


Division of Drinking and Ground Waters

**Response to Comments
August 3, 2009**

Draft water well standards and plan approval rule amendments

OAC 3745-9-01, Definitions
OAC 3745-9-02, Scope and Exemptions
OAC 3745-9-03, Monitoring Well
OAC 3745-9-04, Well Siting
OAC 3745-9-09, Well Development and Pump Test
OAC 3745-91-10, Drinking Water Source Protection Plan

Agency Contact for this Package

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Ohio EPA issued public notice and requested public comments on proposed rule amendments to the Ohio Administrative Code (OAC) for the period of April 20, 2009 to May 27, 2009. The proposed amendments covered portions of the water well standards and plan approval rules. This document summarizes the comments and questions received during the public comment period.

Ohio EPA reviewed and considered all comments received during the interested party comment period. By law, Ohio EPA has authority to consider specific issues related to protection of the environment and public health.

In an effort to help you review this document, the questions are grouped by topic and organized in a consistent format.

Introduction

Ohio EPA Division of Drinking and Ground Waters proposed amendments to the water well standards in Chapter 3745-9 and plan approval in Chapter 3745-91 of the Administrative Code. The proposed amendments are, in part, a result of the five year rule review requirements of Section 119.032 of the Revised Code.

3745-9-04, Well Siting

Comment 1: Proposed item 3745-9-04(A) (Variance conditions): Condition A(2) (well located so that contaminants are not likely to enter the well) may be achieved for high-capacity wells with an isolation radius < 300 ft. from property lines and potential sources of contamination

under certain circumstances, as is recognized in the A(13) language. It is widely recognized that the 300-ft value is arbitrary and (we have checked) does not have a known basis in hydrogeologic analysis. Adjoining states with similar hydrogeologic settings have different minimum distances. A practical situation exists in which district office opinion treats material repairs of existing wells as a new well event, requiring that they meet current isolation radius criteria. If repaired, the well (having a record of providing safe raw water) would be more safe (e.g., casing hole repaired) but it cannot be used due to an arbitrary radius issue. Consequently, valuable well assets that could safely produce raw water are not usable.

We propose to extend the option for exemption for meeting isolation radius criteria to major repairs (e.g., casing repairs) of existing wells if they meet the standard that hydrogeologic and engineering analysis indicates that the potential for contamination is minimal. This exemption would conform with 3745-9-02 (E) in our opinion. Standards for these criteria should be further defined, and in no way should exemptions be used to compromise the public's health. (Stuart Smith, Ground Water Science)

Response 1: A public water system can already apply for a variance from the isolation radius in accordance with rule 3745-9-02 of the administrative code.

3745-9-09 Well Development and Pump Test

Comment 2: 3745-9-09 opening paragraph: determining that specific capacity is "maximized" is unrealistic during development with a well rig. The criteria should be defined. Standard ANSI/NGWA 01, being developed by the National Ground Water Association, would provide such a process (your commenter was on the team drafting the well development section), and we suggest insertion by reference. (Stuart Smith, Ground Water Science)

Response 2: The agency can consider referencing such a standard when it is available and the agency has had sufficient time to evaluate the criteria. We will consider the recommendation during future rule revisions.

Comment 3: 3745-9-09(A)(2) – The language makes an assumption that may not be valid (that district staff have sufficient experience with the available development chemistry such that they could adequately comment on a chemical development procedure). While some have sought the necessary training (such as in our course that covers this material), more is needed in this area, in our opinion.

We agree that the public water system and its advisors and contractors should consult with the district office, and be able to justify the use of chemicals in wells. (Stuart Smith, Ground Water Science)

Response 3: This comment is outside the scope of the current revisions and will be considered during future rule reviews.

Comment 4: 3745-9-09(A)(2)(a) – We recommend that phosphorus-containing dispersants be specifically ruled out for use in Ohio water wells, as there is no procedure for their removal that can prevent P remaining behind to be oxidized to phosphate and being available to promote microbial growth in the well. (Stuart Smith, Ground Water Science)

Response 4: This comment is outside the scope of the current revisions and will be considered during future rule reviews.

Comment 5: 3745-9-09(A)(2)(c) – “Acid shall be used...” This can be misconstrued as requiring the use of acid. We suggest: “If an acid is to be used, it shall be applied according to the manufacturer’s instructions or specifications by a professional person conversant with acid application in wells.” Manufacturer instructions are not always provided, but professionals with experience in well development and rehabilitation can provide competent instruction.

“Acid” should be defined further. A recommendation would be “Acid products chosen should be appropriate to the geological and water chemistry conditions, and applied such that they do not degrade non-target zones (e.g., shales and clays), and do not form insoluble or other harmful byproducts.” (Stuart Smith, Ground Water Science)

Response 5: This comment is outside the scope of the current revisions and will be considered during future rule reviews.

Comment 6: 3745-9-09 (B) - Pumping tests during water well acceptance really cannot define the stated goals. The sentence as written is not sound hydrogeologically and should be reconsidered. No wonder district staff and applicants alike are confused. The test can only produce data. The data are used in analysis to define a drawdown for a set flow rate. Put together with a step-drawdown test, with the constant rate test conducted as a valid aquifer test, the goals of defining sustainable yield can be achieved, if the test is adequately analyzed by a competent professional (that is, a credentialed hydrogeologist). As for adequate capacity, the well will produce whatever the formations tapped and the design

permit. Obtaining “adequate capacity” is then an engineering and operational exercise. (Stuart Smith, Ground Water Science)

Response 6: As there are other engineering solutions to ensuring adequate capacity, the sentence has been revised to remove the reference to adequate capacity.

Comment 7: 3745-9-09 (B) - “Flow rate shall be measured using a circular orifice weir meeting published technical standards and set up in such a way as to provide a valid flow measurement, or other flow meter accurate within the range of flow rates being measured.” We routinely see orifice weir equipment that does not meet generally accepted published (e.g., Groundwater and Wells) design criteria, and occasionally, we see them set up so they cannot provide an accurate flow rate (e.g., not level, flow out of the orifice is restricted). Other types of flow meters should be acceptable assuming that they are accurate within the range of flows. Some sort of standard (e.g., ASTM) should be cited as a criterion. (Stuart Smith, Ground Water Science)

Response 7: The agency will prepare a guidance to list the “equivalent flow methods” that are acceptable to the director.

Comment 8: 3745-9-09(B) (1) – If the supervisory person is not a hydrogeologist, how is competency defined? We do not even have a standard for “hydrogeologist” (such as licensure) in this state (and a definition is not provided in Section 3745-9-01). This change in language seems to open the door for marginally competent persons who may convince district staff, engineers, or water suppliers (who do not know any better) that they are competent. We as hydrogeologists frequently see mistakes made in well performance testing procedures made by otherwise highly competent and careful well contractor personnel. This vagueness in the standard could be cleared by setting some competency standards, or simply requiring hydrogeologist (credentialed by degree or nationally certified) supervision. The test could be performed by a competent person such as contractor field personnel. The above-referenced problems with orifice weirs (etc.) illustrate why there should be a competent hydrogeologist in the planning mix, and why any policy change made to cut this skill set out of the exercise should be reconsidered. (Stuart Smith, Ground Water Science)

Response 8: The agency has no intention of developing a licensure program for hydrogeologists at this time. Many professional water well drillers and pump installers also have years of experience conducting pumping tests and the results of the tests are valid.

We do agree, and still recommend, for larger more complex aquifer tests, the public water system seek the assistance of a professional hydrogeologist.

Comment 9: 3745-9-09(B)(1)(b) – Many village water supply wells supply water in the 50,000 to 99,999 gal/day range. These wells are still significant investments and the pumps rather expensive. The 100,000 gal/day value for defining whether or not to require certain test criteria is entirely arbitrary. The best design of these “medium” wells would greatly benefit from including the step-drawdown test. The step test makes selection of both a valid constant rate flow rate and a final production well pump size much more precise. Also, where aquifers are rather unproductive, valid aquifer tests should be conducted for these smaller wellfields for the same reason that they should be conducted for larger ones – defining the effects of the pumping on the surrounding aquifer and its users. (Stuart Smith, Ground Water Science)

Response 9: The agency recommends, but does not require in rule, public water systems which pump a well between 50,000 to 99,999 gallon per day conduct a step-test prior to completing a constant rate pumping test . In fact, consultants and well drillers often recommend a step-test be completed as part of the aquifer test requirements for the medium use systems to ensure the final pump size is optimized for the in-situ hydrogeologic conditions.

Comment 10: 3745-9-09(B) (1)(c)(ii) – “Aquifer test” We suggest making reference to a valid professional standard. Comment after B (1)(c)(ii) – This is a really weak standard. It is a recommendation of the State of Ohio that such important tests, which have a range of critical criteria and may easily provide invalid results if not performed properly, should be performed by a competent person (undefined)? So, is it OK if an incompetent person conducts the tests? (Stuart Smith, Ground Water Science)

Response 10: The agency plans on providing additional guidance to the regulated community on conducting an “aquifer test” to address test duration, number of observation wells, measurement of flow rates and water levels and development of a conceptual hydrogeologic model which can be critical to ensure valid test results. The agency recommends that only experienced water well professionals or hydrogeologist conduct aquifer tests.

3745-91-10 Drinking Water Source Protection Plan

Comment 11: 3745-91-10 (A) – There should be no exemption for schools. They are likewise public water supplies, drawing from aquifer settings where, if contamination exists and can be drawn into pumping wells, drinking water may be compromised. The contamination does not chivalrously avoid the school well because the school board does not want to conduct source water protection. Besides, many school wells lack filtration that might remove contamination. Such source water protection planning can be an excellent environmental exercise for students, conducted under the supervision of professionals.

All drinking water source protection plans should be based on source water delineations that are themselves based on site-specific, valid hydrogeologic information that has been verified by a professional hydrogeologist. Most of Ohio's SWAPs do not meet these criteria, even though modeled by competent Ohio EPA hydrogeologists, because they are not based on wellfield-scale information, such as aquifer tests conducted in the wellfield. The State of Ohio should initiate a second wave of delineations that refine the "paper exercise" delineations conducted in recent years by requiring valid site-collected information be used in the delineation. (Stuart Smith, Ground Water Science)

Response 11: The proposed rule language has been modified to clarify the rule applies to community public water systems and eliminates the exemption for school districts.

Ohio EPA source water protection area delineations were developed using the best available hydrogeologic information at the time of development. Many of the delineations were based on site-specific hydrogeologic data obtained during new well plan approvals, gathered from the public water system or other information available in the agency's files. In addition, aquifer test information from the United State Geologic Survey and ground water flow maps prepared by the Ohio Department of Natural Resources were used to prepare the delineations. Any public water system official that did not agree with the delineation provided by the agency was free to develop an updated delineation, based on Ohio's criteria and model requirements.

End of Response to Comments