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Environmental Technology Verification (ETV) Program

*Information and Guidance for Field Testing
Organizations*

Drinking Water Systems (DWS) Center

Prepared by



NSF International

Under a Cooperative Agreement with
 U.S. Environmental Protection Agency

ETV ✓ ETV ✓ ETV ✓

**The U.S. ENVIRONMENTAL PROTECTION AGENCY,
ENVIRONMENTAL TECHNOLOGY VERIFICATION (ETV)
Drinking Water Systems (DWS) Center**

Information and Guidance for Field Testing Organizations

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**THE U.S. ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL TECHNOLOGY VERIFICATION (ETV)
DRINKING WATER SYSTEMS (DWS) CENTER**

Information and Guidance for Field Testing Organizations

Introduction

NSF International (NSF) and the U.S. Environmental Protection Agency (EPA) jointly manage the Environmental Technology Verification (ETV) Drinking Water Systems (DWS) Center. The purpose of the DWS Center is to offer independent evaluations of products designed to treat drinking water for small communities, as well as point-of-use (POU) and point-of-entry (POE) devices for Homeland Security applications. Evaluations are completed using protocols developed with broad stakeholder involvement. Evaluation reports are expected to accelerate commercialization of new drinking water technologies by providing consumers with verified results of product evaluations.

The DWS Center is one of six EPA ETV Centers formed to produce product performance data of high quality and integrity. Other ETV areas include advanced monitoring systems, air pollution control, greenhouse gas prevention, water protection, and pollution prevention. For more general information about the ETV Program, please see Appendix A.

The Verification Process

Application

The first step for a vendor to participate in verification testing is to contact NSF and discuss the verification process with the ETV DWS Center staff. Next, NSF staff will review the technology to assure that there is an appropriate ETV protocol and technology specific test plan (TSTP) to evaluate the product. The DWS Center will then request an application package from the vendor to assess the product for the level of commercial readiness. The application package should include: (1) documentation indicating that there is a patent on the product (or have applied for a patent), (2) a system specific Operation and Maintenance (O&M) manual for the product, (3) field studies or previous test performance data related to drinking water studies and/or certification from an independent source, and (4) a statement of performance capabilities. If the

product is not covered within the scope of an existing ETV protocol or TSTP, the next step will be to develop a test plan. Please see Appendix B “Check List for Consideration of Protocol/Technology Specific Test Plan Development” for requirements to develop a new test plan. If the product is covered under the scope of an existing ETV protocol and TSTP and is commercially ready, the next step in the ETV DWS Center verification process is to develop a Product Specific Test Plan (PSTP) and to test the product. Please see Figure 1 that illustrates the timeline of testing events involved in verification testing.

Selection of a Field Testing Organization

In a case where an ETV protocol requires field testing, a field testing organization (FTO) may be selected to develop the PSTP and perform the field test. NSF will assist the vendor in selecting an FTO if they have not already done so. The FTO must be fully or conditionally qualified by the ETV DWS Center. The list of FTOs is updated regularly and is found on the NSF ETV DWS Center web site: http://www.nsf.org/etv/dws/dws_ftos.html.

The vendor may select an FTO without NSF’s assistance, if the chosen FTO has been fully or conditionally qualified by the ETV DWS Center. If the vendor selects a conditionally qualified FTO, the DWS Center will require the FTO to satisfy special conditions, such as undergoing training specific to the ETV testing or quality assurance process. In some cases, use of a conditionally qualified FTO in which the special conditions were not satisfied could result in the limitation of funding for testing, etc. Please see the section on FTO qualifications for more details or contact the DWS Center for more information.

The vendor may select an organization to conduct testing that is not presently fully or conditionally qualified to do so. NSF will send an application to that organization to apply to be an FTO. Any newly qualified FTO is initially conditionally qualified and must undergo training specific to ETV testing and the quality assurance process.

If this is the first time for a vendor to be involved with the ETV DWS Center for verification testing, the DWS Center requires the vendor to participate in a kick off meeting with NSF and the FTO to outline responsibilities and have questions about verification testing answered.

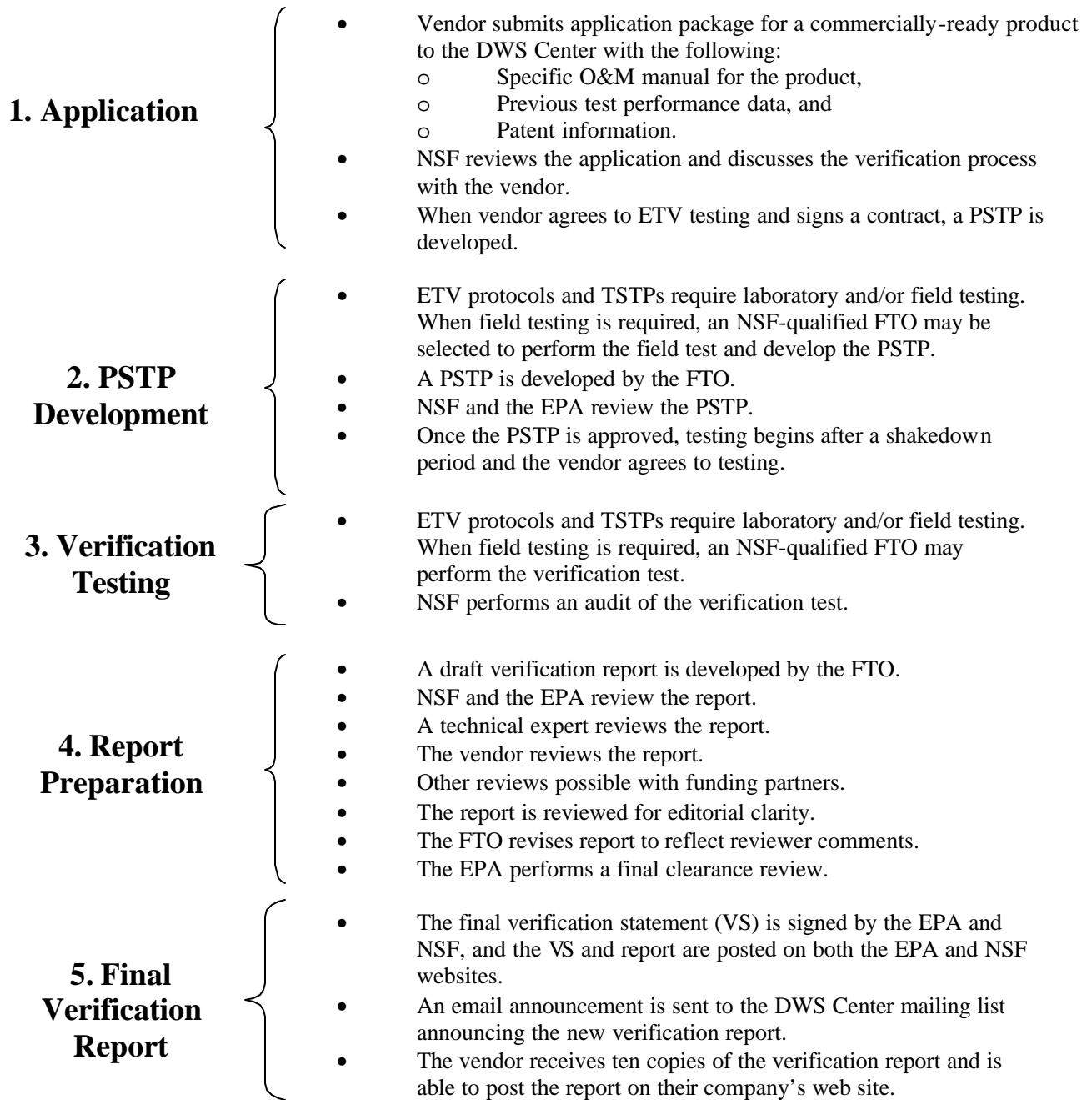


Figure 1: Verification Testing Timeline

Field Test Site Selection

In a case where an ETV protocol requires field testing, a test site will need to be identified. The vendor should recommend a test site with sufficiently challenging water quality to demonstrate the product's performance and O&M. NSF and the FTO can assist with test site selection. The

test site should also consider the vendor's stated performance capabilities for the product. Regardless of the site water quality, the final ETV report can only state how the product performed at the specific site and not speculate how it could perform at other sites. NSF recommends that a product be tested at more than one site or during more than one season whenever possible. Also useful in selecting an appropriate test site is the potential incorporation of existing data from prior testing of the product at other sites – please see Appendix C for more detail. The ETV Program's policy outlining the use of existing data to supplement verification reports is currently under review. For more information, please contact NSF.

Product Specific Test Plan and Statement of Performance Capabilities

Development of an approved PSTP is necessary before testing begins. NSF is responsible for preparation and/or oversight of the preparation of the PSTP. The vendor shall provide two critical pieces of information to include in the PSTP: 1) the product's performance capabilities and 2) a complete description of the product including the processes and principles of operation.

A critical step in the preparation of the PSTP is the vendor's statement of performance capabilities. The vendor's statement of performance capabilities is used to establish data quality objectives (DQOs), which are then used to develop the experimental design of the verification test. The broader the performance capabilities, the more comprehensive the PSTP must be to achieve the DQOs. To test the product based on the performance capabilities, the PSTP will be tailored according to the specific historical water quality at the chosen site, the target performance of the product, and the length of the verification test. Since a major portion or even all of the testing costs may be borne by the vendor, the vendor needs to carefully construct its performance capabilities. NSF reviews each PSTP to assure conformance to the requirements of the ETV protocol, the TSTP, and DQOs.

