Questions & Answers Regarding Changes to ACL-based Groundwater Protection Standards for Solid Waste Facilities

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Introduction:

The Virginia Solid Waste Management Regulations (VSWMR) allow landfill owner/operators the option to use Groundwater Protection Standards (GPS) based on alternate concentration limits (ACLs) when no Federally promulgated Safe Drinking Water Act MCL, or site specific (background-based) limit is available.

Significant modifications to the REAMS-based ACL listing took place in late 2005. The revision was based on recently-available USEPA risk-based constituent data. Some facilities which have previously established their Groundwater Protection Standard (GPS) lists may have to amend their GPS listing to remove any now out-dated ACLs values. To do so, facilities must file a Variance Petition (9 VAC 20-80-750; 760: and 790). Upon payment of the associated Variance fee, public notice in a local newspaper, and completion of the public comment period, the Director will approve the Variance request and issue a revised list of GPS including the updated ACL values. This revised listing must be placed in the facility's operating record as required under 9 VAC 20-80-300.B.3.d.(4) or in the facility's Permit via an amendment process.

Specific information regarding the GPS process is discussed in further detail below. For any additional questions, please contact Mr. Geoff Christe at 698-4283. Questions regarding guidance for ACLs or the calculation of ACLs should be directed to Sonal Iyer at 698-4259.

Basis for Groundwater Protection Standards:

1. What are GPS based on?

GPS may be established based on Federal MCLs, Department-approved site-specific background concentration levels, or risk-based alternate concentration limits.
20-80-300.B.3.h
20-80-300.C.4.d

2. Are MCLs based on 'Total' concentrations or 'Dissolved' concentrations?

Federal MCLs are drinking water standards and as a result, are based on 'total' concentration data, not dissolved concentration data.

3. How are background-based GPS determined?

A statistically sufficient background-derived sample from population obtained from the facility's upgradient monitoring well(s) is used to determine an appropriate GPS value. The proposed value(s) are reviewed by the Department's statistician prior to acceptance as GPS
20-80-300.A.3.a.(1)
20-80-300.B.3.h.(2) or (3)
20-80-300.C.4.d.(1)

4. How are ACL-based GPS determined?

ACL values are risk-based numbers created after factoring in the following constituent characteristics (Oral Reference Dose / Oral Slope Factor / Inhalation Reference Dose / Inhalation Slope Factor / Carcinogenic vs. non-Carcinogenic nature) as identified in the IRIS (Integrated Risk Information System), HEAST (Health Effect Assessment Summary Tables), ATSDR (U.S. Agency for Toxic Substance & Disease Registry) databases, or other EPA sources based on a hierarchy of 1]. IRIS, 2]. HEAST, and 3] EPA .

5. When is ACL list updated?

The ACL list is updated by DEQ staff when toxicity values are updated by EPA or the other sources listed above.

6. Why aren't ACLs also based on EPA Region III RBC numbers?

RBCs are generic screening levels (not a standard or cleanup level) developed by EPA Region III for the CERCLA Superfund program. The Region III RBCs are calculated using adult exposure scenarios. In contrast, ACLs are calculated for child receptors. Region III uses RBCs to screen sites not yet on the NPL, respond rapidly to citizen inquiries, and spot-check formal baseline risk assessments. Click here for more details on RBCs. http://www.epa.gov/reg3hwmd/risk/human/info/cover.pdf*. For some compounds the criteria considered for developing RBC are inadequate to satisfy the requirements listed under 9 VAC 20-80-760.B.1.g. (1 & 4) geared toward establishing groundwater clean-up goals. While there are similarities and differences between ACLs and RBCs, please note that EPA cautions users on the limitations of RBCs. On their website, EPA states that RBCs "should generally not be used to set cleanup levels or no-action levels". EPA's RBCs are based on adult exposure, while DEQ's solid waste regulations require the more sensitive child exposure for ACLs. While an ACL is a cleanup standard, an RBC is a tool used in risk assessments, (a screening tool). For more information, please visit EPA's website at:* http://www.epa.gov/reg3hwmd/risk/human/info/faq.htm *and* http://www.epa.gov/reg3hwmd/risk/human/info/cover.htm*, specifically question number 12 on how children's risks are considered.*

20-80-760.B.1.g

7. Do I have to use the REAMS-derived ACL list?

No. The Department has been providing the generic ACLs (using the REAMS methodology) since 1994 to assist the facilities/consultants in proposing appropriate ACL values, and lessen the burden/cost associated with each facility developing their own independent ACL's which would require DEQ's review and approval. In lieu of using the REAMS supplied ACL list, the facility has the option at any time to propose its own ACLs as long as they follow the practices mandated under 9 VAC 20-80-760. However, these facility-proposed ACLs need to be reviewed and approved by DEQ staff prior to acceptance as GPS.

