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Area  
Recyclers

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**Re: Comments Regarding Proposed Changes to the C&D Landfill Rule**

Dear Mr. Moon:

Thank you for the opportunity to comment on proposed changes to 567-114: Construction and Demolition Waste Landfills. I note that much of the first two or three pages of your request-for-comments memo is taken directly from the executive summary of the 1995 USEPA report entitled "Construction and Demolition Waste Landfills". From the context of your memo, you are asserting that C&D waste is currently being "ignored and classified as innocuous" in Iowa today. This assertion is completely unfounded.

**Current Iowa rules already include the strategies recommended in the reports.**

The current IAC Chapter 114 establishing the design and operating standards for C&D landfills has been considered Subtitle D compliant for even Municipal Solid Waste (MSW) by USEPA since 1997. These standards include the same siting restrictions as MSW landfills, and require liners, leachate collection systems, groundwater monitoring, corrective action, surface water run-on and run-off controls, and financial assurance for all permitted C&D landfills or C&D-only cells at MSW landfills. These are the very same regulatory requirements described and recommended in the conclusion of the USEPA report (and all of the others posted on the DNR website). In other words, current Iowa rules for C&D landfills contain all of the provisions advocated by this USEPA report, and by the other technical reports you have posted on the DNR website.

**Most sites in the reports would not meet current Iowa rules.**

After reading each of the reports you have posted, it is apparent that most of the problematic sites listed in any of the reports are unlined, with little or no control of stormwater run-on or run-off, and little or no leachate collection. Many of them are also situated in floodplains or other locations that are prohibited in current IAC Chapter 114, or are located directly on highly permeable soils over or adjacent to vulnerable high-value drinking water aquifers (with little or no separation distance). If any permitted C&D sites in Iowa are similarly situated, they must have been grandfathered prior to the adoption of the current rule (mid 1990s). Any unpermitted C&D disposal sites in Iowa are noncompliant with the current rule.

**MEMBERS**

**Predicting groundwater impacts requires adjusting leachate concentrations by a DAF.**

It should also be noted that while each of the posted reports found levels of 8 to 12 chemical constituents in leachate within the C&D landfills, each report also acknowledged the appropriateness of applying a Dilution & Attenuation Factor (DAF) to the raw leachate numbers to approximate the levels of these constituents that would likely be observed in groundwater monitoring wells. According to the reports, typical DAF values in most states range from 10 to 100. Higher DAF values are typically used in low velocity groundwater flow regimes, and in high clay content soils, (both of which are common hydrogeologic settings at Iowa landfills). As noted in the studies, most mean exceedances observed in all of the studies would fall below both primary and secondary drinking water standards if a conservative DAF of 10 is applied.

**Unacceptable items observed in C&D loads have not had measurable effect on leachate.**

In other words, even though various inappropriate materials were identified in the C&D landfills (such as the EPA table you included in your memo), and even though most sites studied were not lined, capped, or managed for stormwater, the environmental risk demonstrated by the leachate samples was not extreme. The presence of these unacceptable materials in minor quantities did not result in high leachate concentrations for most chemical constituents. This observation, coupled with the generally non-putrescible nature of C&D waste does not support a perceived need to increase frequency of cover for C&D wastes.

**Groundwater monitoring parameters should include key findings of tech studies.**

The reports are quite valuable in identifying the chemical constituents of main concern, and your memo lists them (Methylene Chloride, 1,2-Dichloroethane, Cadmium, Lead, Iron, Manganese, TDS and Sulfate). Based on personal communication with Terry Johnson, hydrogeologist for Waste Management Inc, I would also recommend adding Boron – not because of any particular environmental or health hazard attributed to it, but because it is one of the best “tracers” in C&D leachate. (Boron is commonly used as a flame retardant in most kinds of insulation.) I would also add the major cations and anions commonly used to characterize contaminant plumes in the remediation industry. I support inclusion of the specific constituents listed above in the C&D rule, but since most of the Appendix I constituents are not observed to exceed the drinking water standards in C&D leachate, I do not support requiring Appendix I sampling in future C&D rules.

