requirement deadline of October 1, 2007 as approved by EPA in correspondence of April 21, 2005 from William Spratlin, Director. Landfills have had sufficient opportunity to plan and construct a Subtitle D compliant liner system since the DNR issued the draft guidance document in .

**Proposed addition to 113.2.**

113.2(10) Plan to achieve compliance .

a. Existing MSWLF units that are not planning to close by October 1, 2007 shall submit an Implementation Plan to the department within 90 days of the effect of these regulations that identifies how the MSWLF unit shall achieve compliance with the regulations.

b. The plan shall include a compliance schedule not to exceed 3 years.

c. Compliance with the leachate collection and liner requirements of subrule 113.7(5) shall be no later than October 1, 2007.

**Discussion:**

Existing landfill will require time to review, study, identify, budget, and construct new monitoring systems and other requirements of the new rules. The DNR must allow an implementation timeframe within the rules. If not addressed, all landfills will be in noncompliance immediately upon the effective date of the new rule. This is not acceptable and unrealistic. This additional language is similar to section 113.4(8) which identifies how the department would handle an applicant that is not in compliance. Operating landfills are sensitive to being in compliance with regulations and spend a tremendous amount of resources to maintain their good standing. We hope the DNR understands our predicament and sensitivity to maintaining compliance.

**Proposed addition to 113.2**

113.2(11) Equivalency review procedure.

1. In approving a permit application under this article, the Department may authorize, in writing, alternatives to the design requirements in this article only if, and only to the extent that, specific sections in this article expressly state that alternatives may be authorized under this section.
2. A person requesting an alternative under this section shall submit a request to the Department, in writing on a form provided by the Department. The request shall:
  - a. Identify the specific regulation for which an equivalency alternative is being sought.
  - b. Demonstrate, through supporting technical documentation, justification and quality control procedures, that the requested alternative to the design requirements in a section of the regulations will, for the life of operations at the facility, achieve the performance standards in that section, and will do so in a manner that is equivalent or superior to the design requirements in that section.
3. No equivalency alternative will be approved unless the application affirmatively demonstrates that the following conditions are met:
  - a. The request is complete and accurate and the requirements of this section have been complied with.
  - b. The proposed alternative will, for the life of operations at the facility, achieve the performance standards in the section of regulations for which the alternative to the design requirements in that section is sought, and will do so in a manner that is equivalent or superior to the design requirements in that section.

- c. *The proposed alternative will not cause pollution to the air, water or other natural resources of the State of Iowa, and will not harm or endanger public health, safety or welfare.*

Changes should be done to the each section of the rules that the DNR will consider for an equivalency review.

1. Group performance standards in a subsection.
2. Add the following language: *Unless alternative design requirements to meet the performance standards in subsection () are approved as part of the permit under § ??? (relating to equivalency review procedure), ??? shall meet the following design requirements:*
3. Group specific design based standards for which the DNR will consider an equivalency.

**Discussion:**

The regulations should include provisions to allow an equivalency review and approval/denial process for specific design based standards. Suggest consideration of a two part process:

1. Include a procedure that identifies a process for review and approval/denial of alternatives to design based (prescriptive) standards.
2. Add language to only the citations that the department would consider equivalent designs. Consideration should not be considered for performance based standards.

The DNR should log each equivalency review that is approved and provide a mechanism for other facilities to share in the approval request process.

This provides a mechanism to address the numerous comments regarding the overly prescriptive nature of the rules while providing consideration for technological advances in designs. Performance requirements can still be maintained. Prescriptive standards can still be provided to allow non-controversial and proven design technologies to the majority of landfills that may use them. This will also reduce the DNR's issuance of variances which should only be used minimally.

**Proposed change to 113.4(12) Notice and public participation...**

113.4(12) Notice and public participation in the MSWLF permit issuance and postpermit actions process.

*a. The rules of this part shall only apply to:*

- *Permitting of a new MSW sanitary landfill.*

- *Increase of MSWLF Unit footprint or capacity by greater than 25%.*
- *RD&D permit application.*
- *Closure permit application.*
- *Request for Variance.*
- *Permit application involving the expansion of a MSWLF Unit that encroaches within 1000 feet of an adjoining property, not owned by the applicant.*  
*Property.*
- *Other significant permit actions that are determined by the DNR to require public notice and participation.*

**Discussion:**

MWA is supportive of public involvement in significant solid waste issues. However, the proposed requirements are overly complex and burdensome. The DNR should revise to identify the major actions that require formal notice and public participation. Some major actions are included in the above recommended change for DNR consideration.

**Comments to 113.4(12)"a"**

**Discussion:**

The process should be streamlined so that there is minimal delay while providing sufficient public notice. The public notice and DNR review should run concurrently. The draft permit process is burdensome and will significantly the administrative effort by the DNR. Request that the DNR evaluate the proposed process flow and reconsider areas that unnecessarily delay the permit approval process.

**Comments to 113.4(12)"b"(3)**

**Discussion:**

This citation will become overly burdensome on the DNR as persons continue to make requests. Suggest that the DNR modify this to limit the volume of notices mailed. For instance, MWA, other solid waste agencies, and engineering firms may make a request for the entire state of Iowa. Suggest the DNR provide a "clearinghouse" of public notices instead.

