

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Safe Drinking Water

DOCUMENT NUMBER: 393-3130-208

TITLE: New Source Sampling Requirements for Groundwater Sources for Community and Noncommunity Systems

EFFECTIVE DATE: December 14, 2013

AUTHORITY: Pennsylvania's Safe Drinking Water Act (35 P.S. §721.1 *et seq.*) and regulations at 25 Pa. Code Chapter 109.

POLICY: Department of Environmental Protection (DEP) staff will follow the guidance and procedures presented in this document to direct and support implementation of new source sampling activities under the Safe Drinking Water Program.

PURPOSE: The purpose of this document is to establish a rational and reasonable basis for staff decisions which will promote quality, timely and consistent service to the public and regulated community.

APPLICABILITY: This guidance will apply to sampling of all new community and noncommunity groundwater systems and transient noncommunity groundwater systems that are required to obtain a construction permit.

DISCLAIMER: The policies and procedures outlined in this guidance are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of DEP to give the rules in these policies that weight or deference. This document establishes the framework within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 4 pages

DEFINITIONS: See Title 25 Pa. Code Chapter 109

Introduction

This guidance outlines the procedures and lists the minimum sampling requirements for all new community and nontransient noncommunity groundwater systems and transient noncommunity groundwater systems that are required to obtain a DEP-issued construction permit. According to 25 Pa. Code §109.503 and 109.505, a public water supply that intends to serve as a community or noncommunity system should conduct an evaluation of the quality of the raw water for all new sources. When appropriate, all groundwater samples should be collected prior to submission of the public water supply construction permit application. It is recommended that the public water supplier contact the appropriate DEP regional office to obtain information regarding specific new source sampling requirements and additional guidance on sampling procedure early in the process. If applicable, the appropriate river basin commission should also be contacted prior to sampling.

Sample Collection

The public water supplier or its consultant is responsible for collecting all groundwater samples. Sample collection should be conducted immediately following the constant-rate pumping test, when the groundwater system is stressed and most representative of groundwater quality. Samples should be collected from a sampling port directly from the groundwater discharge pipe in an appropriate manner that does not alter the original groundwater chemistry. In absence of a constant-rate pumping test, all groundwater samples should be collected directly from the production well prior to any filtration and/or treatment so that the original groundwater chemistry is not altered. In order to achieve reliable laboratory results, proper collection, preparation and storage of groundwater samples and the use of appropriate sampling equipment and techniques should be followed and documented. Additionally, samples of all volatile organic chemicals (VOCs) should be collected by a person properly trained by a laboratory accredited by the DEP to conduct VOC analysis.

Laboratory Analysis

All analyses of samples should be performed by a laboratory that is certified by the DEP under Subchapter H of 25 Pa. Code Chapter 109. The samples should be submitted to the laboratory in laboratory-issued bottleware, with appropriate chain-of-custody documentation and within the required holding times.

List of Minimum Sampling Requirements

The following tables list the minimum sampling requirements for new groundwater sources. Unless otherwise instructed by the DEP, all groundwater samples should be analyzed according to the list below. The DEP may require monitoring of any other contaminant(s) as determined necessary to adequately evaluate the quality of the source.

VOLATILE ORGANIC CHEMICALS (VOCs):

BENZENE CARBON TETRACHLORIDE o-DICHLOROBENZENE para-DICHLOROBENZENE 1,2-DICHLOROETHANE 1,1-DICHLOROETHYLENE cis-1,2-DICHLOROETHYLENE	trans-1,2-DICHLOROETHYLENE DICHLOROMETHANE 1,2-DICHLOROPROPANE ETHYLBENZENE MONOCHLOROBENZENE STYRENE TETRACHLOROETHYLENE	TOLUENE 1,2,4-TRICHLOROBENZENE 1,1,1-TRICHLOROETHANE 1,1,2-TRICHLOROETHANE TRICHLOROETHYLENE VINYL CHLORIDE (See NOTE) XYLENES (Total)
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NOTE: Monitoring for vinyl chloride is only required when one or more of the following two-carbon compounds are detected: trichloroethylene, tetrachloroethylene, trans-1,2-dichloroethylene, cis-1,2-dichloroethylene, 1,2-dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane.

SYNTHETIC ORGANIC CHEMICALS (SOCs):

ALACHLOR ATRAZINE BENZO(A)PYRENE CARBOFURAN CHLORDANE DALAPON DI(2-ETHYLHEXYL) ADIPATE DI(2-ETHYLHEXYL) PHTHALATE DIBROMOCHLOROPROPANE (DBCP) DINOSEB	DIQUAT ENDOTHALL ETHYLENE DIBROMIDE (EDB) ENDRIN GLYPHOSATE HEPTACHLOR HEPTACHLOR EPOXIDE HEXACHLOROBENZENE HEXACHLOROCYCLOPENTADIENE LINDANE	METHOXYCHLOR OXAMYL (VYDATE) PCBs ¹ PENTACHLOROPHENOL PICLORAM SIMAZINE TOXAPHENE 2, 3, 7, 8-TCDD (DIOXIN) ¹ 2, 4-D 2, 4, 5-TP (SILVEX)
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1. Monitoring for PCBs and/or dioxin is required when there is a contamination source within 1,000 feet of the new groundwater source. Provide details of the assessment in Public Water Supply Module 3A, Part U to support a finding of no sources of contamination.

INORGANIC CHEMICALS (IOCs):

ANTIMONY ARSENIC ASBESTOS (See NOTE) BARIUM BERYLLIUM CADMIUM	CHROMIUM COPPER CYANIDE (as free cyanide) FLUORIDE LEAD MERCURY	NICKEL NITRATE (as Nitrogen) NITRITE (as Nitrogen) SELENIUM THALLIUM
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NOTE: Monitoring for asbestos is required when DEP has reason to believe the source is vulnerable to contamination.

RADIONUCLIDES:

GROSS ALPHA	GROSS BETA (See NOTE)
RADIUM-226, RADIUM-228	URANIUM

NOTE: If the Gross Beta exceeds 50 pCi/L, analyze the same or equivalent sample to identify the major radioactive constituents present.

MICROBIOLOGICAL CONTAMINANTS:

TOTAL COLIFORMS CONCENTRATION	<p>Three (3) separate samples obtained at 15-minute intervals immediately prior to the conclusion of the constant rate aquifer test.</p> <p>For each Total Coliform positive sample, analyze the same or equivalent sample for <i>E. coli</i> concentration.</p>
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SECONDARY CONTAMINANTS AND OTHERS:

ALKALINITY ALUMINUM CHLORIDE COLOR FOAMING AGENTS	HARDNESS IRON MANGANESE pH (See NOTE) SILVER	SULFATE TEMPERATURE (See NOTE) TOTAL DISSOLVED SOLIDS TOTAL ORGANIC CARBON TURBIDITY (NTU) ZINC
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NOTE: Temperature and pH measurements may be obtained in the field with a calibrated water quality meter within 15 minutes of sample collection.

MICROSCOPIC PARTICULATE ANALYSIS (MPA)	<p>The project applicant should coordinate with appropriate DEP regional staff regarding MPA sampling. Sampling should be conducted by the DEP or the project applicant for new groundwater sources which fall within the criteria of the <i>Guidance for Surface Water Identification Protocol</i>, DEP ID: 383-3500-106, available on DEP's website at www.dep.state.pa.us .</p>
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