**Environmental rules should treat address equivalent threats equivalently.**

Your memo raises concern about equity – that C&D landfills should follow the same rules as MSW landfills just to be fair. This argument makes no sense to me, and is fundamentally lacking in scientific merit. As stated in Ohio EPA’s summary of conclusions regarding regulatory flexibility (see the final reference enclosed), Environmental policy should:

1. Be science based.
2. Address equivalent threats in an equivalent manner.
3. Not over-regulate or under-regulate.

None of the technical reports you have referenced claim that MSW and C&D are equivalent, and none of the reports suggest the same rules are needed for C&D as for MSW. The fact that C&D waste is accepted at both C&D and MSW landfills is not a valid argument that both types of facilities should be subject to the stricter MSW standards.

**Iowa policy should encourage more separation of C&D from MSW to reduce H<sub>2</sub>S problem.**

As a matter of policy, Iowa should be encouraging C&D to be disposed of separately from MSW. In the future, most landfills will be faced with capturing and managing landfill gas. For

now, there are three realistic options for gas management available – flaring, energy conversion, and direct sale as a fuel (pipelines). C&D debris typically contains large amounts of gypsum wallboard – a material found only in small concentrations in regular MSW. As described in the technical reports you have listed, and in many more recent technical articles about C&D waste, decomposition of gypsum wallboard produces large quantities of hydrogen sulfide. Hydrogen sulfide is both toxic and extremely corrosive, and can cause tremendous damage to metal components of gas management systems (valves, flares, turbines, etc.)

The sulfur reducing bacteria that cause the gypsum decomposition require moisture and a significant source of organic material (more than just the paper covering on wallboard) to continue converting the gypsum to hydrogen sulfide. Mixing C&D waste with MSW provides a ready supply of moisture and organic material to the bacteria. In other words, disposal of C&D separate from MSW can help limit the organic and moisture ingredients necessary to produce hydrogen sulfide. All four of the proposed rule change drafts would have the unfortunate effect of discouraging separate disposal of C&D from MSW.

**C&D fines should not be used for daily cover at MSW landfills.**

Ground up C&D (often a residue from C&D “recycling” operations) poses an even greater potential for hydrogen sulfide production because the smaller particle size is more accessible to sulfur-reducing bacteria. According to the technical literature, C&D fines also typically contain greater concentrations of gypsum than is found in unprocessed C&D debris. Consequently, use of C&D processing residue as daily cover at MSW landfills should be discouraged or prohibited.

**Separate C&D cells at MSWLFs can best accommodate quality control/load screening.**

Operating separate disposal cells for C&D and MSW at the same facility offers an additional benefit beyond reducing the potential to produce hydrogen sulfide. Such an operation affords a practical opportunity to route incoming C&D loads to the most appropriate working face. If the load is poorly sorted, and contains numerous non-C&D materials, it can easily be routed to the MSW face. If the contaminants are few and easily retrieved, it may be possible to send the load to the C&D cell, but transfer the unacceptable material to the MSW cell (or HHW facility). This is advantageous versus a C&D-only landfill, where contaminants are more likely to be tolerated because of the difficulty of handling rejects (and hauling them to another facility). However, if C&D cells are subjected to the same design and daily operating requirements as MSW cells, it will become cost-prohibitive to construct or operate dual cells at a single facility.

**Proposed C&D fee exemption change will also inhibit separation of C&D from MSW.**

Proposed changes to the C&D fee exemption (under a separate rulemaking for IAC Chapter 101) will also inhibit separate disposal of C&D debris. Both proposed changes (Chapters 101 and 114) will greatly complicate future landfill gas management at MSW facilities by strongly favoring commingled disposal of C&D and MSW, thereby increasing the likelihood of hydrogen sulfide generation and contamination of methane. Creating these long range environmental management problems is in no way justified by any short term benefits. In fact, I cannot identify any short term environmental benefits from either proposed rule change.

The C&D tonnage fee exemption is not really a Chapter 114 issue. A proposed change to Chapter 101 redefines the fee exemption in a way that creates an unjustified economic gradient against MSW landfills operating separate C&D cells in favor of C&D-only disposal sites. The fee exemption proposal is not based on environmental arguments whatsoever, and should be

reconsidered on environmental merits. As your memo acknowledges, changes to address the inequity of the fee exemption can be addressed through legislation. However, the inequity does not currently exist under the existing Chapter 101 rule that has been in force without challenge for more than ten years. Inclusion of the fee argument in this memo about Chapter 114 suggests the basis for changing Chapter 114 may be more political than environmental. Such a motive for rulemaking action, especially absent a directive from the legislature, is inappropriate.