**Comments to 113.4(12)"e"**

**Discussion:**

DNR should identify what government agencies are included in "other appropriate governmental agencies". The numerous steps identified will require a considerable amount of time to execute. The process should be streamlined so that there is minimal delay while providing sufficient public notice. The public notice and DNR review should run concurrently. Request that the DNR evaluate the proposed process flow and reconsider areas that unnecessarily delay the permit approval process.

**Proposed change to 113.6(2)“i”**

113.6(2)“i” Separation from groundwater. The base of an MSWLF unit shall be situated so that the base of the proposed unit is at least 5 feet above the High Groundwater Table unless a greater separation is required to ensure that there will be no significant adverse effect on groundwater or surface waters or a lesser separation is unlikely to have a significant adverse effect on groundwater and surface waters. Artificial means of lowering the high water table are acceptable. The separation of the base of a MSWLF unit from the high water table shall be ~~measured and~~ maintained in a manner acceptable to the Department.

**Discussion:**

- a) Please clarify what is considered the base of a MSWLF unit. This language differs from the current interpretation from IDNR staff of the bottom of waste as communicated to MWA. It is recommended that the language and interpretation be consistent. The MSWLF unit includes the leachate collection and liner systems. As such, the base of the MSWLF unit is the bottom of the liner system.
- b) There is no definition of “high water table”. This will lead to a lot of misunderstanding. Suggest that water be changed to groundwater and that a definition be added.
- c) Measurement of the separation distance is not practical, and in many cases impossible. This requirement should be deleted.

**Proposed change to 113.6(2)“k”**

113.6(2)“k”. Property line setback. A MSWLF unit shall be at least ~~500~~ 50 feet from the adjacent property line, *unless there is a written agreement with the owner of the adjacent property. The written agreement shall be filed with the county recorder for abstract of title purposes, and a copy submitted to the Department.*

**Discussion:**

- a) The 50 foot setback does not provide sufficient setback distance to implement Iowa Code section 455B305A”d which requires a “*plan...designed to minimize the danger to the surrounding area from fire, spills, or other operational accidents*”. Controls and features typically found at the perimeter of a MSWLF unit; including litter fences, access roads, stormwater controls, monitoring systems, emergency access, and visual buffers require more than 50 feet to be effective. This distance should be increased to 500 feet.
- b) Provide ability to reduce the setback distance with consent the adjacent property owner. This is consistent with provisions of 113.6(2)“l” for adjacent housing and sensitive populations.

### **Comment to 113.7(5)"a". Liner systems**

#### **Discussion:**

MWA supports the DNR in having all MSWLF units constructed in Iowa to be protective of the environment.

MWA is aware that some stakeholders are requesting that composite lined MSWLF Units be subject to point of compliance modeling as alternative liner systems. MWA agrees with the DNR and EPA that composite lined landfills do not require modeling. It is burdensome and not required due to the leakage rate from a prescriptive composite liner system is insignificant compared to that of clay only liner systems. The performance of composite liners has been extensively investigated. The following excerpt that illustrates the superiority of composite liner systems over compacted clay only liners (CCL) is from a report commissioned by the EPA<sup>1</sup>:

*For over a decade it has been known through theoretical analyses, laboratory tests, and limited field data that **composite liners are superior** to either GMs alone or **CCLs alone** for the containment of leachate or other liquids (Brown et al., 1987; EPA, 1987; Giroud and Bonaparte, 1989a,b; Bonaparte and Gross, 1990; Bonaparte and Othman, 1995). This report has presented significant new field data that confirms the very good performance characteristics of GM/GCL, GM/CCL, and GM/GCL/CCL composite liners versus current types of single liner materials.*

*As discussed in Section 1.4.1.4, the basic premise of using a composite liner is that leakage through a hole or defect in the GM upper component is impeded by the presence of a CCL or GCL lower component. The GM improves the performance of the composite liner relative to that of a CCL or GCL alone by greatly limiting the portion of the CCL or GCL exposed to leachate, and, for CCL's, lowering the potential for desiccation cracking.*

### **Comment to 113.7(5)"a"(2)"2"**

#### **Discussion:**

MWA supports the Department's requirement for the 50 foot point of compliance (POC) monitoring system and modeling for alternative liner designs. The low permeable geologic conditions typical of the Iowa region support the basis for a nearer POC than the Federal standards. This will allow a more timely indication if a leak occurs.

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<sup>1</sup> Bonaparte, R., Daniel, D.E., and Koerner, R.M. (2002). "Assessment and Recommendations for Optimal Performance of Waste Containment Systems," U.S. Environmental Protection Agency, National Risk Management Research Laboratory, Cincinnati OH, EPA/600/R-02/099. (available online at <http://www.epa.gov/ORD/NRMRL/pubs/600r02099/600R02099.pdf>).

### **Comment to 113.7(5)"a"(3)**

#### **Discussion:**

MWA supports the DNR in evaluating the sensitivities and limitations of the modeling demonstrating the POC. MWA recommends the DNR develop clear guidelines for alternative liner approvals, particularly those that choose to not utilize a composite liner system. The DNR should provide guidance of acceptable ranges for modeling input parameters to limit erroneous results if inaccurate input parameters are utilized. This is also important when modeling the performance of alternative liner proposed for abutments. The modeling should consider the decrease in hydraulic conductivity due to differential settlement and freeze/thaw cycles.