The vendor must provide a detailed description of the product for inclusion in the PSTP and in the final report. At no time should the vendor provide information that the public should not see. In general, the vendor should only provide as much information as what a state engineer would review during a permit application of the product. While the draft PSTP and draft reports are in NSF's possession, they are not subject to disclosure under the Freedom of Information Act (FOIA) and will be kept confidential. NSF will also keep confidential any business information

identified as such by the vendor upon receipt of a signed non-disclosure agreement available from NSF. However, any document submitted to the EPA or states is potentially subject to disclosure under FOIA.

The structure of the PSTP must conform to the required outline below, explained in Chapter 1 of every ETV DWS protocol, with each component described in greater detail following the outline:

- TITLE PAGE
- FOREWORD
- TABLE OF CONTENTS – The Table of Contents for the PSTP will include the headings provided in this outline, although they may be modified as appropriate for a particular type of equipment to be tested.
- EXECUTIVE SUMMARY – The Executive Summary describes the contents of the PSTP (not to exceed two pages). A general description of the product and the statement of performance objectives that will be verified during testing should be included, as well as the testing locations, a schedule, and a list of participants.
- ABBREVIATIONS AND ACRONYMS – A list of the abbreviations and acronyms used in the PSTP should be provided.
- EQUIPMENT VERIFICATION TESTING RESPONSIBILITIES (described in the sections below)
- EQUIPMENT CAPABILITIES AND DESCRIPTION (described in the sections below)
- EXPERIMENTAL DESIGN (described in the sections below)
- FIELD OPERATIONS PROCEDURES (described in the section below)
- QUALITY ASSURANCE TESTING PLAN (described in the section below)
- DATA MANAGEMENT AND ANALYSIS (described in the section below)
- SAFETY PLAN – The PSTP will also address safety considerations that are appropriate for the equipment being tested as well as for the chemicals required and the challenge organisms, if any, employed in the verification testing.

The following items must be included in the PSTP regarding EQUIPMENT VERIFICATION TESTING RESPONSIBILITIES:

- Definition of the roles and responsibilities of appropriate verification testing participants;
- A table which includes the name, affiliation, and mailing address of each participant, a point of contact, their role, and telephone, fax and E-mail address;
- Organization of operational and analytical support;
- List of the site name(s) and location(s);
- Description of the test site(s), the site characteristics and identification of equipment locations.

The following items must be included in the PSTP regarding EQUIPMENT CAPABILITIES AND DESCRIPTION:

- Description of the equipment to be demonstrated including photographs from relevant angle or perspective;
- Brief introduction and discussion of the engineering and scientific concepts on which the water treatment product is based;
- Description of the treatment train and each unit process included in the package plant including all relevant schematics;
- Brief description of the physical construction/components of the equipment including the general environmental requirements and limitations, weight, transportability, ruggedness, power and other consumables needed, etc;
- Statement of typical rates of consumption of chemicals, a description of the physical and chemical nature of wastes, and rates of waste production concentrates, residues, etc.;
- Definition of the performance range of the equipment;
- Identification of any special licensing requirements associated with the operation of the equipment;
- Description of the applications of the equipment and the removal capabilities of the treatment system relative to existing equipment by providing comparisons in such areas as: treatment capabilities, requirements for chemicals and materials, power, labor requirements, suitability for process monitoring and operation from remote locations, ability to be managed by part-time operators;

- Discussion of the known limitations of the equipment by including such items as the range of feed water quality suitable for treatment with the equipment, the upper limits for concentrations of regulated contaminants that can be removed to concentrations below the maximum contaminant level (MCL), and level of operator skill required to successfully use the equipment.

The following items must be included in the PSTP regarding EXPERIMENTAL DESIGN:

- Identification of the qualitative and quantitative factors of equipment operation to be addressed in the verification testing program;
- Identification and discussion of the water treatment problem or problems that the equipment is designed to address, how the equipment will solve the problem, and who would be the potential users of the equipment;
- Identification of the range of key water quality parameters, given in the applicable NSF protocol(s) and TSTP(s), which the equipment is intended to address and for which the equipment is applicable;
- Identification of the key parameters of treated water quality that should be used for evaluation of equipment performance during the physical removal of microbiological and particulate contaminants. Parameters of significance for treated water quality as listed in the applicable NSF protocol(s) and TSTP(s);
- Description of the confidence interval calculation procedure for selected water quality parameters;
- Detailed outline of the verification testing schedule, with regard to annual testing periods that will cover an appropriate range of annual climatic conditions (i.e., different temperature conditions, seasonal differences between rainy and dry conditions);
- Description of data recording protocol for equipment operation, feed water quality parameters, and treated water quality parameters.

The following items must be included in the PSTP regarding FIELD OPERATIONS PROCEDURES:

- A table summary of the proposed time schedule for operating and testing;

- Field operating procedures for the equipment and performance testing, based upon the NSF protocol(s) and TSTP(s) with listing of operating parameters, ranges for feed water quality, and the sampling and analysis strategy.

The following items must be included in the PSTP regarding the QUALITY ASSURANCE PROJECT PLAN (QAPP):

- Description of methodology for measurement of accuracy;
- Description of methodology for measurement of precision;
- Description of the methodology for use of blanks, the materials used, the frequency, the criteria for acceptable method blanks, and the actions if criteria are not met;
- Description of any specific procedures appropriate to the analysis of the performance evaluation samples;
- Outline of the procedure for determining samples to be analyzed in duplicate, the frequency, and approximate number;
- Description of the procedures used to assure that the data are correct;
- Listing of equations used for any necessary data quality indicator calculations. These include: precision, relative percent deviation, standard deviation, accuracy, and completeness;
- Outline of the frequency, format, and content of reports in the PSTP;
- Development of a corrective action plan in the PSTP;
- Provision of all quality control (QC) information such as calibrations, blanks, and reference samples in an appendix. All raw analytical data will be reported in an appendix of a report;
- Provision of all data in hard copy and electronic form in a common spreadsheet or database format.

The following items must be included in the PSTP regarding DATA MANAGEMENT AND ANALYSIS:

- Description of what types of data and information needs to be collected and managed; and
- Description of how the data will be reported.

Testing

Depending on the requirements of the ETV protocol and TSTP, testing may be performed in the field or laboratory. When field testing is required, an FTO may be selected to conduct the ETV testing. Although, testing is usually performed by the FTO, it may also be performed by a team, such as: consultants, water utility personnel, municipal and state laboratories, and other specialists. The 'team' approach is often used to reduce costs and to use the talents of a broad range of specialists. The team approach must be coordinated through NSF.

NSF is responsible for assuring the quality of ETV testing. All ETV testing will be audited by NSF. Most of the costs of audits are incurred by the ETV DWS Center but in some cases the vendor may be asked to pay for audits. NSF will notify the vendor if the vendor must pay for audit costs prior to the start of testing.

Withdrawal from ETV Testing

Shakedown testing is required before commitment to ETV verification testing, because once ETV testing begins, a final ETV report will be issued regardless of the test results. Shakedown testing is the last opportunity for the vendor to withdraw from the ETV Program without issuance of a report. NSF *strongly* encourages the vendor and the FTO to review the shakedown test data and ensure that the results are consistent with the vendor's expected results. Once shakedown testing is completed, the manufacturer must give consent to NSF to begin the actual verification test period. Evidence of this consent must be submitted to NSF and can be in the form of an affidavit signed by the vendor.

Report Preparation

A draft report consisting of the introduction, methods, and equipment description may be prepared by the FTO and submitted to NSF prior to the completion of field sampling and monitoring. A complete draft report with data will be prepared by the FTO after completion of the field and/or laboratory tests. An ETV report will only provide the results of the test as designed by the specified DQOs. NSF will review the draft report for format, rudimentary science and engineering, and checks on data quality. NSF's review comments pertaining to the first draft of the report will be provided to the FTO for incorporation. NSF's review comments

must be addressed completely by the FTO in the next draft or NSF will charge the FTO for review of additional revisions.

After the resolution of all of NSF's review comments, including a quality assurance and quality control (QA/QC) review by NSF's QA Officer, the draft report will be submitted for technical review by the EPA and to an expert in the technology area. After the EPA and technical review comments are adequately addressed, the vendor will then have an opportunity to review the draft report, focusing on the equipment description and the results sections, and provide comments to both NSF and the FTO. The vendor will be given a maximum of ten business days to provide comments on the report. In addition, if the vendor would like to comment on any of the testing results, the vendor may prepare a separate chapter designated as the vendor's response for inclusion within the final ETV report. This separate chapter by the vendor will be reviewed by NSF, the FTO, and the EPA. Prior to final submittal of the verification statement and report to the EPA, NSF will submit the document to a technical editor, either internally or externally, to review the text. The EPA will then conduct a final review of the document before signing the verification statement. Any draft document, including reports, that are in draft form are confidential and not to be submitted to any other outside party without prior knowledge and approval by NSF.

A verification report and the ETV logo may only be used for a product that was verified and named in the original ETV report. In the event that the manufacturer decides to change the name of the product after verification testing has begun, the onus that the name changed and not the design, parts, or performance of the product is the responsibility of the vendor. For more information about product and/or product name changes, please contact NSF.

Use of the EPA and NSF Names During Verification

The FTO must review the policies for the use of the EPA and NSF names and logos during verification testing and sign a contract with NSF attesting to comply with the EPA and NSF policies (see Appendix D for more specific requirements and limitations). When describing an FTO's participation in ETV testing, the FTO may state the facts about ETV participation, which begins no sooner than when the PSTP is approved by the ETV DWS Center.

FTO Qualifications

For an organization to be approved by NSF as an FTO to conduct field testing activities, they must meet the following minimum requirements, with secondary qualifications preferred for chemistry and microbiology laboratories. FTOs may include engineering consulting firms, universities, or other qualified scientific organizations. An organization must complete and submit an application form (Appendix E) when applying to become an FTO. If an organization becomes fully or conditionally qualified by NSF as an FTO, they must read and agree to the “Contract for Field Testing Organization Qualification” (Appendix F) and the “Policies for Qualifying Field Testing Organizations Performing Verification Services” (Appendix G) before beginning any work.

Qualifications for an FTO

1. Professional Engineer with experience in conducting a minimum of three drinking water pilot studies will oversee field testing operations.
2. Organization has experience in conducting drinking water pilot studies for an individual state or for an organization conforming to the requirements of the state. The studies must have been satisfactorily performed, as indicated by the governing state agency. Examples of the studies or project's report(s) shall be submitted to demonstrate the organization's capability to prepare acceptable documentation of conducted studies. Organization has experience in preparing and executing a project-specific QA/QC plan (i.e., a QAPP) for a package drinking water treatment project or pilot study under the direction of the EPA, AWWARF, EPRI, National Water Research Institute or other relevant organization.
3. Demonstrated timeliness in delivery of documents and testing activities (e.g., minimum amount of delays in the start up of testing, few revisions of an PSTP or verification report).
4. Confirmed responsiveness by addressing and not disregarding review comments or ETV schedules.
5. Proven thoroughness, completeness (e.g., submittal of all quality control data), and accuracy (appropriate technical judgment based on technical review comments).

New FTOs are also considered to be conditionally qualified until they have satisfactorily completed an ETV test and report. An FTO that satisfies all of the above criteria will be considered a fully qualified FTO. Any FTO that meets only a portion of the performance criteria mentioned above may be re-qualified as a conditionally qualified FTO and listed as such on the NSF and EPA web pages.

Some examples of the effect of a change in status from fully qualified to conditionally qualified are presented here for your information. A fully qualified FTO will have a reduced number of inspections during testing including no inspection, if deemed appropriate, in NSF's evaluation of quality controls during testing. However, the Center will inspect an FTO more frequently if the FTO has a condition that stipulates more frequent inspections based on past performance of fieldwork. If more frequent inspections are required, the additional inspection costs incurred by the DWS Center will be charged to the FTO as inspection fees. An FTO with unsatisfactory performance will also not be eligible to receive any matching funds under the Center until its performance is deemed satisfactory based on inspections, training, and document reviews. This condition will apply to those FTOs with existing contracts in which there is an outstanding deliverable such as an incomplete report. The Center will also assess a fee (see Policies – Appendix G) for the review of PSTPs and verification reports upon receipt of the third draft from the FTO in which previous comments (not new comments) were not addressed.

A conditionally qualified FTO must receive a minimum of one training session concerning the requirements of ETV testing and QA/QC requirements. This training will include a review of the necessary components of a PSTP and its QAPP; requirements of field testing including documentation and personnel requirements, laboratory responsibilities and levels of data quality control; a discussion on the necessary components of an ETV report, including appendices; and a discussion regarding an appropriate timeline for completion of the verification. The training will also include a discussion regarding the internal review process of the FTO to minimize data transcription errors and obvious engineering and editorial flaws in the draft report.

The DWS Center may select an FTO with repeated demonstrated high performance to conduct ETV protocol validation studies. A protocol validation study typically will involve verification tests (against previously untested protocols and/or TSTPs) that require more ETV matching

funds than the normal amount proposed under the operation of the Center. Demonstrated high performance will be determined by the timeliness, responsiveness, and completeness previously discussed.

For chemistry and microbiology laboratories that will conduct analytical tests for the ETV DWS Center, the minimum and secondary qualifications are as follows:

Required Qualifications for a Chemistry or Microbiology Laboratory

1. Laboratory must be certified for analysis of water samples for Safe Drinking Water Act compliance by one or more states having Safe Drinking Water Act primacy.
2. Laboratory must be certified by a state or the EPA for the pertinent analysis.
3. Principal Investigator or Technical Manager has professional experience in conducting drinking water analyses for state compliance monitoring.

Secondary Qualifications for a Chemistry or Microbiology Laboratory

1. Laboratory is accredited by a third party organization (e.g., NSF) for the work to be subcontracted based on ISO/IEC Guide 17025 or EN 45001.

Frequently Asked Questions

For list of frequently asked questions by FTOs pertaining to the ETV DWS Center, please refer to Appendix H.

Appendix A: Overview of the EPA ETV Program

Concern about drinking water safety has accelerated in recent years due to highly publicized outbreaks of waterborne diseases and information linking ingestion of contaminants to cancer incidence. The 1996 Safe Drinking Water Act requires the U.S. EPA to set standards for contaminant levels and treatment and monitoring requirements to ensure the safety of public water supplies.

Throughout its history, the U.S. EPA has evaluated technologies to determine their effectiveness in monitoring, preventing, controlling, and cleaning up pollution. Since the early 1990s, however, numerous government and private groups have determined that the lack of an organized and ongoing program to produce independent, credible performance data is a major impediment to the development and use of innovative environmental technology. Such data are needed by technology buyers and permittees, both in the United States and abroad, to make informed technology decisions. To overcome this impediment, EPA established a program to accelerate the implementation of environmental technology through objective verification and reporting of technology performance. In October 1995, the ETV Program was established by EPA. The ETV Program develops testing protocols and verifies the performance of innovative technologies that have the potential to improve protection of human health and the environment. Recently, ETV began verification of monitoring and treatment technologies relevant for homeland security.

Appendix B: Check List for Consideration of Protocol/Technology Specific Test Plan Development

**Environmental Technology Verification (ETV)
Drinking Water Systems (DWS) Center
Checklist for Consideration of Protocol/Technology
Test Plan Development**

***Purpose:** Currently, the DWS Center does not have a protocol against which to verify the performance of your product. You may request the Center to develop a test plan for your product. NSF is available discuss the cost of test plan development with you. To begin this process, please submit the following information to NSF:*

1. **Name:** _____ **Title:** _____
Company: _____
Address: _____
City/State/Zip: _____
Email Address: _____ **Website:** _____
Phone: _____ **Fax:** _____

2. **Technology/Product Name:** _____
Please describe your product, the process(es) involved, and the contaminants for which it is designed to reduce (attach information or brochures as needed): _____

3. **Does your company have patent protection on this product?**
Yes No
If yes, what is the level of protection? _____
Please note: Participation in the ETV process is open to the public.

4. **Has your product been tested before at (check all that apply):**
_____**Lab or Bench Scale?**
_____**Pilot Scale?**
_____**Full Scale?**
Please attach any data and/or lab reports for the items checked above.

Please return this form and any additional information to:
Mr. Bruce Bartley, Manager, ETV DWS Center
NSF International, 789 N. Dixboro Road, Ann Arbor, Michigan 48105
Phone: (734) 769-5148 Fax: (734) 827-7160

Appendix C: Existing Data Policies (Under Revision)



DRINKING WATER SYSTEMS ETV CENTER PROCEDURES FOR EXISTING DATA

The ETV Program's current policy states that existing data can be used as supplemental data (in an appendix to a verification report) or to partially or totally replace verification testing. In either case, the DWS Center must assess the quality of the data relative to its intended use. Data that are used to partially or totally replace verification testing must undergo a very rigorous data review to assess whether the data meets ETV data quality and quantity standards and acceptance criteria associated with specific performance claims/objectives, as outlined in a pre-existing ETV protocol or TSTP for that technology category. The ETV Program is currently revising this policy. The vendor is responsible for paying the full cost of the existing data review.

Existing data may also be used to supplement testing results that are generated under ETV testing and placed in the appendix of the ETV report. Any data that was collected outside of ETV would be noted as such if used in a verification report and statement, and any deviations would be included as a caveat to the data. The purpose of the following procedure is to describe the current process for consideration of existing data for use as supplemental data to a verification report. This process is based on the ETV Program Policy Compendium and the EPA's Quality Management Plan. These policies are currently under review and revision.

Review Process for Supplemental Existing Data

A manufacturer may request review of an existing data package of a manufacturer's commercially ready product that is being tested and evaluated under the ETV DWS Center. Before submittal, the entity submitting the data package should review the package to ensure that it meets the minimum general acceptance criteria, as set forth below:

- The data meets the requirements of the ETV protocol and TSTP being used for evaluation tests of the technology. At a minimum, the existing data must meet the same level of quality assurance and quality control (QA/QC), replicate tests, data treatment, and reporting that is required for a verification report.
- The conditions under which the data were collected are clearly defined and were appropriate for the demonstration of the capabilities of the product.
- Sufficient data are supplied to allow the product to be evaluated. Sufficiency of the data will be determined by NSF and subsequently the technical reviewers.
- The data has been collected objectively and independently of the vendor.

Review of Existing Data under the ETV DWS Center will be comprised of the following key activities:

- Identifying and Qualifying the Data by NSF,
- Convening a Data Evaluation Panel (DEP) by NSF,
- Evaluation of the Data by the DEP,
- Recommendations by the DEP for Acceptance of Data for Verification Report Supplement, and
- Review and Acceptance of Recommendation by NSF and EPA.

Appendix D: NSF and EPA Policies on Use of Names and Logos

NSF International (NSF) Policy on the Use of the NSF Name and Logo as Part of the U.S. EPA Environmental Verification Technology Program (February 3, 2000)

INTRODUCTION:

The purpose of this policy is to provide clear and unambiguous instructions on the conditions for the use of the NSF International (NSF) Name and Logo and Trademarks. For any PARTY that has a signed agreement with NSF, the terms and conditions of that signed agreement shall supersede these policies.

DEFINITIONS:

The term Report includes data, findings, and any other information included in an NSF verification, assessment, evaluation, or testing, whether such information is in preliminary or final form as collected under the United States Environmental Protection Agency's (EPA) Environmental Technology Verification (ETV) program.

The term Verification Statement refers to the EPA's ETV summary of the Report as defined previously.

The term PARTY refers to any public or private organization, group, or individual materially involved in the production of the Report, as defined previously, and may include but is not limited to the product manufacturer, distributor or vendor, the testing organization and its subcontractors.

The term NSF refers to NSF International.

The term Mark refers to each of NSF's trade, service and certification marks.

POLICIES:

1. The actual or implied use of NSF's registered Marks® by the PARTY is prohibited, except with advance written permission of NSF. Each time one of NSF's registered Marks® is used, the symbol ® must be indicated.
2. The PARTY shall NOT state misleading or untruthful information about the status or content of the Report or Verification Statement. The PARTY may request NSF to review any statements and NSF shall, upon request, provide a written review of statements concerning NSF's verification or assessment. NSF may issue a notice to the public to correct any misleading information or other misstatements of which NSF is aware, in order to protect the environment, public safety, or the NSF Mark®.
3. Until EPA and NSF have completed their technical reviews of the Report and Verification Statement, Reports and Verification Statements provided by NSF are preliminary only. Preliminary Reports and Verification Statements are subject to change. PARTY may use a preliminary Report, preliminary Verification Statement, or information contained within them only for purposes of in-house review by PARTY, and may not distribute that information, Report or Statement to persons outside PARTY. PARTY shall not use any preliminary Report, Verification Statement, or information contained within either of them, without advance written permission of NSF for external use, including presentation at conferences, exposition or other such activities.
4. NSF will provide written notification to PARTY that the Report and Verification Statement are final. After receiving this written notice from NSF, PARTY may copy the final Report and final Verification Statement in a manner that is not misleading. The PARTY may mail, distribute or otherwise disseminate copies of the final Report or Verification Statement in their entirety. NSF will make the final Report or Verification Statement available to the public by dissemination. PARTY may not use the NSF Mark, however, without advance written permission of NSF.
5. NSF has statutory authority under the Lanham Act, 15 U.S.C. §1125, to bring a civil action against any person who, in connection with the sale of any goods or services, uses any symbol or false or misleading statement which is likely to deceive as to the sponsorship or approval of his or her goods or services.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF RESEARCH AND DEVELOPMENT
NATIONAL RISK MANAGEMENT RESEARCH LABORATORY
CINCINNATI, OHIO 45268

USEPA Environmental Technology Verification Program
Purpose of Verifications and Use of Program Name and Logo

The U.S. Environmental Protection Agency (EPA) supports the Environmental Technology Verification Program (ETV) by providing financial and technical assistance through cooperative agreements that enable non-Federal partners to evaluate or “verify” environmental technologies. By verify, EPA means to establish or prove the truth of the performance of a technology under specific, predetermined criteria or protocols and adequate data quality assurance procedures. Verification does not imply that technologies will always perform as they performed under ETV testing, nor that they will perform in the same manner under circumstances different from those tested. Most specifically, *ETV does not “certify,” guarantee, or warrant the performance of technologies.* Under the ETV Program, EPA and its cooperative partners do *not*: (1) seek to determine regulatory compliance; (2) rank technologies or compare their performance; (3) label or list technologies as acceptable or unacceptable; or (4) seek to determine “best available technology” in any form. In general, the ETV Program will avoid all potential pathways to picking “winners and losers.” The goal of the program is to make objective performance information available to all of the actors in the environmental marketplace for their consideration and decision making.

ETV is a voluntary program. Vendor participation in the ETV Program is completely voluntary. Vendors of environmental technologies and other actors in the environmental marketplace are not required to participate in the program, nor are they required to seek verification. The program goal is to provide objective technology performance information to the environmental marketplace. Vendors who believe that such information would be of value to their marketing activities are encouraged to participate as appropriate. Verification reports and statements are available publicly on the ETV website at www.epa.gov/etv.

In order to protect the integrity of the program, EPA and its cooperative partners oversee proper use of the Environmental Technology Verification Program name and logo. The name and logo may be used for general educational purposes by anyone without specific permission from the Agency. The name and logo may be used when describing the ETV Program, such as in an educational brochure, a newsletter, an annual report, or in a general news or scientific article. Vendors of verified technologies may use the ETV logo to advertise the availability of verification information and the fact that the technology has been verified under ETV. **Under no circumstances shall the name or logo be used in a manner that would imply EPA endorsement, approval, certification, guarantee, or warrantee of the company, its products, its technologies, or its services.**

If EPA or its cooperative partners discover that an ETV verification is being misrepresented, the verification will be revoked if necessary. However, EPA or one of its cooperative partners will first notify the vendor of the misrepresentation and work with the vendor to resolve the issue. If the vendor does not voluntarily resolve the problem, EPA and its partner will initiate the revocation process. In addition, the Agency may refer the matter to the Federal Trade Commission for further investigation to determine whether the vendor has violated laws or regulations relating to false or deceptive advertising.

Appendix E: Application Form for Field Testing Organizations



APPLICATION FOR FIELD TESTING ORGANIZATION (FTO) QUALIFICATION ETV Drinking Water Systems (DWS) Center

To be completed by applicant:

Company Name: _____
Address: _____
City: _____ State: _____ Zip Code: _____
Telephone: _____ 800: _____ Fax: _____

Senior Staff:

Names	Title
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Quality Management Officer:

Name: _____
Title: _____
Reporting Relationship: _____

Principle Contact:

Name: _____
Title: _____
Reporting Relationship: _____

Please provide the following additional documents:

- An organizational chart of staff/organization
- A copy of the organization's Quality Management Plan or a description of how quality will be assured during ETV verification.
- A list of information that corresponds to the criteria listed on page 2.

Is this facility related to an external organization or to a parent organization? _____

If yes, please name: _____

Affidavit: The undersigned has read and agreed to the *USEPA Program Purpose of Verifications and Use of Program Name and Logo* and the *NSF Policy on the Use of the NSF Name and Logo as Part of the U.S. EPA Environmental Verification Technology Program (February 3, 2000)* until a the *Contract for FTO Qualification* is signed with NSF International.

Principle Contact Signature

US EPA ARCHIVE DOCUMENT

**Page 2. APPLICATION FOR FIELD TESTING ORGANIZATION QUALIFICATION
ETV Drinking Water Systems (DWS) Center**

Qualifications for an FTO:

1. Professional Engineer with experience in conducting a minimum of three drinking water pilot studies will oversee field testing operations.
2. Organization has experience in conducting drinking water pilot studies for an individual state or for an organization conforming to the requirements of the state. The studies must have been satisfactorily performed, as indicated by the governing state agency. Examples of the studies or project's report(s) shall be submitted to demonstrate the organization's capability to prepare acceptable documentation of conducted studies. Organization has experience in preparing and executing a project-specific quality assurance/quality control (QA/QC) plan [i.e., a Quality Assurance Project Plan (QAPP)] for a package drinking water treatment project or pilot study under the direction of the EPA, AWWARF, EPRI, National Water Research Institute or other relevant organization.
3. Demonstrated timeliness in delivery of documents and testing activities (e.g., minimum amount of delays in the start up of testing, few revisions of a PSTP or verification report).
4. Confirmed responsiveness by addressing and not disregarding review comments or ETV schedules.
5. Proven thoroughness, completeness (e.g., submittal of all quality control data), and accuracy (appropriate technical judgment based on technical review comments).

New FTOs are also considered to be conditionally qualified until they have satisfactorily completed an ETV test and report. An FTO that satisfies all of the above criteria will be considered a fully qualified FTO. Any FTO that meets only a portion of the performance criteria mentioned above may be re-qualified as a conditionally qualified FTO and listed as such on the DWS Center web page at www.nsf.org/etv/dws/dws_ftos.

Appendix F: Contract for Field Testing Organization (FTO) Qualification

A contract made and entered into this *<date>* between NSF International, a corporation organized and existing under the laws of the State of Michigan, with its principal office in the City of Ann Arbor, Michigan, (herein after called “NSF”) and *<FTO Name>* (herein after called “FTO”).

1. Qualification refers to services performed for testing of equipment at field sites other than on NSF property. These services are described in the *Environmental Protection Agency (EPA) Environmental Technology Verification (ETV) Information and Guidance for Field Testing Organizations* and the ETV Protocols and Test Plans, and are approved by NSF for Qualification.
2. The FTO hereby certifies and represents that it has received and read the *ETV Program Information and Guidance for Field Testing Organizations, Policies For Field Testing Organizations Performing Verification Services, USEPA Program Purpose of Verifications and Use of Program Name and Logo*, and the *NSF Policy on the Use of the NSF Name and Logo as Part of the U.S. EPA Environmental Verification Technology Program (February 3, 2000)*.
3. Upon determination by NSF that the evaluated FTO complies with the requirements of the documents referenced in item 2 of this contract, and upon execution of this contract and payment of all outstanding fees, NSF agrees to qualify the FTO to conduct field and testing services on behalf of NSF for the EPA ETV Drinking Water Systems (DWS) Center upon the FTO satisfactorily completing the conditions specified herein.
4. The FTO expressly acknowledges and agrees that execution of this contract, of and by itself, is not an NSF Qualification. In accordance with the documents referenced in item 2 of this contract, NSF will notify the FTO in writing of Qualification.
5. The FTO hereby certifies and represents that it will abide by all NSF requirements, as specified in the documents referenced in item 2 above. It is understood and agreed that the documents referenced in item 2 of this contract shall be periodically revised in accordance with procedures of the EPA ETV Program and changes may occur with or without the permission of the FTO. NSF shall announce any revision in writing and notice to the FTO given by Email, facsimile, or postal mail service. Upon receipt of notice of any applicable revision, the FTO agrees that it will abide by the announced revision; or, at its option, the FTO may terminate this contract in accordance with the provisions of this contract.
6. The FTO shall provide to NSF all reports and requested data both in hardcopy and electronic-digital form in a format negotiated with NSF.
7. Any information technology purchased, produced, submitted or exchanged by the FTO under this agreement must be capable of processing date data according to EPA’s Data Standard for Representation of Calendar Dates (EPA Directive 2100, IRM Policy Manual, Chapter 5, Data Standards) on the EPA website at <http://www.epa.gov/irmpoli8/polman/chaptr05.htm#calendar>. Information technology acquired under this agreement should be consistent with the technical Year 2000 requirements as described in the Federal Acquisition Regulation 39.002. This information is located on the GSA website at <http://www.arnet.gov/far/97-05/html/39.html>.
8. The FTO shall furnish NSF with digital color photographs, 35mm color slides in 2” x 2” mounts, or glossy black and white photographs (suitable for inclusion in reports) of experimental site areas; equipment and instrumentation; and experimental set-up details, experimental results and other items pertinent to documentation project progress. All photographs shall be organized and indexed.
9. Reports and informational material prepared under this agreement shall be submitted to NSF for the EPA’s peer review prior to publication. The FTO must give considerations to any NSF review and EPA review comments. If the EPA Project Officer does not approve publication clearance for the reports and other materials, then NSF may allow the FTO to publish the work only when an appropriate disclaimer statement is provided. NSF will

provide the disclaimer to the FTO. This requirement extends to publications based on EPA-supported work conducted during period of performance of this agreement even if the publication is prepared after the completion of the performance period.

In contrast to reports and information materials, journal articles that are prepared under this agreement without collaboration and co-authorship of EPA and NSF scientists may be submitted directly to a journal at any time. In this instance, the FTO must submit one copy of the article to NSF and the EPA Project Officer when it is transmitted to the journal and three copies of the article after it is published. In this situation, the article must contain the appropriate disclaimer statement approved by NSF. Journal articles prepared with an NSF or EPA lead author or co-author must be submitted to the EPA Project Officer and NSF Project Manager for review. Submittal of the article to NSF for NSF and EPA review at least two weeks prior to submitting the article to the journal is recommended.

10. The FTO assumes full and complete responsibility for its use of the NSF or ETV Name and Logo or other representation that it is Qualified to perform work under the ETV DWS Center. NSF assumes no liability for any claims arising from the FTO's misuse of the NSF or ETV Name and Logo or misrepresentation of the Qualification status of its services.
11. NSF assumes no liability for any claims for damages of any kind occurring to any person or entity as a result of use of the FTO's services, whether or not the FTO is Qualified
12. The FTO assumes no liability for any claims arising from the content of the documents referenced in item 2 of this contract.
13. The FTO agrees that, in the event that NSF is not a named party but is involved in legal proceedings (including receipt of subpoenas for comments or testimony) concerning the FTO or its services, NSF shall notify the FTO and the FTO will reimburse NSF for all reasonable expenses related to those proceedings.
14. If it is necessary to revise this uniform contract, it shall be revised in accordance with procedures that expressly provide for comments by any parties of interest, then NSF shall provide the new contract or contract modifications to be executed by the FTO and NSF.
15. The FTO may terminate this contract at any time upon thirty (30) days written notice to NSF, but shall be liable for costs for services provided by NSF through the date of receipt of notice, except for any additional costs necessary to terminate services. NSF may terminate this contract at any time for noncompliance and/or nonpayment by the FTO upon thirty (30) days written notice to the FTO. Upon thirty (30) days written notice NSF may terminate or modify this contract by providing a new contract or contract modifications to be executed by the FTO and NSF.
16. Unless terminated by either party, this contract shall continue in effect from year to year. The FTO shall notify NSF by December 30 if it wishes to cancel the contract for the next year. If NSF has not received such notice in writing by December 30, the FTO agrees to submit any fees by January 31 of the following year. The FTO agrees that all payments are 30 days net.
17. After termination of this contract for any reason, the FTO agrees to allow NSF to conduct inspections of the FTO's facilities to enable NSF to verify that the FTO has discontinued use of all NSF Qualification reference on its literature and advertising. The FTO further agrees that, upon termination of the contract for any reason, it will surrender, efface, or otherwise dispose of in a manner acceptable to NSF any unused data labels, stencils, dies, molds, marking devices, literature, advertisement, or other information bearing an NSF name or Logo or referencing NSF Qualification. If NSF has reason to question conformance by the FTO with this provision of the contract, the FTO agrees to allow NSF reasonable access to the FTO facilities to conduct inspections to verify conformance.
18. NSF agrees to provide the FTO written notice of nonconformance with any NSF requirement. NSF reserves the right to withdraw the Qualification status at any time for the FTO's failure to correct the nonconformance within a reasonable time.

- 19. This contract shall be interpreted in accordance with the laws of the State of Michigan, of the United States of America.
- 20. The invalidity or unenforceability of any particular provision(s) of this contract and/or the documents referenced in item 2 of this contract shall not affect the other provisions.
- 21. This contract and referenced policies constitute the entire agreement between the parties with respect to the subject matter hereof and supersedes all previous communications, representations or agreements, whether oral or written, between the parties with respect to said subject matter. No modification will be binding upon either party unless it is made in writing and is signed by duly authorized representatives of both parties.

For
NSF International

For
<FTO Name>

Signature

Signature

Typed Name and Title

Typed Name and Title

Date

Date

Appendix G: Policies for Qualifying Field Testing Organizations Performing Verification Services

INTRODUCTION

On October 1, 2000, NSF International (NSF) entered into an agreement with the U.S. Environmental Protection Agency (EPA) to form an Environmental Technology Verification (ETV) Center dedicated to providing independent performance evaluations of drinking water products with the goal of raising awareness for new treatment technologies. The Drinking Water Systems (DWS) Center represents the next phase of the ETV Program's Drinking Water Treatment Systems Pilot, which began in 1995 as a partnership between NSF and the EPA's Office of Ground Water and Drinking Water and laid the groundwork for the new Center.

The ETV Program's DWS Center provides a company a means to:

- Collect credible performance test data and information [qualitative, operation and maintenance (O&M), ease of operation, electrical use, etc.] on their drinking water system or component and
- Disseminate the verification test data and information to appropriate regulatory agencies and users of these systems, components or products.

The purpose of these policies is to describe the responsibilities, limitations, and obligations of the field testing organization (FTO) when it conducts testing for the ETV DWS Center.

DEFINITIONS

Agreement or Contract – A written document signed by the FTO and NSF where in the FTO and NSF agree to abide by specific terms and conditions related to the obligations of each party.

Commercially Ready – A package plant, component, or module that is either in full-scale commercialization or able to be manufactured and marketed without the need for additional research and development. Three items are required by the DWS Center to demonstrate commercial readiness: an O&M manual for the product, a patent on the product, and any previous test performance and/or certification from an independent source. ETV verification must not be used for product research and development.

Compliance – Conformance with all requirements established by the ETV DWS Center.

Component – A packaged, functional assembly for use in a drinking water treatment system or package plant that provides a limited form of treatment of the feed water(s) and which is discharged to another component of the treatment system or in the final step of treatment to the distribution system.

Conditionally Qualified FTO – A testing organization having identified deficiencies, but demonstrates its ability to conduct valid verification testing of package plants, components or modules under the management and guidance of the ETV DWS Center by NSF.

Data Quality Objectives (DQOs) – The criteria used to compose the experimental design of a verification test based on a specified target performance of the product. DQOs are based on seven steps: 1.) stating the problem, 2.) identifying the decision, 3.) identifying the inputs to the decision, 4.) defining the boundaries of the study, 5.) developing a decision rule, and 6.) specifying limits on decision errors, and optimizing the design.

Distribution System – A system of conduits by which a primary water supply is conveyed to consumers typically by a network of pipelines.

EPA – The United States Environmental Protection Agency, its staff or authorized representatives.

Equipment/Product – A package plant, component, or modular of a drinking water treatment system.

