



# Environmental Technology Verification Program

# QUARTERLY REPORT

October 2000

## *ETV Program Successfully Completes Its Five-year Pilot Period*

The ETV Program began in 1995 as a five-year pilot program to test a variety of environmental technology verification approaches in different technology markets, with the intent of identifying the most effective and efficient methods of verification. At the end of September, the ETV Program concluded the five-year pilot period. During the past five years, ETV successfully created 12 verification programs that address different areas of the environmental technology market. These programs organized 18 stakeholder groups and held 80 stakeholder group meetings. By the end of September, the ETV Program developed 49 generic verification protocols for categories of technologies (available at [www.epa.gov/etv/test\\_plan.htm](http://www.epa.gov/etv/test_plan.htm)), and 70 technology-specific test plans to guide the testing of specific products. In addition, the ETV Program successfully verified 111 technologies in 35 different technology categories, exceeding its strategic goal of verifying 95 products during the five-year pilot period.

Now that the pilot period is complete, the ETV Program will analyze its successes, shortcomings, and lessons learned to develop recommendations for the most effective and efficient verification program possible. This analysis will result in a report to Congress that will contain recommendations for continuation of the ETV Program, both in terms of the overall program structure and specific procedures for successful verifications. Additional program analyses will be conducted during the fall and winter months of 2000, and the report to Congress will be issued in 2001.

## *Total Number of ETV Verifications Reaches 111!*

Six ETV pilots verified 32 new technologies in the last three months, increasing the total number of ETV verified technologies to 111! With a fiscal year total of 58 verified technologies, the ETV Program beat its internal goal of 40 newly verified technologies for the year.

- ✓ **The Advanced Monitoring Systems Pilot** verified the performance of eight technologies in two categories: optical open path monitors and on-line turbidimeters.
- ✓ **The Air Pollution Control Technology Pilot** verified the performance of nine baghouse filtration products.
- ✓ **The Drinking Water Systems Pilot** verified the performance of eight technologies in five categories: ultrafiltration, microfiltration, enhanced coagulation/ultrafiltration, on-site halogen generation, and nanofiltration technologies.
- ✓ **The Greenhouse Gas Technology Pilot** verified the performance of two natural gas compressor leak mitigation technologies in Phase II performance evaluations.
- ✓ **The P2 Metal Finishing Technologies Pilot** verified the performance of one aqueous cleaner solution maintenance technology.
- ✓ **The Site Characterization and Monitoring Technologies Pilot** verified the performance of four ground water sampling devices.

For a complete listing of newly and previously verified technologies, see page 3. The new verification reports and statements are, or soon will be, available on the ETV Program web site at <http://www.epa.gov/etv/library.htm>.



### *What's Inside*

Cover Stories.....	1
Pilot Points.....	2
Verifications.....	3
Calendar.....	4
Web Watch.....	4

# Pilot Points

## Air

### **Air Pollution Control Technologies**

- Held a vendor meeting on September 14 in RTP, NC for second round verification of baghouse filtration products.
- Added five members from the mobile source community to its stakeholder group.
- Held a stakeholder group meeting on September 28 in RTP, NC.
- Issued nine verification reports for baghouse filtration products in September.

### **Greenhouse Gas Technologies**

- Issued two Phase II verification reports for natural gas compressor leak mitigation technologies in September.
- Finalized second generic test protocol, "Greenhouse Gas Verification Guideline Series, Parametric Emissions Monitoring Technologies."

## Pollution Prevention, Recycling and Waste Treatment Systems

### **P2 Innovative Coatings and Coating Equipment**

- Held a stakeholder group conference call on August 10.
- Scheduled testing of Evermore's water-based, two-part epoxy polyamide siloxane-modified coating in October.

### **P2 Metal Finishing Technologies**

- Presented a technical paper, exhibited the ETV booth, and held a stakeholder group meeting at the AESF SUR/FIN Conference in Chicago, IL.
- Completed testing of two aqueous cleaner recycling systems.
- Held a vendor meeting on September 21 in Chicago, IL.

