

ARCHIVE: Archived due to the 2014 rule revision. Revision was necessary to update rule citations within the TGC. Refer to VA30007.14.013 for the updated document.

TITLE: Use of Direct Push for Ground Water Sampling

DATE EFFECTIVE: August 2005

HISTORY: VA30007.05.002 - Revision was necessary to reflect changes in the rule citations that became effective in March 2009.

KEYWORDS: Ground water sampling, direct push, wells, pre-packed wells, grab sampling

RULE/ AUTHORITY: OAC 3745-300-07(F)(5)(d)(viii)(a) and OAC 3745-300-07(F)(5)(d)(i)

QUESTION: Can direct push technologies (DPT) be used for collection of ground water samples?

BACKGROUND: In accordance with OAC 3745-300-07(F)(5)(d)(viii)(a), sampling should proceed using procedures and methods that are demonstrated within the Phase II Property Assessment Report to be field-validated, documented and peer-reviewed, ensure representative samples, and capable of achieving the data quality needs. Alternatively, in accordance with OAC 3745-300-07(F)(5)(d)(viii)(b), the CP/Volunteer can use sampling methods and procedures provided in Ohio EPA's Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring (1995) (referred to as Ohio EPA's TGM). Ohio EPA believes that any updates to the TGM are consistent with OAC 3745-300-07(F)(5)(d)(viii)(a). In accordance with OAC 3745-300-07(F)(5)(d)(i), sample collection methods must be capable of producing ground water quality appropriate for evaluating the pathway of concern.

ANSWER: All forms of direct push technology (DPT) sampling equipment are acceptable to help screen properties for additional sampling. However, due to quality control issues, the representativeness of samples cannot be ensured when using ground water grab samplers. Therefore, grab samplers are not appropriate for determining compliance with OAC chapter 3745-300.

When ground water samples are needed, wells installed using DPT may be used as long as they are designed, developed, and sampled

using procedures that are at least the equivalent of those used for conventional monitoring wells. Specifically, the following recommendations should be followed.

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1. Construct wells to the same standards as conventionally placed wells, using adequate filter pack placement, well sealing, and surface sealing. Ohio EPA believes that the only way to achieve this level of data quality using DPT is with DPT wells installed using pre-packed well screens. Because the filter media is placed around the screen at the surface, pre-packed screens allow more control over the filter pack grain size and eliminate bridging of the filter media
2. Properly develop wells to minimize turbidity and insure good hydraulic communication between the well and the formation. In situations where excessive turbidity is a problem, low-flow purging and sampling techniques should be used to minimize the disturbance of the water column.

DPT installed wells are not recommended when a well must be installed to monitor a zone of unknown ground water quality that underlies a contaminated ground water zone. A “telescoping” well should be installed to prevent cross-contamination, and the upper water-bearing zone should be drilled, cased, and grouted separately. DPT cannot be used to install a “telescoping” well because the well annulus is too small to allow for sufficient grout sealing (US EPA, 2004).

Additional information on DPT may be found in the Technical Guidance for Ground Water Investigations Chapter 15: Use of Direct Push Technologies For Soil and Ground Water Sampling (February, 2005). The guidance may be found at <http://www.epa.state.oh.us/ddagw/Documents/TGM-15.pdf>.

SUMMARY:

Wells installed using DPT may be used for ground water sampling to determining compliance with OAC 3745-300, provided that the well is constructed using pre-packed screens, adequate well construction, development and sampling; and that telescoping wells are not used.

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CONTACT:**

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