



COMMONWEALTH OF VIRGINIA

Department of Mines, Minerals and Energy

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GUIDANCE MEMORANDUM¹

TO: Gas and Oil Operators in Virginia

FROM: Rick Cooper, Director
Department of Mines, Minerals and Energy (DMME), Division of Gas and Oil

DATE: December 19, 2018

SUBJECT: Post Drilling Water Analysis Evaluation Standards

The Virginia Department of Mines, Minerals and Energy's (DMME) Division of Gas and Oil (DGO) is responsible for regulating the effects of gas and oil operations both on and below the surface, issuing permits, client assistance programs, inspection of well sites and gathering pipelines, reclamation of abandoned well sites, protection of correlative rights, and promotion of resource conservation practices.

In an effort to ensure gas and oil operations are being regulated effectively and efficiently, DMME is providing this guidance document to clarify the process for the evaluation of groundwater quality samples taken both before (baseline) and after a well has been completed and placed into production (post-drilling). The primary purpose of this testing is to ensure that groundwater quality is not adversely affected by drilling operations. This document does not change any water quality standards or compliance criteria for thermogenic or biogenic gases or pH as defined in [4VAC 25-150-95](#) of the *Virginia Gas and Oil Regulations*.

Post-drilling water samples shall be compared against the required baseline sample and groundwater criteria established by the Department of Environmental Quality in [9VAC25-280-70](#). 4VAC25-150-95(I) requires operators to notify DGO within 24 hours if the test results from post-drilling samples demonstrate exceedances of parameters listed in that criteria. Upon receipt of this notice, the Director may request a justification from the operator as to why an additional groundwater test pursuant to 4VAC25-150-95(J) is not necessary.

Post drilling samples will be compared against a site reference value, defined as the greater of the baseline sample or the listed criteria. Exceedances between one and forty percent of the site reference value may, and exceedances greater than forty percent of the site reference value shall, result in the Director ordering the operator to provide a justification as to why an additional groundwater sampling test pursuant to [4VAC25-150-95\(J\)](#) should not be ordered. This authority is in addition to enforcement actions the Director may utilize pursuant to [4VAC25-150-170](#).

¹ § 45.1-361.27 of the Code of Virginia grants the Director the authority to "[p]rescribe the nature of and form for the presentation of any information and documentation required by any provision of this article or regulation adopted thereunder"

An exceedance, in and of itself, does not demonstrate that groundwater quality has been adversely affected by drilling. Indicators of groundwater quality can vary depending on groundwater composition and influencing factors. Natural causation such as stream depth, flow, oxidation, mineralization, land use, surface water quality, and source of groundwater recharge may alter the groundwater characteristics. Climatological factors and trends can also play a role. The Director shall consider these indicators, historical testing data, and the post-drilling sample analysis to determine if any additional sampling may be required when the exceedance is less than forty percent of the baseline sample.

Please direct any questions about this memorandum to DGO at 276-415-9700.