WAC 173-350-500 Conference Call - 5/13/15
(notes by Tom Culhane)

Participants:
Patti Johnson, Kittitas County
Bryan Hunt - Northeast Tri County Health District
Dennis Morr, Tans Alta
Brian Butler, Landau Associates
James Obereiner, JMO Consulting
Jennifer Garcelon, Clallam County
Pat Shanley, Dept. of Ecology Waste 2 Resources Program
Tom Culhane, Dept. of Ecology Waste 2 Resources Program

At the start of the call Tom explained the plan is for him to incorporate all of the changes our workgroup is suggesting in a draft version of Section 500, then send this out to our group for review. Then, once we have produced a final draft, our workgroup's job is finished and Tom will provide this document to other W2R staff. Tom explained there is no guarantee all of our workgroup's suggested edits will make it in the final rule, but he suspects that most will.

We then finished discussing potential changes to WAC 173-350-500, including several items from Jim, some from Jennifer, and one additional item from Brian Butler. 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.

1. ***Section (2)(a)(ii) – "zones of joint concentrations"****: description is abstract and vague, and not sure if/how owner/operator can address this requirement.*

   Presently this item in the rule reads:

   > *The site characterization report shall be submitted with the permit application and shall include at a minimum the following:*
   >
   > *(a) A summary of local and regional geology and hydrology, including:*
   >
   > *(ii) Zones of joint concentrations;*

   Discussion: Although not all sites will have "zones of joint concentrations", at those sites where there are preferred flow paths as a result of these, it seems like it would be clear to a consultant hydrogeologist or engineer what needs to be discussed in terms of potential contaminant migration. That said, it seems reasonable to add the words "if applicable" to this requirement, since this will not be an issue at many sites.

<u>5/13/15 Discussion</u>
Tom summarized the issue, then a discussion by the group followed. The group decided to replace this phrase with "Presence of joints or fractures, if applicable".

2. ***Section (2)(b)(ii)(B) – moisture content:*** *is moisture content testing of all lithologic units using ASTM D4318 necessary.*

Presently this item in the rule reads:

> *(iii) Each lithologic unit on-site will be analyzed for:*
>
> > *(A) Moisture content sufficient to characterize the unit using ASTM method D2216; and*

Discussion: ASTM D4318 provides "*Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils". Although it is true this information typically is not needed for a hydrogeologic characterization, if it is to be collected this needs to occur during borehole construction, and this information may be used by engineers during the landfill design process. For this reason it seems like it may be reasonable to keep this requirement. However, Ecology would like to hear other thoughts on this.*

5/13/15 Discussion

Tom summarized the issue and explained that he also discussed this with Bill Harris, the W2R regional engineer at the Southwest Regional Office. Bill solicited some external opinions as well, and once that feedback was received Tom shared that information with Jim and Brian in advance of today's call.

Regarding Jim's initial comment, it was pointed out that the end of the paragraph under Section (2)(b)(ii) reads, "...as appropriate", which makes it clear that something like moisture content is analyzed at the discretion of the consultant. This addresses Jim concern, but Tom indicated Jim's suggestion prompted a broader discussion about other items under (2)(b)(ii), which led to the suggested edits shared with the workgroup just prior to today's call. The workgroup agreed with those edits, but suggested there also be an over-arching change where at the beginning of the section a general statement be added stating that appropriate ASTM standards shall be followed, then individual references to ASTM standards be eliminated throughout the rest of this section. That led to the following proposed edits for this section:

> (b) A site-specific borehole program including description of lithology, soil/bedrock types and properties, preferential groundwater flow paths or zones of higher hydraulic conductivity, the presence of confining unit(s) and geologic features such as fault zones, cross-cutting structures, etc., and the target hydrostratigraphic unit(s) to be monitored. All procedures conducted shall follow current applicable ASTM procedures, with a list of the procedures used described in subsequent report(s). Requirements of the borehole program include:
> (i) Each boring will be of sufficient depth below the proposed grade of the bottom liner to identify soil, bedrock, and hydrostratigraphic unit(s);
> (ii) Boring samples shall be collected from five-foot intervals at a minimum and at changes in lithology. Representative samples shall be described using the unified soil classification system ~~following ASTM D2487-85, or successive guidance~~, and tested for the following if appropriate:
> (A) Particle size distribution by sieve and hydrometer analyses; ~~in accordance with approved ASTM methods (D422 and D1120); and~~

