WAC 173-350-500 Conference Call - 4/20/15
(notes by Tom Culhane)

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Discussed four potential changes to WAC 173-350-500. In advance of the call Tom sent out short discussions on all topics. Those short synopses are indicated below in italics, followed by notes on what was discussed during this conference call. During the call Item 1 was discussed last, but since the advance discussion had the topics in the following order, that order is preserved below.

1. ***Centralize 400, 410 and 500 site characterization requirements into one section.***
   Discussion: Requirements to conduct characterization studies are identified in both 500(2) and 500(4)(g)(i). Some characterization requirements that are similar, but not quite the same, also occur in sections 400 and 410, including:

   - *400(2)(a-c)*
   - *400(3)(a)*
   - *400(3)(b)(iv) (A), (B)*
   - *400(3)(f)(i) and (ii)*
   - *400(3)(g)*
   - *400(3)(h)*
   - *400(4)(b)(v)(B)(I to III)*
   - *410 (2)(a,c,d)*
   - *410 (3)(a), (b), (c)*

   This suggestion is to revise the rule (in and beyond section 500), so that comprehensive lists of characterization, monitoring, design, reporting, etc. requirements are all located in one location.

   Pros – Some characterization requirements in Section 500 are redundant with those in Sections 400 and 410, and theoretically centralizing all the requirements into one section could make it easier for operators and consultants to see what they need to do.

   Cons - Characterizations for the purposes of limited purpose landfill design or inert waste landfill design or groundwater monitoring purposes are all quite different, and lumping all these into one section could quickly get confusing, and would require making many exceptions throughout the section specifying when certain elements specific to one of the three situations do or do not apply. All of the exceptions that would need to be specified throughout a centralized location would actually make the regulations harder to understand.

<u>Ecology's recommendation</u>: Ecology W2R staff were asked their opinions regarding this proposal, and overwhelmingly they were against it. That said, there is agreement that it makes sense to check the 500 section requirements against requirements in other sections to ensure they mesh well and are not unnecessarily redundant.

<u>4/20/15 Discussion</u>

Tom summarized the issue, then arguments both in favor and against were pretty much in line with those presented above. The main argument for potentially centralizing all site characterization requirements was that this change might make it easier for operators and consultants to see what they need to do. One of the main arguments against was that the characterization requirements for groundwater versus landfill construction versus gas collection system design are all sufficiently different that it makes sense to break them out separately, and that nothing precludes referencing characterization work done elsewhere. One additional concern raised was that if we did try and consolidate all the requirements into one section and any were left out, those outliers could create significant problems. A question was also raised whether or not anyone was aware of actual conflicts between the various sections, and the response was that there were none that anyone was aware of.

By the end of the discussion the group decided that centralizing all of the site characterization requirements into one section would likely create more problems than it would solve, so there was agreement to drop this proposal.

2. ***Consider Section 500 title change from "Groundwater Monitoring" to "Environmental Monitoring", and change the focus this section so it addresses not just groundwater, but also gas, surface water and leachate monitoring.***

   Pros – Characterization requirements naturally support characterization for gas and surface water conditions required elsewhere, and this change could centralize environmental compliance, characterization, and monitoring requirements in into one section.

   Cons – Waste activities that occur throughout 173-350 are all very different, and having monitoring requirements within those various sections is logical and easier to understand. Presently groundwater monitoring associated with landfills and surface impoundments are described in their own section, since groundwater monitoring is a large topic unto itself.

   Lumping all environmental monitoring into one section is problematic, since there is a lot of environmental monitoring that occurs throughout 173-350, such as soil testing at land applications sites, compost testing at compost facilities, air monitoring at HHW facilities, etc., that has nothing or little to do with landfills or surface impoundments. It is more logical and easier to follow when these different types of monitoring are found in their respective sections. Also, since certain types of monitoring would likely remain in these different sections, it would be necessary to include caveats in an all-encompassing "Environmental Monitoring" section specifying which types of monitoring are <u>not</u> included. Furthermore, this might require including language in the "Environmental Monitoring" section making it clear that other monitoring specific to other sections is still in effect.