8. What is the advantage in using the ACL list?

Having a default ACL list has enabled the industry and Department to establish consistent health based ACLs and groundwater protection standards for sites without the need to expend time, and energy on developing and adequately justifying individual lists for every site with identified impacts above background concentration levels. This uniform approach allows facilities to apply the time and effort instead to action relating to the evaluation of the nature & extent of contamination as well as to assess potential remedial options.

9. What 'benchmarks' must ACLs meet?

An ACL concentration value must meet the health-based criteria listed under 9 VAC 20-80-760.B.1.g. (1 & 4)

20-80-760.B.1.g

10. What does a value of zero (0.0) in the last column of ACL table indicate?

The older versions of ACL table show a value of zero (0.0) in the last column titled "ACL (µg/L)" for some of the constituents. This zero value implies that the toxicity values to calculate ACL were not available from the sources identified under Question #4 above (IRIS, HEAST, or EPA); therefore DEQ did not calculate an ACL for these constituents.

Establishing Groundwater Protection Standards:

11. How are MCL-based GPS established?

MCL-based GPS may be established by letter approval.
20-80-300.B.3.d.(4)
20-80-300.B.3.h.(1)
20-80-300.C.4.d.(1).(a)

12. How are background-based GPS established?

Background-based GPS may be established by letter approval after Department statistician review.
20-80-300.B.3.h.(2)
20-80-300.C.4.d.(1).(b)

13. How are ACL-based GPS established?

The use of ACLs as GPS must be processed through the Variance procedure established under 9 VAC 20-80-760.B and the associated parts of 9 VAC 20-80-790. The Variance procedure includes public notification (newspaper advertisement) of the proposed Variance, and a 30-day public comment period.
20-80-300.B.3.i
20-80-300.C.4.d.(1).(d)
20-80-790.B

14. What info does the ACL petition need to include?

From an administrative standpoint, the petition should be filled out with the information required under 9 VAC 20-80-790.A. If the facility is proposing ACLs derived from a source other than the REAMS program, the technical requirements of 9 VAC 20-80-760.B.1 and 2 must be met because these factors are reviewed by the Department during the ACL variance review process.

15. Is there a cost with the submission of an ACL Variance petitions?

All Variance petitions submitted after July 1, 2004 must be accompanied by a processing fee of $390.
9 VAC 20-90-120

16. Who pays the cost associated with the newspaper advertisement?

The landfill owner/operator (or designated representative) is responsible for paying for the cost of the one time advertisement in the local newspaper.
9 VAC 20-90-70.D

17. What if the landfill/owner operator objects to some of the ACL values listed in the draft ACL listing?

Comments may always be submitted for consideration to the Department during the 30-day public comment period but it is preferable to address any conflicts prior to the issuance of the draft ACL list for public comment.

9 VAC 20-80-790.B.3.c

Process for Modifying Groundwater Protection Standards:

18. How are MCL-based GPS modifications accomplished?

Any changes to primary MCL-based GPS may be established automatically upon MCL promulgation or revision by EPA, or by letter approval. If a revised GPS listing is provided, it must be placed in the facility's operating record, or permit via the amendment process.

20-80-300.B.3.d.(4)
20-80-300.B.3.h.(1)
20-80-300.C.4.d.(1).(a)

19. How are background-based GPS modifications accomplished?

Background-based GPS may be established by letter approval after Department statistician review. If a revised GPS listing is provided, it must be placed in the facility's operating record, or amended permit via the minor amendment process.

20-80-300.B.3.h.(2)
20-80-300.C.4.d.(1).(b)

20. How are ACL-based GPS modification accomplished?

The process is the same as the initial one used to set ACLs as GPS (Variance procedure established under 9 VAC 20-80-760.B and the associated parts of 9 VAC 20-80-790).

20-80-300.B.3.i
20-80-300.C.4.d.(1).(d)
20-80-790.B

21. Does this mean there could be an unlimited number of ACL Variance petitions and fee payments a facility may have to go through during its active life and post-closure care period?

A strict reading of the VSWMR would allow the facility to submit a Variance each time an ACL changes.

However, the Department believes that language may be included in the ACL modification Variance which may relieve facilities from having to go through multiple Variance requests unless they voluntarily elect to do so. The language will simply state that:

*'**any future modifications to the ACL concentration values derived from modifications to information supplied in the IRIS, HEAST, ATSDR, and/or other EPA databases shall immediately be adopted as an ACL value meeting the requirements of 9 VAC 20-80-760.B.1.g without the need for Variance processing or public notice'**.*

The Department's reasoning as is follows :

***A]** DEQ has already adopted the values determined via the REAMS program as deriving ACL data which is protective of human health and the environment, therefore, continued use of such REAMS–derived values should not continually require review and public comment.*

***B]** Publishing this proposed 'automatic' update language in the initial ACL Variance notice will allow interested parties the opportunity to ask to strike the language (in effect, offering to go through the ACL Variance procedure, fee payment, and public notice each and every time it may be needed) from the final Variance. Those that do not ask to strike the language will not be required to file any further ACL Variance requests unless item number 3 below applies.*

***C]** This language would not cover facilities wishing to update their ACL values based on independently derived risk data.*