

## Introduction

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Welcome to the latest edition of NJDEP's *Field Sampling Procedures Manual*. This new manual replaces the 1992 edition as the most current technical guidance associated with procedures and equipment utilized for the collection of environmental samples. It also represents the first edition published on the World Wide Web, which brings the benefit of improved access to information for the public and regulated community.

The primary intent of the manual has always been to promote accuracy and consistency when environmental samples are collected and prepared for chemical analysis by public and private entities. The validity of analytical data is directly dependent upon the integrity of the field procedures employed to obtain a sample. The methods and procedures described herein are intended for use by those State of New Jersey regulatory agencies that require chemical, physical and certain biological analysis of samples for remedial evaluation and monitoring purposes. Since these methods are applicable to such a wide variety of regulatory programs throughout the Department, any site and/or regulatory specific questions/issues regarding a particular sampling technique must be discussed with the applicable program personnel prior to going out into the field.

Furnishing guidance for a broad range of field activities is meant to improve the planning, implementation and documentation of most field-sampling activities. Said guidance may often suggest several ways to collect a sample, all of which may be scientifically correct under site or matrix specific circumstances. Hyperlinks that direct the reader to a variety of web sites are intended to enhance specific information with the emphasis on enhance, not necessarily replace. Maintaining a balance between the evolving nature of environmental sampling and well-established regulatory oversight means that care should be taken when preparing documents based on the procedures outlined herein. All methodologies presented in this manual may not be applicable to specific site situations; a certain procedure, though included in the text of the manual or by hyperlink reference may be disallowed at the discretion of NJDEP program personnel if determined inappropriate in a particular situation.

This manual has been prepared in an effort to represent the best available technology for field sampling activities associated with hazardous site investigations and remedial actions. It is also an appropriate reference for certain aspects of water data acquisition, water allocation, wastewater treatment operations, radiological assessment, geophysical investigations and other regulated programs that require field sampling. Procedures outlined herein have been developed through internal peer review, extensive literature research, practical field application and analysis of data from a quality assurance perspective.

Environmental sampling inherently may present extraneous variables, which may ultimately affect the outcome of analytical results. Since the nature of environmental media sampling warrants the analysis of a small aliquot relative to the bulk material, proper sampling techniques must be employed to obtain a sample which retains its scientific integrity and is legally defensible. To meet these conditions a sample must be collected and handled so as to keep its original physical form and chemical composition to as great an extent as possible. For a sample to be "representative" of a larger body of material in question, it is imperative to ensure sample integrity and maintain quality assurance standards in the field. The sampling procedures put forth in the text of this manual or by direct reference are designed to minimize any possibility of altering the sample's integrity.

The achievement of consistency in sampling procedures and techniques helps to ensure the provision of data having acceptable quality, comparability and usability. The importance of data quality has been recognized through stringent laboratory quality control programs. This manual is intended to compliment these processes by establishing appropriate quality control during sampling collection. Quality assurance measures coupled with a comprehensive site specific sampling plan will improve the chance of collect-

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ing representative samples. This is important to ensure that public and private monetary resources are utilized in an effective manner.

NJDEP's *Field Sampling Procedures Manual* (FSPM) details the scope of field sampling protocol for site investigation and monitoring activities. From sampling plan preparation through chain of custody procedures, the manual details the handling requirements and offers a variety of collection techniques for sample collection of various matrices. Related concerns such as personnel protection, geophysical investigation techniques, use of portable instrumentation, etc. are also included.

The reader is cautioned to be aware of the differences between materials presented in this manual as guidance, and specific requirements contained within control documents (e.g., promulgated regulations, permits or Administrative Consent Orders). Control documents have legal precedence over this manual and may prescribe certain sampling activities or methods unique to a particular program, site or matrix. In all cases and when sampling within specific conditions set forth by any control documents, this manual should be utilized as a technical guidance document only.

It is recognized by the Department that alternative sampling methods are continually being developed and accepted for use by various regulatory agencies. Examples of these include methods for the collection of ambient air and soil gas using summa canisters, monitoring ground water using passive diffusion bags, certain field analytical methods and other newly designed equipment for sample acquisition. Use of new or alternative-sampling devices should be reviewed and approved for site use by the regulatory program governing the investigation. Recognized groups such as the American Society for Testing and Materials (ASTM) the Interstate Technology and Regulatory Council (ITRC) and the U.S. Geological Survey (USGS) will no doubt continue to publish recommended procedures that improve efficiency, accuracy as well as specific devices.

As a result, the Department will be updating this manual as needed to keep the most current and accepted sampling methods available to the public. To that end, be advised that documents such as the *Alternative Ground Water Sampling Techniques Guide* (AGWSTG) and the *Field Analysis Manual* (FAM) are incorporated herein. While the AGWSTG will remain available as a stand-alone reference on the Site Remediation Web Page, the FAM is now contained completely within the FSPM (Chapter 7). Also, inquiries related to obtaining certification for certain analyze immediately parameters related to environmental sampling should be made directly to the Office of Quality Assurance. These include Laboratory Certification pursuant to N.J.A.C. 7:18, certification related to the Triad initiative and certification associated with the Private Well Testing Act. The Department also remains available for and encourages open discussion regarding uses and applications of additional procedures not presented herein, or suggestions for modifications to procedures presented. To that end we hope your experience using this manual is useful, informative and interactive.

Any questions on information contained in the manual may be addressed to:

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Inquires of a specific nature involving the requirements of the New Jersey Laboratory Certification Program, the NJDEP Water Monitoring and Standards Program and the Water Supply Administration Program should be directed as follows:

N.J. Laboratory Certification Program  
Office of Quality Assurance  
609-292-3950

Water Monitoring and Standards Program  
Bureau of Fresh Water and Biological Monitoring  
Bureau of Marine Water Monitoring  
609-292-4543

Water Supply Administration Program  
Bureau of Safe Drinking Water  
Bureau of Water Allocation  
609-292-5550