Feed Water – The influent water supplied to package plants, components or modules.

Field Testing Organization (FTO) – An organization qualified to conduct studies and testing of package plants or modular systems in accordance with ETV protocols and TSTPs. The role of the FTO is to conduct the skilled operation of equipment during the intense periods of testing during the study and the tasks, as required by the ETV protocol and Technology-Specific Test Plan (TSTP).

Fully Qualified FTO – An FTO meeting all of the requirements stated in the *Policies For Field Testing Organizations Performing Verification Services*, *EPA ETV Program Purpose of Verifications and Use of Program Name and Logo*, and the *NSF Policy on the Use of the NSF Name and Logo as Part of the U.S. EPA Environmental Verification Technology Program (February 3, 2000)*.

Modular System – A packaged functional assembly of components for use in a drinking water treatment system or package plant that provides a limited form of treatment of the feed water(s) and which is discharged to another module of the package plant or in the final step of treatment to the distribution system.

NSF – NSF International, its staff, or other authorized representatives.

NSF Logo – A designated Mark registered by NSF with an appropriate agency.

Noncompliance – Lack of conformance with the *Policies For Field Testing Organizations Performing Verification Service*”, *EPA ETV Program Purpose of Verifications and Use of Program Name and Logo*, and the *NSF Policy on the Use of the NSF Name and Logo as Part of the U.S. EPA Environmental Verification Technology Program (February 3, 2000)*.

Package Plant – A complete water treatment system including all components from the connection to the source water(s) intake through discharge to the distribution system.

Plant Operator – The person working for a water system who is responsible for operating water treatment equipment to produce treated drinking water. This person also may collect samples, record data, and attend to the daily operations of equipment throughout the testing periods.

Product Specific Test Plan (PSTP) – A written document of procedures for on-site/in-line testing, sample collection, preservation, and shipment and other on-site activities described in the ETV protocol(s) and TSTP(s) that apply to a specific make and model of a package plant, modular system, or component.

Protocol – A written document that clearly states the objectives and scope of the study including the appropriate TSTP(s) to conduct the study.

Public Notice – The issuance of a written notice or document describing the unauthorized and/or misuse of the NSF or EPA names by an organization involved in verification testing.

Report – A written document that includes data, test results, findings, and any pertinent information collected in accordance with a protocol, analytical methods, procedures etc., in the assessment of a product, whether such information is in preliminary, draft or final form.

Source Water – The influent water supplied to a drinking water system that originates from a surface water or ground water and which has not previously been treated.

Technical Review – A review performed by a technical advisor that has knowledge of the technology(ies) applied by the vendor's product and has no business relationship with either the FTO or vendor. At a minimum, the technical reviewer will consider whether the results of the report are consistent with the technology used in the product, and the credibility of the results, findings and conclusions of the report.

Technology Specific Test Plan (TSTP) – A written document that describes the procedures for conducting a test or study for the application of a specific water treatment technology. At a minimum, the TSTP will include detailed instructions for sample and data collection, sample handling and sample preservation, precision, accuracy, and reproducibility goals, and quality assurance and quality control (QA/QC) requirements.

Testing Laboratory – An organization certified by a third-party independent organization, federal agency, or a pertinent state regulatory authority to perform the testing of drinking water samples. The role of the testing laboratory in the verification testing of drinking water systems and/or components is to analyze the water samples in accordance with the methods and meet the pertinent QA/QC requirements described in the protocol, TSTP and PSTP.

Vendor – A business that makes and/or sells package plants, components or modules. The role of the vendor is to provide the package plants, components or modules and technical support for the verification testing and study. The manufacturer is also responsible for providing assistance

to the FTO during operation and monitoring of the package plants, components or modules during the verification testing and study.

Verification – To establish evidence on the range of performance of a product, such as a package plant or component under specific conditions following a predetermined ETV protocol(s) and TSTP(s).

Verification Report – A written document including data, test results, findings, and any pertinent information collected in accordance with an ETV protocol(s) and TSTP(s) for the verification of a product, whether such information is in preliminary, draft, or final form.

Verification Statement – A written document that summarizes a final report that is reviewed and approved by NSF and the EPA.

AUTHORIZATION FOR QUALIFICATION

Eligibility: An FTO that conducts studies and testing of package plants, components or modules is eligible to be qualified by NSF if they meet the criteria outlined in the section of this document entitled “Qualification for Authorization”. The DWS Center only qualifies a Testing Laboratory as an organization or company that assists the FTO in verification if they meet the criteria outlined for Analytical Laboratories.

Application for Qualified FTOs: An “Application for Field Testing Organization (FTO) Qualification ETV Drinking Water Systems (DWS) Center” shall be submitted by the FTO to NSF.

Agreement for Services: When the ETV DWS Center completes its evaluation of the application, NSF may then issue a contract that shall be executed between the FTO and NSF.

Responsibility of an FTO: The FTO shall represent itself as Fully Qualified only when it is in full compliance with all required qualifications [*Policies For Field Testing Organizations Performing Verification Services, USEPA ETV Program Purpose of Verifications and Use of Program Name and Logo*, and the *NSF Policy on the Use of the NSF Name and Logo as Part of the U.S. EPA Environmental Verification Technology Program (February 3, 2000)*] and only after it receives a written letter from NSF stating its level of qualification: unqualified, conditionally qualified, or fully qualified.

Transfer of Authorization for Qualification: Upon request and with documentation of continued compliance with all applicable requirements, NSF may transfer authorization for continued use of the qualification to another FTO for the purpose of a name change, change of ownership, or change in location.

Modifications in an FTO: The FTO must notify NSF in writing within 30 days of any changes related to the qualification criteria as specified in the following section, “Qualification for Authorization”, such as changes in personnel. NSF shall review any changes and advise the FTO of any required inspection(s) or evaluation(s) of the initial qualification status. To remain

current status, mandatory training will be given to new personnel. Failure to notify NSF of any change in the qualification criteria constitutes a breach of these policies and the basis of the FTO will no longer remain qualified by the ETV DWS Center.

Liability of NSF: The FTO's continued observance of all requirements in the *Policies For Field Testing Organizations Performing Verification Services, USEPA ETV Program Purpose of Verifications and Use of Program Name and Logo*, and the *NSF Policy on the Use of the NSF Name and Logo as Part of the U.S. EPA Environmental Verification Technology Program (February 3, 2000)* is one condition for its continued qualification. The EPA and NSF assume no liability for the consequences to any party or parties of acts or omissions of the FTO in connection with any services rendered by the FTO. The FTO acknowledges that the EPA and NSF in no way shall be liable or responsible to the FTO for errors in fact or opinion. The FTO hereby holds the EPA and NSF harmless and agrees to indemnify it against any and all claims, causes of action, or lawsuits except those arising solely out of the negligence of the EPA and NSF. This indemnification includes, but is not limited to, claims, causes of action or lawsuits arising out of misuse of the ETV DWS Center qualification status, the representation of the ETV DWS Center qualification status, and the FTO's violation of the *Policies For Field Testing Organizations Performing Verification Services, USEPA ETV Program Purpose of Verifications and Use of Program Name and Logo*, and the *NSF Policy on the Use of the NSF Name and Logo as Part of the U.S. EPA Environmental Verification Technology Program (February 3, 2000)*. This indemnification and agreement to hold harmless includes, but is not limited to, costs and attorney's fees.

Cancellation of Contracts and Disputes: NSF may terminate a contract, or any work orders issued under a contract, upon thirty (30) days written notice to the FTO. In the event of:

1. Nonperformance by the FTO (e.g., failure to meet QA/QC objectives and goals as specified in the PSTP, such that the verification testing objectives cannot be achieved even with immediate corrective actions, failure to make corrective actions, and failure to conduct work safely without adverse health effects), the FTO will stop work (e.g., all testing and evaluation).
2. Extenuating NSF circumstances that make completion of the work impossible (e.g., damage to vital equipment or facilities, loss of key personnel), the FTO will assess for NSF all evaluation, testing and costs that led to a completed phase or deliverable under this contract. The FTO will make every reasonable attempt to complete any test sequence under way when such notice is given.

Failure to comply with the contract or policies may result in withdrawal of qualification or cancellation of any contractual agreements. The FTO agrees that any claims having to do with failure to comply with any of these policies, including non-payment or other any other claims, whether brought by or against NSF, shall be brought in the State of Michigan, and the FTO agrees to submit to the jurisdiction of a Michigan court or a Federal court of a Michigan district.

QUALIFICATION FOR AUTHORIZATION

Criteria for Qualification as an FTO: NSF shall use the following criteria to evaluate an application by an organization to become an FTO under the ETV DWS Center.

1. Professional Engineer with experience in conducting a minimum of three drinking water pilot studies will oversee field testing operations.
2. Organization has experience in conducting drinking water pilot studies for an individual state or for an organization conforming to the requirements of the state. The studies must have been satisfactorily performed, as indicated by the governing state agency. Examples of the studies' or projects' report(s) shall be submitted to demonstrate the organization's capability to prepare acceptable documentation of conducted studies. Organization has experience in preparing and executing a project-specific QA/QC plan [i.e., a Quality Assurance Project Plan (QAPP)] for a package drinking water treatment project or pilot study under the direction of the EPA, AWWARF, EPRI, National Water Research Institute or other relevant organization.
3. Demonstrated timeliness in delivery of documents and testing activities (e.g., minimum amount of delays in the start up of testing, few revisions of a PSTP or verification report).
4. Confirmed responsiveness by addressing and not disregarding review comments or ETV schedules.
5. Proven thoroughness, completeness (e.g., submittal of all quality control data), and accuracy (appropriate technical judgment based on technical review comments).