   Considering a possible title for this new section further illustrates the difficulty in lumping all the different types of environmental monitoring into one section. The new title that was proposed,

"Environmental Monitoring", would not work for reasons described above. Theoretically the title could be changed to something like "Groundwater, Gas, Surface Water and Leachate Monitoring at Solid Waste Landfills and sites WAC 173-350-330 Surface Impoundments"; however, that title is long and would imply there are specific leachate and/or surface water monitoring requirements when, in fact, there are not. Some portions of 173-350 do require that previously collected leachate or surface water analytical data be available and considered as part of some design steps, but that is different from monitoring.

Ecology's recommendation: Ecology W2R staff were asked their opinions about this proposal, and overwhelmingly they were against it.

4/20/15 Discussion

After Tom summarized the issue, there was agreement to drop this proposal, since consolidating all environmental monitoring into one section would likely create more problems than it would solve.

3. ***Section (4)(h)(i) and Section (5) – Specify which groundwater parameters are waste/ leachate indicator parameters and which are primarily geochemical characterization parameters, and what analyses are required of each.*** *Some parameters perform as waste/leachate indicator parameters, and some (such as cations Na, Ca, Mg, K, etc.) serve primarily as geochemical characterization parameters used to support ion-balancing and geochemical plots. Therefore the suggestion is to edit Section (4)(h)(i) to clarify which subset of the parameters fall under each of these two categories, and to edit Section 500(5)(c)(vi)) so it is clear that the alkali/alkali earth metal parameters are not intended for water quality compliance.*

Ecology's recommendation: Ecology agrees that it could help to clarify which analyses are to be performed on which laboratory results, and suggests the rule specify that at a minimum statistical analyses be performed on pH, specific conductance, Cl, Fe, Mn, NO_3, SO_4, NH_3-N and TDS. Beyond this, the rule could state that at the discretion of the jurisdictional health department or Ecology, statistical analyses also need to be performed on any additional parameters added to list based on specific waste profiles.

4/20/15 Discussion

After Tom summarized the issue, there was a good discussion regarding the pros and cons of specifying which groundwater parameters are waste/leachate indicator parameters and which are primarily geochemical characterization parameters. The main argument in favor was that in some instances statistics are required on geochemical indicator parameters even though they are not suitable indicators of leachate. One opinion counter to this was that rather than requiring statistics for s specified list of parameters, it makes more sense to develop lists for each site based on a site-specific leachate analysis. This is because there is a built in error rate for any statistical analyses, and therefore working off a generic list may unnecessarily trigger too many false positives. Moreover, although rare, there are some sites where parameters such as Ca or Mg are good leachate indicator parameters and thus statistics would be appropriate.

Bearing these factors in mind, a counter proposal was made to have the rule state that parameters should be based on leachate composition, but that these may include pH, specific

conductance, Cl, Fe, Mn, NO3, SO4, NH3-N and TDS. The group decided it would consider language reflecting this approach.

4. ***Section (5)(c)(vii) - Consider changing frequency of geochemical evaluation from occurring following every sampling event to once per year or once per every 5 years.*** *Site characterization through cation-anion balancing and trilinear and/or stiff diagramming is useful in understanding various water sources and aquifers; however, any changes related to these parameters is slow and geochemical plots are not a powerful enough diagnostic tool to use every quarter. Therefore, it is recommended that the frequency of geochemical evaluation be changed to once per year or once per every 5 years.*

   Ecology's recommendation: Ecology is open to discussing this.

   4/20/15 Discussion

   After Tom summarized the issue, there was a discussion regarding the pros and cons of changing the frequency of geochemical evaluation. Some arguments in favor included that changes tend to not occur rapidly, so checking for these quarterly may be excessive, and that the data are being collected anyway, so it would always be possible to go back and look for changes. Arguments against were that it is not too onerous to perform these analyses each time since the software being used is set up to do this anyway, and this allows interested parties to eyeball the results each time to see whether or not there has been a change.

   Bearing these factors in mind, a proposal was made to have the rule state that analyses need to occur for at least one sampling event per year (the same event from year to year), and that the results be presented in the annual report. The group decided it would consider language reflecting this approach.