## Monitoring

### **Advanced Monitoring Systems**

- Issued verification reports for one on-line turbidimeter and seven optical open path monitors.
- Completed Phase I testing of ambient fine particulate monitors.

### **Site Characterization & Monitoring Technologies**

- Completed testing of two second round explosives detection technologies in August.
- Completed testing of two third round PCB analyzers in August.

## Water

### **Drinking Water Systems**

- Issued eight verification reports for ultrafiltration, microfiltration, enhanced coagulation/ultrafiltration, on-site halogen generation, and nanofiltration technologies.

### **Wet Weather Flow Technologies**

- Held a stakeholder group meeting on July 13 in Ann Arbor, MI.
- Scheduled testing of induction mixers for high-rate disinfection of wet weather flows in October in Turner's Falls, MA.
- Scheduled testing of ultraviolet (UV) disinfection technologies for wet weather flows in New York in late October.
- Set up testing for stormwater source area treatment technologies. The testing schedule is dependent upon rain events.

### **Source Water Protection Technologies**

- Scheduled a decentralized wastewater treatment stakeholder group meeting on October 30 in Grand Rapids, MI.
- Scheduled testing of two nutrient reduction technologies in October.

## *ETV To Hold an International Training Workshop*

EPA's ETV Program, as a result of expressions of interest by several foreign government agencies, will hold a training workshop on implementation of environmental technology verification programs. The workshop will be held on October 23-26, 2000 in Research Triangle Park, NC. International delegates from Thailand, Singapore, India, Malaysia, and the Philippines are expected to attend. The workshop will include an overview of the ETV Program; presentations by the delegates on their countries' environmental technology interests, program initiatives and needs, and domestic technology industries; three sessions by ETV program partners on key topics related to implementing a successful verification process (stakeholder group activities, protocol and test plan development, and technology testing and report writing); presentations by partners on specific, innovative technologies being evaluated; and site visits to observe testing laboratories and testing activities. The goal of the workshop is to provide the delegates with sufficient information to facilitate exploration of opportunities to work together on verifying the technical performance of technologies of mutual interest in the future.

## *New England Governors' Conference*

Governors of the six New England states (Massachusetts, Maine, Rhode Island, Connecticut, New Hampshire, and Vermont) presented "A Resolution Commending the U.S. Environmental Protection Agency's Environmental Technology Verification (ETV) Program" at the September 22, 2000 meeting of the New England Governors' Conference (NEGC) in West Springfield, MA. The resolution was presented to Penelope Hansen, Director of the ETV Program, following her briefing to the governors on the status of the ETV Program. In the resolution, the NEGC states that the organization "recognizes the valuable role of the ETV Program in accelerating the introduction of new technologies, improving the environment, and protecting the consumers of these technologies." The NEGC will send the resolution to President Clinton, the U.S. Congress, and EPA to urge them to continue their support for the ETV Program.

The NEGC was formally established in 1937 by the governors of the six-state New England region to promote the region's economic development. The organization coordinates regional policy programs in the areas of economic development, transportation, environment, energy, and health.

# 111 ETV Verified Technologies

## Aqueous Cleaner Solution Maintenance Technologies

- ✓ US Filter (Silverback); Billerica, MA\*

## Baghouse Filtration Products

- ✓ Air Purator Corporation; Greensboro, NC\*
- ✓ Albany International; Mansfield, MA\*
- ✓ BASF Corporation; Enka, NC\*
- ✓ BHA Group, Inc.; Kansas City, MO\*
- ✓ Inspec Fibres USA; Niverville, NY\*
- ✓ Menardi-Criswell; Trenton, SC\*
- ✓ Standard Filter; Carlsbad, CA\*
- ✓ Tetratrec; Feasterville, PA\*
- ✓ W.L. Gore & Associates, Inc.; Elkton, MD\*