### **Comment to 113.7(5)"b". Leachate collection systems**

#### **Discussion:**

MWA agrees that prescriptive designs should be included. Suggest adding a few common designs already approved by the DNR, including design MWA has approved for the Phase 2a disposal area. Suggest grouping the design based citations together along with the provision for an equivalency review process. Please note, the prescriptive collection system consisting of 6 inch layers will be difficult, if not impossible to construct.

### **Proposed change to 113.7(5)"b"(3)**

113.7(5)"b"(3). The leachate collection system shall be designed and constructed to minimize leachate head over the liner at all times. An MSWLF unit shall have a leachate collection system that maintains less than a 30-centimeter (i.e., 12-inch) depth of leachate over the liner. The leachate collection system shall have a method for accurately measuring the leachate head on the liner at the system's lowest point(s) within the MSWLF unit (e.g., sumps). ~~Furthermore, an additional measuring device shall be installed to measure leachate directly on the liner but not in the sump or within the collection trench. Leachate head measurements from cleanout lines or manholes are not acceptable for the second measurement. All such measurement devices shall be in place before waste is placed in the MSWLF unit.~~

#### **Discussion:**

The placement of secondary monitoring system is redundant and unnecessary. A transducer with continuous monitoring placed in the sump area provides sufficient indication of the operation of the leachate collection system. This is common practice across the country.

### **Comment to 113.7(6)"b"(2)**

#### **Discussion:**

The double ring infiltrometer test should be specified as a "sealed double ring infiltrometer test. This test is time intensive and will unnecessarily impact the

ability to build, certify, approve, and install an initial lift in a construction season. The rule should also allow the use of the Acceptable Zone Method and the Boutwell two-stage Borehole Test.

Delete the electrical resistivity testing requirement. It can not be used in all composite liner installations due to the inherent testing limitations. Non-destructive (pressure) testing of heat wedge welded seams and continuous vacuum box testing of extruded seams for patches and repairs are just as effective.

Destructive testing should not be limited to sideslopes only. There may be legitimate concerns with any seam that requires a destructive sample to verify its integrity

#### **Proposed change to 113.8(2)"b"(4)**

113.8(2)"b"(4). At least 4 feet of waste, cover material, or alternative cover material, approved pursuant to 567—Chapter 108, shall be placed over the top of the leachate collection system in the bottom of ~~a the~~ MSWLF unit that *does not contain a geomembrane liner* before December 31 of the year in which construction of the new MSWLF unit begins. The waste depth shall be verified by surveying the top of the leachate collection system and the top of the cover material over the waste in the new MSWLF unit. The owner or operator must place documentation of these measurements in the operating record and submit a copy to the department

#### **Discussion:**

Degradation of hydraulic conductivity is applicable to clay only liner systems. I am not aware of any studies indicating that the hydraulic conductivity of a composite liner system degrades to above the  $10^{-7}$  cm/sec requirement. The studies do indicate a 100 times increase in hydraulic conductivity for clay only liners. This requirement is burdensome and should not be required for composite liner systems.

#### **Proposed change to 113.8(2)"h"**

113.8(2)"h" Leachate recirculation. The department must approve an MSWLF unit for leachate recirculation. The primary goal of the leachate recirculation system is to help stabilize the waste in a more rapid, but controlled, manner. The leachate recirculation system shall not contaminate waters of the state, contribute to erosion, damage cover material, harm vegetation, or spray persons at the MSWLF facility. *Leachate recirculation shall be limited to MSWLF Units constructed with a composite liner.*

#### **Discussion:**

The performance of composite liners has been extensively investigated. Clay only liners do not perform as well as composite liners in protecting the environment. The following excerpt that illustrates the superiority of composite liner systems

over compacted clay only liners (CCL) is from a report commissioned by the EPA<sup>2</sup>:

*For over a decade it has been known through theoretical analyses, laboratory tests, and limited field data that **composite liners are superior** to either GMs alone or **CCLs alone** for the containment of leachate or other liquids (Brown et al., 1987; EPA, 1987; Giroud and Bonaparte, 1989a,b; Bonaparte and Gross, 1990; Bonaparte and Othman, 1995). This report has presented significant new field data that confirms the very good performance characteristics of GM/GCL, GM/CCL, and GM/GCL/CCL composite liners versus current types of single liner materials.*

This is consistent with current EPA and SWANA policy statements.

### **Proposed change to 567-113.10**

567-113.10(455B) Environmental monitoring and corrective action requirements for groundwater and surface water. All MSWLFs [units which accepted waste after the effective date of these rules and those MSWLF units which are contiguous with MSWLF units which accepted waste after the effective date of the rules](#) shall comply with the following environmental monitoring and corrective action requirements for groundwater and surface water.

#### **Discussion:**

Language has been added to clarify that this section only applies to those MSWLF units (inclusive of contiguous portions thereof, closed or active) which accept waste after the effective date of these proposed rules and not all MSWLFs are required to comply with these proposed rules. This is based on the assumption that noncontiguous MSWLF units which accepted waste after October 9, 1994, but stopped accepting waste prior to the effective date of these rules will continue to be regulated under the rules in effect at the time waste acceptance and deposition into the unit ceased.