(B) Atterburg limits ~~following approved ASTM method D4318~~;
~~(iii) Each lithologic unit on-site will be analyzed for:~~
(~~A~~C) Moisture content sufficient to characterize the unit~~;~~ ~~using ASTM method D2216; and~~
(D) Shear strength and consolidation testing on soft or potentially weak layers, for use in stability and settlement analyses; and
(~~B~~E) Hydraulic conductivity by an in-situ field method or laboratory method. ~~All samples collected for the determination of permeability shall be collected by standard ASTM procedures~~;
(i~~i~~i~~v~~) All boring logs shall be submitted with the following information:
(A) Soil and rock descriptions and classifications;
(B) Method of sampling;
(C) Sample depth, interval and recovery;
(D) Date of boring;
(E) Water level measurements, if applicable;
(F) Standard penetration number, if applicable ~~following approved ASTM method D1586-67~~;
(G) Boring location; and
(H) Soil test data (in report text or on log);

3. ***Section (2)(e) – water rights:*** *is it necessary for owner/operator to determine surrounding water rights or just locations of beneficial uses?*

Presently this item in the rule reads:

> *The site characterization report shall be submitted with the permit application and shall include at a minimum the following:*
>
> > *(e) Tabulation of all water rights for groundwater and surface water within a two thousand-foot (610 m) radius, measured from site boundaries;*

Discussion: It is critical to understand nearby beneficial water users that could be at risk from a nearby landfill, and since water rights data can provide an indication of these, it seems reasonable to request this item, in addition to the other indicators listed (identification of nearby public and private wells, identification of nearby surface water, etc.). However, we can discuss this.

5/13/15 Discussion

Tom summarized the issue, then the group discussed this. Eventually the group agreed to keep this requirement as written.

4. ***Section (4)(a)(vii) –*** *health & safety plan: such plans are needed, but should they be regulated under authority of a groundwater monitoring program in WAC 173-350-500?*

Presently this item in the rule reads:

> *The plan shall include procedures and techniques for:*
>
> > *(vii) Procedures to ensure employee health and safety during well installation and monitoring; and*

Discussion: It does seem questionable whether this belongs in a sampling and analysis plan, so this should be an interesting topic for discussion.

5/13/15 Discussion

Tom summarized the issue, then a good discussion followed. The main arguments in favor of dropping this requirement were:

- While such plans are needed, they probably should not be regulated under authority of a groundwater monitoring program in WAC 173-350-500.
- There may not be authority for Ecology to require this.
- There could be liability to Ecology requiring this.
- When it comes to updates, it could be problematic if operators have multiple health and safety plans.
- Well installation and monitoring are typically sub-contracted to consultants and/or well drillers, and theoretically those entities have their own health and safety plans.

The counter-argument was this requirement forces operators to address procedures to ensure employee health and safety during well installation, and obviously that can be a good thing. Also, it was pointed out that compliance with this in some instances can be as simple as stating in the SAP that all procedures will comply a referenced Health and Safety Plan. One option discussed was at least changing the language of this section so it is clearer that referencing a plan found elsewhere is a viable option.

This discussion ended by Ecology saying it will need to look into this issue outside of our group, then decide what the agency thinks is best.

5. ***Section (5)(b)(ii)(A) & (B):*** *difference between trigger and required response action for (A) and (B) is unclear. Would it not be "meet or exceed" the criteria and follow up actions would be the same – i.e. (A) could be eliminated?*

   In our current working draft this item in the rule now reads:

> *(ii) The owner or operator may demonstrate that a source other than a landfill unit or surface impoundment caused the contamination, or the statistically significant increase resulted from error in sampling, analyses, statistical evaluation, or natural variation in groundwater quality. If such a demonstration cannot be made and the concentrations or levels of the constituents:*
>
> *(A) Meet the criteria established by chapter 173-200 WAC, Water quality standards for groundwaters of the state of Washington, the owner or operator shall:*
>
> *(I) Assess and evaluate sources of contamination; and*
> *(II) Implement remedial measures in consultation with the jurisdictional health department and the department for landfills, and the department for applicable 173-350-330 surface impoundments.*

(B) Exceed the criteria established by chapter 173-200 WAC, Water quality standards for groundwaters of the state of Washington, the owner or operator shall:

(I) Characterize the chemical composition of the release and the contaminant fate and transport characteristics by installing additional monitoring wells;

(II) Assess and, if necessary, implement appropriate intermediate measures to remedy the release. The measures shall be approved by the jurisdictional health department and the department for landfills, and the department for applicable 173-350-330 surface impoundments; and

(III) Evaluate, select, and implement remedial actions in accordance with chapter 173-340 WAC, the Model Toxics Control Act cleanup regulation. The roles of the jurisdictional health department and the department in remedial action are further defined by WAC 173-350-900.