Each FTO that satisfies the above criteria will be considered fully qualified. Each FTO that meets only a portion of the performance criteria mentioned above may be re-qualified as a conditionally qualified FTO and listed as such on the web page at www.nsf.org/etv/dws/dws_ftos. New FTOs are considered to be conditionally qualified until they have satisfactorily completed an ETV test and report.

Reevaluation: NSF may reevaluate the FTO if NSF receives substantiated complaints about the FTO's performance. Upon request by NSF, the FTO shall provide evidence of their continued conformance with the evaluation criteria and NSF requirements, as set forth in these policies.

INSPECTION

Requirement and Purpose of Inspections: NSF may require a physical audit of each facility of the FTO that will be performing testing. The purpose of the FTO facility audit is to conduct an initial evaluation to verify for accuracy the documents submitted to NSF for qualification or reevaluation of qualifications.

NSF shall, at its discretion and in coordination with the EPA, inspect the sampling and testing performed by the FTO for the ETV Program to assure conformity with the agreed upon protocol and TSTP and verify that corrective actions were completed. Inspection may be either at the test site or remotely by the review of submitted documentation.

Access for Inspections: Access for NSF inspections shall be granted promptly by the FTO upon NSF's request during any operating hours. However, NSF shall make every attempt to accommodate facility vacations, inventory shutdowns, and other periods of facility closings where NSF has been notified in advance. NSF shall be granted access to all facilities and locations of the FTO, except where precluded from doing so by restrictions included in agreements between the FTO and NSF or by government regulations, and where NSF has been notified in advance and is satisfied as to the validity of these restrictions. Refused or delayed access may result in withdrawal of qualification and in other appropriate actions by NSF, including but not limited to, issuing a public notice.

Refusal of the FTO to submit the inspection within thirty (30) days shall result in an immediate withdrawal of Qualification.

Cooperation with NSF: The FTO recognizes that the inspection by NSF personnel is on behalf of the EPA as well as the public interest. While engaged in the performance of these duties, NSF personnel shall be given every assistance necessary. No NSF employee shall be required, nor is he or she authorized, to make agreements, waive any rights or privileges, or enter into any compromises as a condition of inspection.

During an inspection, NSF representatives shall be permitted reasonable opportunity to question persons engaged in collection, handling, processing, analysis, calculation, interpretation, or reporting of samples and/or data or equipment operation, and shall have the right to examine all records bearing upon the duties and responsibilities of the FTO in connection with the NSF qualification.

Inspection Report: Upon completion of any inspection, NSF shall provide a written report to the FTO including any and all items of noncompliance identified during the inspection.

Correction of Noncompliance Items: The FTO shall, within a reasonable time agreed to by NSF, correct any and all noncompliance items indicated in the inspection report and shall submit, within thirty (30) days or such shorter period as may be provided in the inspection report, written evidence of correction of noncompliance items. NSF shall verify the FTO's compliance with the corrective actions. The FTO is responsible for the cost of any special inspections or document reviews deemed necessary to verify compliance.

TESTING

Conduct of Testing: Testing shall be conducted in accordance with the PSTP, and ETV TSTP and protocol. The FTO shall be specifically responsible for:

- Managing, evaluating, interpreting and reporting on the data produced during the verification;
- Providing logistical support, scheduling and coordinating the activities (e.g., establishing a communications network) of all participants in the verification;
- All other activities described in the pertinent ETV protocol and TSTP.

In the case that a PSTP is written to an ETV protocol or TSTP that has been updated, EPA and NSF will review the PSTP to determine if the updates will impact the proposed testing procedures. If the proposed testing is different than what the new protocol or TSTP requires, the PSTP will have to be updated and be re-reviewed by NSF and the EPA. If an analytical method or instrument is found to be nonconforming due to change in regulations, it must be updated by the FTO to be in conformance. Any data collected according to current methods will not have to be re-collected if the method changes, but data collected subsequent to the method change must be collected in accordance with the new method.

In the event that the FTO or vendor finds it necessary to alter the PSTP or choose a new test site after the PSTP and test site have been reviewed and accepted by EPA and NSF, the FTO must resubmit the changed information to NSF for re-review. NSF will review the changes to the application or proposed test site. NSF will share its review of the changes with the FTO and vendor and may make suggestions to help substantiate the claim of performance. Failure to advise NSF may result in non-conformance and termination of the FTO's qualification status.

Report and Verification Statement: Upon completion of the verification study, the FTO shall report the results to NSF. The FTO shall provide pertinent information, data, and test results to NSF, as specified by NSF, the EPA, and in the pertinent ETV protocol and TSTP. The vendor will have an opportunity to review the draft report and focus on the equipment description and the results sections and then provide comments to both NSF and the FTO. NSF is also responsible for coordinating administrative and quality assurance reviews by NSF, a technical review, and an EPA review of the draft report and statement, and shall provide all of the reviewers' comments to the FTO. The FTO shall address the comments of the reviewers and deliver a final draft report to NSF for a final review by NSF. The FTO shall assist NSF with any comments received from the EPA about the report during the EPA process of clearing the report for issuance.

The FTO shall not use any preliminary or draft reports and the data and results contained therein or obtained during testing at any time during the period of evaluation and/or testing, except for in-house review purposes without NSF's written approval. Such reports are preliminary and for the FTO's and manufacturer's information only and not for distribution. Preliminary reports are subject to change.

Data and Report Submittal: The FTO shall provide to NSF all data and all reports both in hardcopy form and electronically. Computer disks should be 3-1/2", high-density micro disks (free of all viruses) and should be produced with an MS-DOS (Microsoft Disk operating system) Version 6.2 or other agreed to by NSF. Transfer of data and files by e-mail may be used to substitute disk submission, if approved of by NSF. All reports and text files in electronic form should be supplied in Microsoft Word Version 2000 (or lower) or WordPerfect Version 5.1 or 6.1, unless NSF agrees upon another method. In addition to the submittal of all data and reports to NSF, the FTO shall provide at least ten digital photographs of the equipment, the test setup, and the test site in JPEG [.jpg] format.

An FTO shall submit records of all on-site (field) analyses for which it is qualified and the Testing Laboratory report with QA/QC documentation to NSF with the draft report. This includes all raw data, calculations, and quality control data, or complete tabular summaries.

RECORDS

QA/QC Documentation Reports: An FTO shall provide or submit documentation to NSF in the verification report that documents that the testing was performed in accordance with the QA/QC requirements of the PSTP, TSTP and protocol. A Testing Laboratory report shall include the documentation that the water analysis was performed in accordance with the QA/QC requirements of the PSTP, TSTP and protocol. NSF shall review and determine whether the QA/QC requirements were met for the specific report.

CONFIDENTIALITY

Nondisclosure of Confidential Business Information: The FTO shall keep confidential and proprietary any business information submitted by NSF or a manufacturer. The FTO must keep confidential all information labeled as confidential and will not disclose any confidential information without NSF's prior written consent.

Procedures Upon Receipt of Subpoena for Confidential Business Information: NSF shall notify the FTO promptly of a subpoena or request for a report on the package plant/component/module or its confidential business information. The FTO shall notify NSF promptly of a subpoena or request for a report on the package plant/component/module or its confidential business information.

ADVERTISING

Use of Qualification in Advertising and Literature: The FTO may state its status as an NSF Conditionally Qualified or Fully Qualified FTO on sales literature, technical publications, promotions, catalogs, and in advertising of the qualification of the FTO, provided that the FTO complies with all of the following:

- The FTO shall not represent, advertise, imply, or claim that it has received an NSF Approval, Certification, or Accreditation.
- The FTO may represent, advertise, imply or claim only that NSF has qualified it to test on behalf of the EPA/NSF ETV DWS Center.
- The FTO shall not directly or indirectly represent, advertise, imply, or claim that it is an Accredited water testing laboratory by NSF.
- The FTO shall code literature referencing this project, the FTO's status, and the date of printing.

Use of Qualification - Trade Association or Other Organization: When the NSF Qualification status is used in connection with the logo or mark of a trade association or other organization, there shall be no connotation, intended or implied, that the NSF Qualification and

its Mark or logo are interrelated, or conditional one to the other, unless such relationship or condition has received prior written approval by NSF.

INVESTIGATION OF COMPLAINTS

Complaints: NSF shall investigate complaints related to the use/misuse of NSF Qualification of any FTO. NSF shall acknowledge receipt of a written complaint, promptly investigate the complaint, and take appropriate action. NSF shall advise the subject of the complaint of the allegation. NSF shall confirm to the complainant that the allegation has, or has not, been verified as correct. For complaints from another qualified or conditionally qualified FTO, a written complaint constitutes agreement by the complainant to bear the costs of the investigation if the complaint is not verified. The subject of the complaint shall be responsible for the costs of the investigation. NSF shall not identify the complainant except as required by law.

FTO Records of Complaints About its Services: The FTO shall retain a record of complaints and remedial actions taken by the FTO specifically related to performance of ETV services, and shall make the records available to NSF upon request.