### **Proposed change to 113.10(1)"b"**

113.10(1)"b". A new MSWLF unit must be in compliance with the groundwater monitoring requirements specified in subrules 113.10(2), 113.10(4), [and](#) 113.10(5) ~~and~~ [113.10\(6\)](#) before waste can be placed in the unit.

#### **Discussion:**

It is recognized that inclusion of 113.10(6) parallels 40 CFR Part 258, Subpart E, 258.50(c)(4). However, since this is referring to a new MSWLF unit, why would the new MSWLF unit have to be compliant with assessment monitoring? 113.10(5)"c"(3) allows the owner or operator to demonstrate that a source other than the MSWLF unit caused the contamination or that the SSI resulted from an

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<sup>2</sup> Bonaparte, R., Daniel, D.E., and Koerner, R.M. (2002). "Assessment and Recommendations for Optimal Performance of Waste Containment Systems," U.S. Environmental Protection Agency, National Risk Management Research Laboratory, Cincinnati OH, EPA/600/R-02/099. (available online at <http://www.epa.gov/ORD/NRMRL/pubs/600r02099/600R02099.pdf>).

error in sampling, analysis, statistical evaluation, or natural variation in groundwater. This demonstration should be apparent for a new MSWLF unit since waste has not yet been placed in the unit. If the requirement is applicable to previous MSWLF units, those units will be in assessment monitoring, if applicable, by virtue of the monitoring requirement progression based on detections and statistical analysis. Therefore the new MSWLF unit with no waste deposition should not be required to be compliant with assessment monitoring.

### **Proposed change to 113.10(2)**

113.10(2) Groundwater monitoring systems. All MSWLFs units which accepted waste after the effective date of these rules and which are not contiguous with MSWLF units which remain active after the effective date of the rules shall have a groundwater monitoring system that complies with the following requirements:

#### **Discussion:**

Language has been added to clarify that this subsection only applies to those MSWLF units (inclusive of contiguous portions thereof, closed or active) which accept waste after the effective date of these proposed rules and not all MSWLFs are required to comply with these proposed rules. This is based on the assumption that MSWLFs which accepted waste after October 9, 1994, but stopped accepting waste prior to the effective date of these rules will continue to be regulated under the rules in effect at the time waste acceptance and deposition into the unit ceased.

### **Proposed change to 113.10(2)"e"(2)**

113.10(2)"e"(2). Designed and constructed with a maximum of 300 feet between downgradient monitoring wells. The convergence of groundwater paths to minimize the overall length of the downgradient dimension may be taken into consideration in the placement of downgradient monitoring wells provided that the groundwater monitoring system meets the requirements of paragraphs 113.10(2)"a", 113.10(2)"c", 113.10(2)"d", and 113.10(2)"e".

#### **Discussion:**

The convergence of groundwater consideration has been added to allow this analysis to apply to the final waste perimeter and not only to the internal temporary waste boundaries of long-term multiphase operations.

### **Proposed change to 113.10(4)"g"**

113.10(4)"g". The owner or operator must specify in the operating record one which of the following statistical methods ~~to~~ will be used in evaluating groundwater monitoring data for each hazardous constituent. The statistical tests chosen shall be conducted separately for each hazardous constituent in each well.

**Discussion:**

Modifications have been added to allow specification of more than one statistical method for the evaluation of groundwater monitoring data. It is unlikely that a single statistical method will be adequate to address the wide range of sampling data sets from a facility or even from different constituents within individual wells themselves. Different percentages of non-detects which are likely to be present between inorganic and organic parameters may necessitate different statistical methods. Additionally, variability in distributions, whether not background data exists prior to waste placement, whether or not the wells are already showing impact for various constituents, whether or not the site is in detection or assessment monitoring, whether or not the compliance limit is background or a fixed value, the size of the data set, etc. will also impact the selection of a statistical method. Based on these conditions, the allowance of more than one statistical method to statistically analyze the data from a site seems appropriate. In fact, 113.10(4)“h”(1) indicates that more than one statistical method may be needed if the distributions for the constituents differ. Additionally, the USEPA’s Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities – Interim Final Guidance, April 1989, recommends multiple statistical methods and the conditions under which they will be used be written in the facility’s permit. The guidance states that “this will eliminate the need for a permit modification each time more information about the hydrogeochemistry is collected, and more appropriate methods of data analysis become apparent”.

**Proposed change to 113.10(4)“h”**

113.10(4)“h”. The statistical method required pursuant to paragraph 113.10(4)“g” shall comply with the following performance standards:

(1) The statistical method used to evaluate groundwater monitoring data shall be appropriate for the distribution of chemical parameters or hazardous constituents. If the distribution of the chemical parameters or hazardous constituents is shown by the owner or operator to be inappropriate for a normal theory test, then the data shall be transformed or a distribution-free theory test shall be used. If the distributions for the constituents differ, more than one statistical method may be needed.

(2) If an individual well comparison procedure is used to compare an individual compliance well constituent concentration with background constituent concentrations or a groundwater protection standard, the test shall be done at a Type I error level not less than 0.01 for each testing period. If a multiple comparisons procedure is used, the Type I experimentwise error rate for each testing period shall be not less than 0.05; however, the Type I error *level* of not less than 0.01 for individual well comparisons must be maintained.