## Compressor Leak Mitigation for Natural Gas

- ✓ A&A Environmental Seals, Inc.; La Marque, TX (2 technologies)\*
- ✓ C. Lee Cook; Louisville, KY (2 technologies)\*
- ✓ France Compressor Products; Newton, PA

## Cone Penetrometers

- ✓ Fugro Geosciences, Inc.; Houston, TX
- ✓ U.S. Navy, Naval Command, Control, and Ocean Surveillance Center, Research, Development, Test and Evaluation Division; San Diego, CA

## Decision Support Systems

- ✓ C Tech Development Corporation; Huntington Beach, CA
- ✓ DecisionFX, Inc.; Bosque Farms, NM (2 technologies)
- ✓ Environmental Software; Huntington Beach, CA
- ✓ ESRI; Vienna, VA
- ✓ University of Tennessee; Oak Ridge, TN

## Drinking Water Enhanced Coagulation/Ultrafiltration Technologies

- ✓ ZENON; Ontario, Canada\*

## Drinking Water Microfiltration Technologies

- ✓ Pall Corporation; East Hills, NY
- ✓ ZENON; Ontario, Canada\*

## Drinking Water Nanofiltration Technologies

- ✓ PCI Membrane Systems; Milford, OH\*

## Drinking Water On-Site Halogen Generation Technologies

- ✓ Chemical Services Co.; Campbell, CA\*

## Drinking Water Ultrafiltration Technologies

- ✓ Aquasource North America; Richmond, VA (2 technologies)\*
- ✓ F.B. Leopold; Zellenpole, PA\*
- ✓ Hydranautics; Oceanside, CA\*
- ✓ Ionics; Watertown, MA\*

## Drinking Water UV Radiation/Disinfection Technologies

- ✓ Calgon Carbon Corporation; Ontario, Canada

## Emulsified Fuels

- ✓ A-55 Clean Fuels, Inc.; Reno, NV

## Explosives Detection Devices

- ✓ Barringer Instruments, Inc.; Warren, NJ
- ✓ Research International, Inc.; Woodinville, WA

## Field Portable GC/MSs

- ✓ Bruker Analytical Systems; Billerica, MA
- ✓ Bruker Daltonics, Inc. (formerly Viking Instruments); Billerica, MA

## Field Portable X-ray Fluorescence Analyzers

- ✓ EDAX International (formerly through Scitec, Inc.); Mahwah, NJ
- ✓ HNU Systems, Inc.; Newton Highlands, MA
- ✓ Metorex, Inc.; Princeton, NJ (2 technologies)
- ✓ Niton Corporation; Bedford, MA
- ✓ Spectrace Instruments (formerly TN Spectrace); Sunnyvale, CA (2 technologies)

## General P2 Technologies

- ✓ Rayovac Corporation; Madison, WI
- ✓ Smart Sonic; Newbury Park, CA

## Ground Water Sampling Devices

- ✓ Burge Environmental, Inc.; Tempe, AZ\*
- ✓ Clean Environmental Equipment; Oakland, CA\*
- ✓ GeoLog Inc.; Medina, NY\*
- ✓ QED; Walnut Creek, CA\*
- ✓ SIBAK Industries; Solano Beach, CA

## High-Volume Low-Pressure Paint Spray Guns

- ✓ ITW DeVilbiss; Maumee, OH (3 technologies)
- ✓ Sharpe Manufacturing Co.; Santa Fe Springs, CA

## Landfill Methane Control Technologies

- ✓ International Fuel Cells Corporation; South Windsor, CT

## Laser Targeting Devices

- ✓ Laser Touch and Technologies, LLC; Waterloo, IA

## NO/NO2 Analyzers

- ✓ ECOM America Ltd.; Duluth, GA
- ✓ Energy Efficiency Systems, Inc.; Westboro, MA
- ✓ Horiba Instruments; