VDEQ Default Alternate Concentration Limits:

A groundwater monitoring program, per 9VAC20-81-250.A.6.a., requires that a ground water protection standard (GPS) be established for all detected Table 3.1 constituents. The GPS can be based on (9VAC20-81-250.6.b):

(1) maximum contaminant level (MCL) when available;
(2) site-specific background concentration, if this background is greater than MCL;
(3) site-specific background concentration for constituents for which MCLs have not been promulgated;
(4) risk-based alternate concentration levels for constituents for which MCLs have not been promulgated.

Per 9VAC20-81-250.6.b.(4).b.(ii)., "For carcinogens, the alternate concentration levels must be set based on a lifetime cancer risk level due to continuous lifetime exposure within the $1x10^{-4}$ to $1x10^{-6}$ range. For systemic toxicants, alternate concentration levels must be demonstrated to be levels to which the human population (including sensitive subgroups) could be exposed to on a daily basis without the likelihood of appreciable risk of deleterious effects during a lifetime." Sensitive subgroups include children, hence non-carcinogenic alternate concentration limit (ACL) is calculated based on exposure to a child resident.

VDEQ provides default risk-based alternate concentration limits (ACLs) that can be used to set the GPS. The most recent update of the ACLs supersedes previous versions. In Virginia, currently, all groundwater is considered as a potential source of drinking water, therefore the ACL calculations employ exposure defaults for residential use/tap water which are used by EPA and can be found at http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/usersguide.htm. The latest ACL table and related information can be obtained at:
http://www.deq.state.va.us/Programs/LandProtectionRevitalization/SolidHazardousWasteRegulatoryPrograms/SolidWaste/GroundwaterMonitoring.aspx.

As recommended in EPA's Alternate Concentration Limit Guidance, Interim Final, July 1987, (http://www.epa.gov/osw/hazard/correctiveaction/resources/guidance/gw/acl.htm), the $1x10^{-6}$ risk level is selected as the point of departure (POD) for establishing ACLs. Therefore DEQ's carcinogenic ACLs are based on individual risk of 1×10^{-6}. In order to accommodate sensitive receptors, non-carcinogenic ACLs are calculated based on potential hazard to a child receptor. For chemicals that have carcinogenic as well as systemic (non-carcinogenic) effects, the lower of the two values is selected as the ACL. Cumulative risk from multiple contaminants is not considered while developing default ACLs.

For applying ACL, the point of compliance (POC) as determined and/or accepted by the Regional Office and point of exposure (POE) are considered to be the same.

The laboratory quantitation limits (QL) may vary with sampling events and a change of analytical methods, therefore the facility should demonstrate that an attempt has been made to ensure detection/quantitation limits meet the established ACL and the samples are analyzed in accordance with the approved sampling and analysis plan. However, there may be some cases

when a laboratory QL is not able to meet the default ACL. In these cases (e.g. if the default ACL for a chemical is lower than the laboratory specific QL for any sampling event) the laboratory QL may be substituted for the ACL, provided the Department has accepted the QL.

Some chemicals on the ACL list have "0" values or NA (not available). These designations simply indicate that toxicity values for these chemicals were not available at the time of the ACL update to calculate an ACL. These designations do not mean that these chemicals do not pose any health risk at all concentrations.

As per 9VAC20-81-250.6.b.(4).e., default ACLs are revised no more often than annually. The alternate concentration levels in effect at the time of the sampling event will be used when comparing the results against the groundwater protection standards.

Special note about use of MCL for Trihalomethanes (Chloroform, Bromoform, Bromodichloromethane, and Dibromochloromethane):

The MCL for total THM is 0.080 mg/L and is not based on risk evaluation alone. The MCL is based on the ability of public water suppliers or treatment systems for maintaining certain chlorine level to control bacteria and other pathogens. As DEQ current policy allows using MCL as the final acceptable value for closure, the facilities may be allowed to use the MCL for Trihalomethanes provided the sum of detected concentrations and the detection limits (for non-detects) are below the MCL value.