*(3) If a control chart approach is used to evaluate groundwater monitoring data, the specific type of control chart and its associated parameter values shall be protective of human health and the environment. The parameters shall be determined after*

considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(4) If a tolerance interval or a predictional interval is used to evaluate groundwater monitoring data, the levels of confidence and, for tolerance intervals, the percentage of the population that the interval must contain, shall be protective of human health and the environment. These parameters shall be determined after considering the number of samples in the background data base, the data distribution, and the range of the concentration values for each constituent of concern.

(35) The statistical method shall account for data below the limit of detection (LD) by recording such data at one-half the limit of detection (i.e., LD/2) or as prescribed by the statistical method. Any practical quantitation limit (pql) that is used in the statistical method shall be the lowest concentration level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions that are available to the facility.

(46) If necessary, the statistical method shall include procedures to control or correct for seasonal and spatial variability as well as temporal correlation in the data.

**Discussion:**

40 CFR Part 258, Subpart E, 258.53(h)(3) and (4) have been added to more closely align the proposed Iowa code with the federal code. This provides additional performance standards for statistical methods which may be selected for use at various sites.

Modification has been made to allow more flexibility when dealing with concentrations below the detection limit (non-detects). The USEPA's Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities – Interim Final Guidance, April 1989, recommends three methods for addressing non-detects; replacing the data with the Method Detection Limit (MDL)/2 or the Practical Quantitation Limit (PQL)/2 (i.e. same as prescribed in 113.10(4)h(3)), Cohen's adjustment, and test of proportions. The choice of which method is generally dependent upon the percentage of non-detects in the data base. This in turn will influence the selection of which statistical method is appropriate for the data set. It is possible that multiple statistical methods will be required for the data sets from each well as the different constituents will likely have different percentages of non-detects.

**Proposed change to 113.10(5)c**

113.10(5)c. If the owner or operator determines, pursuant to paragraph 113.10(4)i, that there is an SSI over background for ~~one two~~ or more of the constituents listed in Appendix I ~~or indicator parameters listed under paragraph 113.10(5)a~~ at any monitoring well specified under subrule 113.10(2), then the owner or operator:

- (1) Must, within 14 days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify the department that this notice was placed in the operating record.
- (2) Must establish within 90 days an assessment monitoring program meeting the requirements of subrule 113.10(6) except as provided in subparagraph 113.10(5)"c"(3).
- (3) The owner or operator may demonstrate that a source other than an MSWLF unit caused the contamination or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist, approved by the department, and placed in the operating record. *The department has 90 days after submittal of the demonstration to approve, disapprove, or request additional information.* If a successful demonstration to the department is made and documented, the owner or operator may continue detection monitoring as specified in subrule 113.10(5). ~~If, after 90 days,~~ a successful demonstration is not made, the owner or operator must initiate within *30 days of receipt of the department's disapproval* an assessment monitoring program as required in subrule 113.10(6).

**Discussion:**

With an allowable Type I error rate of up to 5% for each testing period, a minimum of two SSIs should be required to trigger an assessment monitoring program (which could include alternative source demonstration or error in sampling, analysis, statistical evaluation, or natural variation).

Indicator parameters as a trigger for establishing an assessment monitoring program have been removed from this subrule as assessment monitoring under 113.10(6) is only required when an SSI over background has been detected in one or more of the Appendix I parameters.

A timeframe for department review has been added as well as additional time to implement an assessment monitoring program after a department response to the demonstration has been received. Even with the proposed changes, an owner or operator who believes that the SSI is the result of an alternative source or an error in sampling, analysis, statistical evaluation, or natural variation would be required to simultaneously prepare a demonstration to that fact and an assessment monitoring program in the event that the demonstration is not accepted by the department. Without the timeframe for the department review, it is likely that the owner or operator would be required to implement the assessment monitoring program prior to receiving a response to the demonstration.

**Proposed changes to 113.10(6)"b"**

113.10(6)"b". Within 90 days of triggering an assessment monitoring program, and annually thereafter, the owner or operator must sample and analyze the groundwater for all constituents identified in Appendix II. A minimum of one sample from each downgradient well shall be collected and analyzed during each sampling event. For any constituent detected in the downgradient wells as a result of the complete Appendix II

analysis, a minimum of four independent samples from each well (background and downgradient) must be collected and analyzed *prior to the next scheduled sampling event* to establish background for the constituents. The department may specify an appropriate subset of wells to be sampled and analyzed for Appendix II constituents during assessment monitoring. The department may delete any of the Appendix II monitoring parameters for an MSWLF unit if it can be shown that the removed constituents are not reasonably expected to be in or derived from the waste contained in the unit.

**Discussion:**

Language has been added to indicate the timeframe under which background concentrations must be established for the constituent(s) detected in the downgradient wells as a result of the complete Appendix II analysis. Specifying a timeframe is consistent with 113.10(5)"b" which specifies a timeframe requirement to establish background concentrations for Appendix I and indicator parameters.

**Proposed changes to 113.10(6)"c"**

113.10(6)"c". The department may specify an appropriate alternative frequency for repeated sampling and analysis for the full set of Appendix II constituents required by paragraph 113.10(6)"b" during the active life (including closure) and postclosure care period of the unit. *The required frequency for repeated sampling and analysis for the full set of Appendix II constituents may be less frequent than annual.* The following factors shall be considered:

**Discussion:**

Language has been added to document that, unlike the Appendix I and indicator parameters which can be sampled no less frequently than annually, the full set of Appendix II parameters are not constrained by the minimum annual requirement.

**Proposed changes to 113.10(6)"d"(2)**

113.10(6)"d"(2). Within 90 days, and on at least a semiannual basis thereafter, resampling all wells specified by subrule 113.10(2) and conduct analyses for all constituents in Appendix I, the indicator parameters listed in paragraph 113.10(5)"a," and for those constituents in Appendix II that are detected in response to the requirements of paragraph 113.10(6)"b." Concentrations shall be recorded in the facility operating record. At least one sample from each well (background and downgradient) must be collected and analyzed during these sampling events. The department may also specify an alternative monitoring frequency *and lesser number of monitoring wells requiring sampling* during the active life (including closure) and the postclosure period for ~~the constituents referred to in this subparagraph~~ *all constituents in Appendix I, the indicator parameters listed in paragraph 113.10(5)"a," and for those constituents in Appendix II that are detected in response to the requirements of paragraph 113.10(6)"b."* The alternative frequency for Appendix I constituents, and indicator parameters listed in

paragraph 113.10(5)"a" during the active life (including closure) shall be no less than annual. The alternative frequency during the active life (including closure) may be more frequent than semiannual depending on risk factors and data analysis. The alternative frequency shall be based on consideration of the factors specified in paragraph 113.10(6)"c";

**Discussion:**

Provision has been added to allow the department to reduce the number of monitoring wells requiring sampling of the full set of specified analyses in each well. Currently the proposed language would require sampling of a detected Appendix II parameter in all wells when it may have only been detected in one. There may be circumstances where sampling for that detected parameter should only be required in the well in which it was detected.

**Proposed changes to 113.10(6)"e"**

113.10(6)"e". If the concentrations of all Appendix II constituents *have not been detected at statistically significant levels above* ~~are shown to be at or below~~ background values, using the statistical procedures in paragraph 113.10(4)"g" for two consecutive sampling events, the owner or operator must notify the department of this finding and may return to detection monitoring.

**Discussion:**

The background value likely is represented by the mean or median concentration of the background well(s) for interwell comparisons or the mean or median of the non-impacted data set for intrawell comparisons. By definition, concentrations will naturally fall both above and below the mean or median, even in the background data. Therefore, the comparison to determine impact should be represented by the statistically significant level rather than background.

**Proposed changes to 113.10(6)"f"**

113.10(6)"f". If the concentrations of any Appendix II constituents are *detected as statistically significant levels above* background values, but all concentrations are *not at statistically significant levels above* ~~below~~ the groundwater protection standard established under 113.10(6)"h" or 113.10(6)"i," using the statistical procedures in paragraph 113.10(4)"g," the owner or operator must continue assessment monitoring in accordance with this subrule.

**Discussion:**

Language has been added to clarify the transition of requirements from 113.10(6)"f" to 113.10(6)"g" based on comparison of detected concentrations to the groundwater protection standard. 113.10(6)"f" references below the groundwater protection standard, and 113.10(6)"g" references at statistically significant levels above the groundwater protection standard. It is unclear from the code as written what happens when an Appendix II constituent is detected at a

level above the groundwater protection standard but not at a statistically significant level above the groundwater protection standard.

**Proposed changes to 113.10(6)g(1)**

113.10(6)g(1) Within 90 days of finding that any of the constituents listed in Appendix II have been detected at a statistically significant level exceeding the groundwater protection standards defined under paragraph 113.10(6)h or 113.10(6)i, the owner or operator must comply with the following requirements or the requirements in subparagraph 113.10(6)g(2):

1. Characterize the nature and extent of the release by installing additional monitoring wells as necessary until the horizontal and vertical dimensions of the plume have been defined to background concentrations;
2. Install at least one additional monitoring well at the facility boundary in the direction of contaminant migration and sample this well in accordance with subparagraph 113.10(6)g(2);
3. Notify all persons who own the land or reside on the land that directly overlies any part of the plume of contamination if contaminants have migrated off site when indicated by sampling of wells in accordance with subparagraph 113.10(6)g(1); and
4. Initiate ~~within 90 days~~ an assessment of corrective measures as required by subrule 113.10(7).

**Discussion:**

Based on the requirements for an assessment of corrective measures as described in 113.10(7), it appears that items 1 through 3 from above are required to be done prior to the initiation of an assessment of corrective measures. Since the “within 90 days” requirement was only contained in item 4 and repeated in paragraph 113.10(7)a, with respect to initiation of an assessment of corrective measures, it was unclear what the timeframe requirement was for completing items 1 through 3. The above modifications have been made to clarify when items 1 through 3 should be completed.

**Proposed changes to 113.10(6)g(2)**

113.10(6)g(2). May demonstrate that a source other than an MSWLF unit caused the contamination, or that the SSI resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist, approved by the department, and placed in the operating record. If a successful demonstration is made, the owner or operator must continue monitoring in accordance with the assessment monitoring program pursuant to subrule 113.10(6), and may return to detection monitoring if the Appendix II constituents are not detected at statistically significant levels above ~~or below~~ background as specified in paragraph 113.10(6)e.” Until a

successful demonstration is made, the owner or operator must comply with paragraph 113.10(6)"g" including initiating an assessment of corrective measures.