**The rulemaking schedule is being driven by a false sense of urgency.**

The sense of urgency for changing Chapter 114 was created when EPC members seemed to concur with ISOSWO's statement at the October 14<sup>th</sup> EPC meeting that changing the C&D tonnage fee exemption in Chapter 101 would create an economic incentive to send C&D waste to less heavily regulated facilities. Nothing about this statement really implies that C&D landfills are under-regulated from an environmental protection standpoint, but simply that C&D-only landfills *already* have an economic advantage over MSW landfills accepting C&D materials due to the different standards for each type of facility, and removing the fee exemption only from MSW landfills further exacerbates the advantage. Since MSW landfills must meet more stringent environmental standards than C&D landfills, there is obviously no environmental basis to penalize MSW landfills relative to C&D landfills.

Generalized statements heard at the October 14<sup>th</sup> EPC meeting equating C&D and MSW are clearly unsupported by the technical literature. Any changes requiring a new rulemaking should be based on science, not on generalized popular sentiment. DNR has a responsibility to education and inform commission members based on technical literature research. In this case, further study has indicated that only minor adjustments (if any) to IAC Chapter 114 are needed.

**Specific comments on the four draft versions.**

Regarding the four proposed versions, none of them are needed. Iowa already has some of the most stringent C&D landfill rules in the nation. While some minor improvements could be made to the existing rule (such as adjusting the groundwater monitoring parameter list as described above), phasing out the current rule is unnecessary and undesirable in that it would lead to greater obstacles to future landfill gas management.

**Version 1 is unacceptable** because it revokes prior design approvals. This would amount to a regulatory taking and would likely result in the state having to provide fair compensation. Any currently compliant and already-constructed cell should be allowed to fill to completion, subject to specific environmental actions by the DNR as provided for in current rule.

**Version 2** avoids the takings issue, but is still **unacceptable** because it would essentially require future C&D cells to be constructed with composite liners. As described at length above, there is no credible environmental basis for more stringent liner requirements for C&D than already exist in Iowa rule. In fact, few landfills in Iowa would be able to place a "select" layer of C&D waste as the first lift of a composite-lined cell. C&D waste includes many oversized, linear, and sharp-edged materials. Except for the one or two landfills in Iowa that have special select waste (like auto shredder fluff) available, or a very large C&D stream that can be sorted to a degree and within a fairly short timeframe to provide a select waste layer, most Iowa landfills will not be able to protect a composite liner adequately. In previous discussions, DNR staff has indicated that it is unlikely any landfills would build a dedicated C&D cell if it had to meet the same costly standards as an MSW cell. This perspective may sidestep the problem, but raises the other issues

discussed at length on previous pages (commingling C&D with MSW increases potential hydrogen sulfide problems, and will lead to problems for future landfill gas management systems).

**Version 3** is better than the first two versions in that it continues to allow compacted clay liners for C&D cells. However, imposing the other Chapter 113 requirements (Appendix I groundwater monitoring, daily cover requirements, etc.) is additional public cost not justified by the technical literature. Additional costs without environmental justification should be avoided.

**Version 4** is better than the first two versions in that it continues to allow compacted clay liners for C&D cells. The main difference from Version 3 seems to be that it delays the additional (and still unjustified) expense of other Chapter 113 requirements until future expansion. Given my position that these additional expenses are unwarranted, the extra delay is better than a 3 year compliance schedule. However, both Versions 3 & 4 ultimately end up with the unsupportable increased operating expenses without environmental benefit.

In summary, **Versions 3 & 4 are the least unreasonable** of the four options. However, there does not appear to be any scientific basis to justify phasing out the current Chapter 114. Any known environmental problems in Iowa attributable to C&D debris are unrelated to the standards in current Chapter 114. These problems arose at facilities that were able to circumvent Chapter 114 (such as the Madison County "beneficial reuse" dump and the Metro C&D Recycling facility). As public environmental managers, we are responsible for considering the value of our decisions. None of the four options proposed appears to provide good value for the added expense. I would recommend a more modest rule package to adjust the groundwater monitoring parameters within the current rule based on the technical reports.

Thank you for considering these comments and recommendations. If you have any questions please contact me at (319) 753-8126.

Sincerely,



Hal Morton  
Executive Director