Only complaints received in writing by the FTO, the subject of which is under the FTO's control, and referring to services covered by the scope of the Qualification provided by NSF, are included in this policy. At a minimum, the record shall, in no particular form or order:

- State the nature of the complaint;
- Identify the services pertinent to the complaint; and
- Confirm the remedial action(s) taken and the status (open or closed) of the complaint, as known to the FTO.

More detailed information and the identity of the complainant need not be provided to NSF. All records and other information provided to NSF shall remain the property of the FTO and be considered by NSF as confidential.

If the complaint record required by this policy is not retained by the FTO at the facility location being inspected, NSF shall be advised by the FTO in writing of the location of the record. The FTO shall provide the record to NSF upon request by whatever means selected by NSF.

QUALIFICATION WITHDRAWAL OR RECLASSIFICATION

Withdrawal of Authorization for Qualification and Use of Qualification: NSF reserves the right to change an FTO's Qualification status or withdraw authorization for Qualification and use of the Qualification at any time for failure to comply with the applicable NSF policies or EPA regulations (if applicable). NSF may withdraw authorization for Qualification of FTO if the FTO:

- Fails to correct identified deficiencies within the specified time established by NSF;
- or

- Reports data as its own when samples were collected by another FTO or samples were analyzed by another laboratory; or
- Falsifies data or engages in other deceptive or misleading practices; or
- Subcontracts field testing activities to a nonqualified FTO or laboratory.

NSF shall notify the FTO and may make the withdrawal public.

Reclassification of Qualification: A Qualified FTO shall be classified as having “conditionally-qualified” status if the FTO:

- Fails to provide NSF written notice within thirty (30) days, of changes in facilities, procedures, or key personnel (including ownership); or
- Fails to comply with the contract or policies; or
- Subcontracts field testing activities to another qualified FTO without NSF’s knowledge and written acceptance; or
- Fails to collect and/or test samples in accordance with the quality controls and quality assurance established in the NSF approved PSTP, TSTP(s) or protocol(s).

NSF shall notify the FTO and the EPA (if applicable) that the Qualification has been reclassified and may make the reclassification public.

Qualification Status During Corrective Action Proceedings: If subsequent onsite inspections, random inspections, or investigations of complaints indicate the need for corrective action, an FTO may be reclassified to “Conditionally Qualified” pending satisfactory correction of all non-compliance items. Failure by a “Conditionally-Qualified” FTO to complete a corrective action plan or to correct deficiencies within the period accepted by NSF shall result in written notification by certified mail to the FTO and the EPA that the FTO is no longer considered qualified. NSF will remove the FTO from the list of qualified FTOs.

Contract Enforcement: The FTO agrees that NSF may bring actions in the State of Michigan to enforce the terms and conditions described herein.

Public Notice: NSF may issue a public notice of the withdrawal of Authorization for Qualification by any FTO and the reason for such action such as the FTO’s misrepresentation of its status, misuse of the NSF or EPA name or logo, or actions that threaten public safety. The FTO shall cooperate in good faith with NSF in determining who should receive copies of a public notice. NSF shall issue a notice that includes:

- The name of the FTO,
- A description of the report, and
- An explanation for the notice.

NSF may:

- Issue a press release of the notice to appropriate print and broadcast media.
- Distribute a written notice to those appropriate persons, agencies and entities, which may

include known purchasers and recipients of the report; appropriate federal, state, and local regulatory officials in the United States and other countries; NSF's Council of Public Health Consultants; and the Steering Committee.

Reinstatement: Following withdrawal of Authorization for Qualification, an FTO may not be re-authorized until the FTO has corrected the area of noncompliance, which may include subsequent reevaluation and/or retesting of the package plant/component/module and/or samples. NSF shall verify that any items of noncompliance have been satisfactorily resolved with the cooperation of the FTO. The FTO shall be responsible for any costs associated with reinstatement, and for any additional costs necessary to verify compliance with NSF requirements. The FTO shall claim its qualification status only when it receives written re-authorization from NSF.

Appendix H: Frequently Asked Questions

Questions Asked Frequently by FTOs

What is the Environmental Technology Verification (ETV) Program?

Throughout its history, the U.S. Environmental Protection Agency (EPA) has evaluated technologies to determine their effectiveness in preventing, controlling, and cleaning up pollution. To accelerate the introduction and use of environmentally beneficial technologies, the EPA established the ETV Program to assist in the collection and dissemination of quality assured data on the performance, operations and maintenance, and cost factors of environmental technologies.

What is the ETV Drinking Water Systems Center?

On October 1, 2000, NSF International entered into an agreement with the EPA to form an ETV Center dedicated to providing independent performance evaluations of drinking water products. NSF and the EPA co-operatively manage the Drinking Water Systems (DWS) Center with the goal of raising awareness for new treatment technologies. The Center represents the next phase of the ETV Program's DWS Pilot, which began in 1995 as a partnership between NSF and the EPA's Office of Ground Water and Drinking Water and laid the groundwork for the new Center.

How many vendor participants are there in the ETV Drinking Water Systems Center?

Please refer to the ETV DWS Center websites for the most up-to-date information and a complete list of verified products at www.nsf.org/etv/dws or www.epa.gov/etv. At the time of publication of this document, over 25 vendors have participated in verification testing with the DWS Center.

What are NSF's roles and responsibilities?

NSF is responsible for co-management of the program with the EPA (i.e., "contractual arm"). Specific to product testing, NSF is involved with coordination of the testing, quality assurance and quality control (QA/QC) review of the Product Specific Test Plan (PSTP), inspection of the testing, review of the verification report, coordinate reviews by technical peer reviewers and the EPA, and publication of the final verification report.

What are the roles and responsibilities of the Field Testing Organizations (FTOs)?

When field testing is required in the protocol and TSTP, an FTO may be responsible for preparing the PSTP, conducting the shakedown testing prior to the verification test, conducting the verification test, collecting of data, analyzing the data, and preparing the verification report.

What are the EPA's roles and responsibilities?

The EPA provides funding for the ETV Drinking Water Systems Center. The EPA co-operatively manages the Center with NSF. The EPA provides technical review of all data reports and protocols.

If a vendor approaches an FTO to conduct ETV testing but is not commercially ready, what are some sources of funding available to recommend for research and development (R&D) testing prior to ETV participation?

Some sources of funding available for R&D testing include EPA's Small Business Innovation Program (SBIR) (<http://es.epa.gov/ncerqa/sbir/>), The Environmental Technology Commercialization Center (ETC2), an EPA technology transfer center managed by Battelle (<http://www.etc2.org/>), and the National Environmental Technology (NET) Incubator at Central State University in Wilberforce, OH (<http://www.centralstate.edu/netincubator>). Please visit their websites for more information about these programs.

What are the required qualifications to become a fully qualified FTO?

The outline of qualifications for becoming an FTO can be found on the NSF DWS Center website at http://www.nsf.org/etv/dws/dws_testing_organizations.html. To receive an application package to become an FTO, please contact Bruce Bartley at bartley@nsf.org.

After going through the application process and being accepted as an FTO for the DWS Center, what initial training is required?

If this is the first time for a vendor to be involved with the ETV DWS Center verification process, NSF requires the vendor to participate in a kick off meeting to outline responsibilities and answer questions.

What does 'conditionally qualified FTO' status mean?

If an FTO is considered 'conditionally qualified', it means that the approved FTO has either not performed an ETV test before or that additional training is required by the FTO through the ETV Program due to past performance.

What is the testing process?

To participate in performance verification through the Center, a vendor establishes a performance threshold for their treatment product (e.g., "The vendor states that the product can provide 3 log₁₀ removal of *Cryptosporidium* oocysts"). Evaluation of the performance threshold is performed to assure impartiality through third-party testing.

The FTO prepares a PSTP that adheres to the requirements of the applicable ETV protocol and technology specific test plan (TSTP). Prior to testing, NSF reviews all field operations documents to ensure accurate and complete testing. The FTO carries out the testing and NSF performs an audit of the testing. Upon completion, the testing results are summarized in a verification report and statement.

What is the degree of confidentiality of the testing and the data generated from it?

Any information included in reports and data generated from testing that is submitted to the EPA, may be covered under the Freedom of Information Act (FOIA). Any data or information generated by the ETV test may not be disclosed to anyone by the FTO, except to the vendor, until the final report has been issued and approval given by NSF. However, NSF is not subject to FOIA and will keep all designated information confidential. The final report is published and becomes public domain.

What is the final data report development and review process?

The FTO prepares the data report based on the requirements outlined in the ETV protocol and TSTP. NSF reviews the report, which includes a data check for transcription errors and a rudimentary engineering review. A technical peer reviewer and the EPA also review the report. Usually, there is another set of revisions by the FTO and then the finished report is sent to the EPA for sign-off and the report is published.

What if the product is not performing as expected at the test site?

According to a policy as a result of the Science Advisory Board's review of the ETV Program, vendors participating in ETV testing in the Drinking Water Systems Center can withdrawal from testing anytime during shakedown testing (i.e., start-up testing). However, once the official verification testing begins, a vendor cannot withdrawal from testing and all data generated will be published in a final data report.

What type of data is collected?

This varies for each type of technology tested. For specifics, please refer to the appropriate ETV protocol. See Chapter 1 of the ETV protocol for contaminant of concern and the applicable chapter in the same protocol related to the technology type (i.e., Physical removal of Microbiological Contaminants – Chapter 1 and the Membrane Test Plan – Chapter 2).