**Discussion:**

Language has been added to make this subparagraph consistent with 113.10(6)"e".

**Proposed changes to 113.10(6)"i"**

113.10(6)"i". The department or *the owner or operator with approval by the department* may establish an alternative groundwater protection standard for *Appendix II* constituents ~~for which MCLs have not been established.~~ These *alternative* groundwater protection standards shall be appropriate health-based concentrations that comply with the *site specific-standards-statewide standards* as applies to ~~for~~ groundwater ~~established~~ pursuant to 567-Chapter 137.

**Discussion:**

Language has been added to broaden the scope of this paragraph to allow the department or the owner or operator to establish a standard for a specific site which represents a concentration of a contaminant in a media of an affected area at which exposure through a specific pathway is considered unlikely to pose a threat to human health, safety, or the environment given site specific factors related to contaminant transport and likely exposure.

**Proposed changes to 113.10(7)"a"**

113.10(7)"a". Within 90 days of finding that any of the constituents listed in Appendix II have been detected at a statistically significant level exceeding the groundwater protection standards defined under paragraph 113.10(6)"h" or 113.10(6)"i," the owner or operator must initiate an assessment of corrective measures. Such an assessment must be completed and submitted to the department for review and approval within ~~90-180~~ days *of finding that any of the constituents listed in Appendix II have been detected at a statistically significant level exceeding the groundwater protection standards defined under paragraph 113.10(6)"h" or 113.10(6)"i"* unless otherwise authorized or required by the department.

**Discussion:**

Language has been added to clarify our understanding that the intent of this section was to allow 180 days from the time an assessment of corrective measures requirement is triggered to complete and submit an assessment of corrective measures to the department.

**Proposed changes to 113.10(7)"d"**

113.10(7)"d". The owner or operator must, *within 60 days of receipt of approval of the assessment of corrective measures from the department,* discuss the results of the

corrective measures assessment, prior to the selection of a remedy, in a public meeting with interested and affected parties. *The department may establish an alternative schedule for completing the public meeting requirement.* Notice of the public meeting shall be sent to all owners and occupiers of property adjacent to the permitted boundary of the facility, the department, and the department field office with jurisdiction over the facility. A copy of the minutes of this public meeting and the list of community concerns must be placed in the operating record and submitted to the department.

**Discussion:**

Language has been added to establish a timeframe within which the public meeting must be held.

**Proposed changes to 113.10(8)"a"**

113.10(8)"a" Based on the results of the corrective measures assessment conducted under subrule 113.10(7), the owner or operator must select a remedy *within 60 days of holding the public meeting* that, at a minimum, meets the standards listed in paragraph 113.10(8)"b." The owner or operator must submit a report to the department, within 14 days of selecting a remedy, describing the selected remedy, stating that the report has been placed in the operating record, and explaining how the selected remedy meets the standards in paragraph 113.10(8)"b."

**Discussion:**

Language has been added to place a time limit on the amount of time allotted for the selection of a remedy once the public meeting has been held.

**Proposed changes to 113.10(9)"b"**

113.10(9)"b". An owner or operator may determine, based on information developed after implementation of the remedy has begun or other information, that compliance with the requirements of paragraph 113.10(8)"b" is not being achieved through the remedy selected. In such cases, the owner or operator must notify the department and implement other methods or techniques that could practicably achieve compliance with the requirements, unless the owner or operator makes the determination under paragraph 113.10(9)"c." *The notification shall explain how the proposed alternative methods or techniques will meet the standards in paragraph 113.10(8)"b," or the notification shall make the determination under paragraph 113.10(9)"c." The notification shall also specify a schedule(s) for implementing and completing the remedial activities to comply with 113.10(8)"b" or the alternative measures to comply with 113.10(9)"c." Within 90 days of receipt of approval by the department for the proposed alternative methods or techniques or the determination of impracticability, the owner or operator shall implement the proposed alternative methods or techniques meeting the standards of 113.10(8)"b" or implement alternative measures meeting the requirements of subparagraphs 113.10(9)"c"(2) and (3).*

**Discussion:**

Language has been added to clarify the content of the notification and the regulatory requirements associated with the selection of an alternative remedy. Additionally, a timeframe for implementing either the alternative remedy or the alternative measures necessary to protect human health and the environment in the event that compliance with paragraph 113.10(8)"b" cannot be practicably achieved with any currently available methods has been added.

**Proposed changes to 113.10(9)"e"**

113.10(9)"e". Remedies selected pursuant to subrule 113.10(8) shall be considered complete when:

(1) The owner or operator complies with the groundwater protection standards established under paragraph 113.10(6)"h" or 113.10(6)"i" at all points within the plume of contamination that lie beyond the groundwater monitoring well system established under subrule 113.10(2) *inclusive*.

(2) Compliance with the groundwater protection standards established under paragraph 113.10(6)"h" or 113.10(6)"i" has been achieved by demonstrating that concentrations of Appendix II constituents have not *been detected at a statistically significant level exceeding exeeded* the groundwater protection standard(s), for a period of three consecutive years using the statistical procedures and performance standards in paragraphs 113.10(4)"g" and 113.10(4)"h." The department may specify an alternative length of time during which the owner or operator must demonstrate that concentrations of Appendix II constituents have not *been detected at a statistically significant level exceeding exeeded* the groundwater protection standard(s), taking into consideration:

**Discussion:**

Language has been added to indicate that the point of compliance monitoring wells specified under subrule 113.10(2) also must comply with the groundwater protection standards established under paragraph 113.10(6)"h" or 113.10(6)"i."