Discussion: It seems like the intent of Section (A) was to allow less aggressive remediation measures in instances where results equal but do not exceed 173-200 standards. However, instances where results just equal 173-200 standards (presumably on a consistent basis), are pretty obscure occurrences, so there appears little justification for keeping this Section (A) requirement.

5/13/15 Discussion

Tom summarized the issue, then there was a discussion whether response actions needed to be taken when criteria are simply met or when criteria are actually exceeded. A look at the 173-200 made it clear that under 173-200 action is required only once criteria is exceeded. Based on that and other considerations the group agreed to drop the Section (5)(b)(ii)(A) requirement.

6. ***Section 4(a):*** *add statistical procedure to the required parts of a SAP. Also, should the SAP be reviewed periodically, every five or ten years.*

Discussion: It would seem prudent to require that the sampling and analysis plan describe the statistical procedures that will be used, and thus change:

(iii) Analytical procedures;

to something like

(iii) Analytical procedures, including statistical techniques to be used;

It also seems like it would be prudent to require that the SAP be reviewed periodically, perhaps on a five or ten year schedule.

5/13/15 Discussion

Tom first summarized the issue. Regarding whether or not to require periodic review of the SAPs, the group was split. The main arguments against spelling out the frequency for SAP reviews were that the appropriate frequency for different sites really varies and the JHD has authority to require whatever it wants in this regard. Eventually it appeared there was a slight majority in favor of not requiring this, and a decision was made not to specify schedules.

Regarding whether or not to state within this section that the SAP needs to include the statistical techniques to be applied, the group decided that this should be stated; however, there was additional discussion of this issue subsequent to the call.

7. ***Section 4(g):*** *section g is about monitoring frequency. It talks about proposing alternate frequencies by applying for a permit modification or demonstration during the renewal process. Is there a place where they discuss requesting other changes to the environmental monitoring and its process? This section is specific regarding changes in monitoring frequency, but not really changes to parameters.*

   Discussion: What other changes to the environmental monitoring and its processes might need to be considered? Since the monitoring parameter list in 173-350-500 is already short, it does not seem like providing a process to shorten this list is really needed. Section 4(i) does state that, "The jurisdictional health department shall specify the additional constituents in the solid waste permit", so the JHD does always have the option of expanding the list.

5/13/15 Discussion

Tom summarized this issue, then there was a subsequent discussion. One point of clarification made was that the issue raised was more that the process for obtaining approval for a permit modification or demonstration really needs to be spelled out. It was pointed out that this section does clearly describe the process for obtaining approval, and eventually a decision was made to keep this requirement as written.

8. ***Section (2)(a)(vi)*** *- Erosional and depositional environments and facies interpretation(s): While this is a requirement under the Groundwater Monitoring - Site characterization section, we rarely have the exposure or collect the data to accomplish this level of analysis. So the question is whether this is really sought and used by Ecology? If not the suggestion is to delete item "vi" as unnecessary and somewhat redundant with what is provided under "v. stratigraphy".*

   Discussion: It does seem unlikely to expect true facies interpretations in a characterization report, so at a minimum this probably should be dropped. Sometimes characterization reports do include interpretations about erosional and depositional environments when there are discussions about certain stratigraphic units being present or absent, inferred higher permeability troughs or channels that have been cut through older units, etc. Furthermore, there is a certain level of erosional and depositional environment interpretation that can be made simply based on pre-existing geologic work on units such as Vashon recessional outwash, Vashon till, etc. For that reason it seems like there may be utility in maintaining the phrase "Erosional and depositional environments", but Ecology would like to hear other thoughts on this.

5/13/15 Discussion

Tom first summarized the issue. Points in favor of dropping included that erosional and depositional environments analyses were essentially covered under the previous item (stratigraphy), and true facies interpretations were probably beyond the scope of what is needed or used. The main point in favor of keeping at least the erosional and depositional environments requirement was that this often can be different from what is simply discussed under stratigraphy, such as an instance where erosional channels are present. Eventually a decision was made to simply drop the facies interpretation portion of this requirement.