Additional language has been added to be consistent with 113.10(6)"g" and 113.10(7)"a" where the requirements for initiating corrective measures resulting in the implementation of a remedy.

**Proposed changes to 113.10(9)"f"**

113.10(9)"f". Upon completion of the remedy, the owner or operator must notify the department within 14 days that a certification has been placed in the operating record verifying that the remedy has been completed in compliance with the requirements of 113.10(9)"e." The certification must be signed by the owner or operator and by a qualified groundwater scientist and approved by the department. *The owner or operator may then return to the appropriate monitoring program as specified in 113.10(5) or 113.10(6).*

**Discussion:**

Language has been added to clarify that upon verification that the remedy has been completed in compliance with the requirements of 113.10(9)"e," the owner or operator may discontinue the corrective action monitoring program specified in 113.10(9)"a"(1) and return to either the assessment monitoring program specified in 113.10(7) or the detection monitoring program specified in 113.10(6), as applicable based on the requirements therein.

**Addition to 113.11 Record-keeping and reporting requirements**

113.11(3) Annual Operation Report. The submittal of reports should be consolidated into a comprehensive Annual Operation Report.

**Discussion:**

The DNR should require a comprehensive annual summary for environmental systems and other important operating conditions. It is an important verification that landfills are operating effectively.

The DNR has deleted the existing requirement for semi-annual inspection reports regarding the facility's compliance and non-compliance with the permit and the approved plans and specifications. It is important that facilities, review, monitor and report on their compliance. This should be provided in a Certification Statement included in the Annual Operation Report.

The Report shall be submitted on a form supplied by the department and shall include the following:

- 1) Topographic survey map of the same scale, contour interval and grid system as the original site plans showing the following:
  - a. The contours at the beginning and end of the year.
  - b. The contours at the beginning and the end of the year.
  - c. The completed areas of the site as well as areas partially filled but not active during the previous year.
- 2) A summary of major construction activities.
- 3) A list of all permits that the facility has, including the regulatory authority, permit identification number, and a description.
- 4) Tonnage Fee Report
- 5) A description of capacity used in the previous year and remaining permitted capacity.
- 6) A description of the acreage used for disposal, the acreage seeded, the acreage that has been vegetated, the acreage where vegetation is permanently established and a narrative of the operator's progress in implementing its closure plan.
- 7) Financial Assurance documents pursuant to §113.14.
- 8) Certification that the facility operated in compliance with permit and regulations.

- 9) Special Waste Report pursuant to Chapter 109. Including certification that the operator has received the analysis or certification relating to chemical analysis of waste for each type of special waste received at the facility, and that the special waste that is received at the facility meets the conditions in the facility's permit.
- 10) Landfill Gas Monitoring and Collection Report
- 11) Annual Water Quality Report
- 12) Other annual reports as required by DNR.

**Proposed change to 113.12(1)"a"**.

- a. Have a permeability less than or equal to the permeability of any bottom liner system (for MSWLFs with some type of liner) ~~or have natural subsoils present (for unlined MSWLFs)~~; or have a permeability no greater than  $1 \times 10^{-7}$  cm/sec (for all lined and unlined MSWLFs), whichever is less;

**Discussion:**

There should not be any unlined landfills that will be closed under these regulations.

**Comment to 113.12(1)"b,c,d"**.

- b. Minimize infiltration through the closed MSWLF by the use of an infiltration layer that contains a minimum of 24 inches of compacted earthen material;
- c. Minimize erosion of the final cover by the use of an erosion layer that contains a minimum of 24 inches of earthen material that is capable of sustaining native plant growth;
- d. Have an infiltration layer and erosion layer that are a combined minimum of 48 inches of earthen material at all locations over the closed MSWLF unit; and

**Discussion:**

MWA agrees that prescriptive designs should be included. DNR should provide prescriptive design utilizing composite (w/ geo-membrane) system. Suggest adding a few common designs already approved by the DNR, including the approved composite design MWA has successfully used for the Phase 1 disposal area. Suggest grouping the design based citations together along with the provision for an equivalency review process. Please note, The 48 inch thickness is not needed when a geo-membrane is utilized.

**Proposed deletion of 113.12(2).**

~~113.12(2) The department may approve an alternative final cover design that includes:~~

- ~~a. An infiltration layer that achieves reduction in infiltration equivalent to the infiltration layer specified in paragraphs 113.12(1)"a" and 113.12(1)"b"; and~~

~~b. An erosion layer that provides protection from wind and water erosion equivalent to the erosion layer specified in paragraphs 113.12(1)“e” and 113.12(1)“d.”~~

**Discussion:**

Delete this section and replace with equivalency review language. The performance based standards identified should be placed in 113.12(1).

MWA appreciates this opportunity to comment on the proposed rules. As you consider the comments provided and have questions, please contact me at 515-333-4445.

Sincerely,



Jeff Dworek  
Director of Operations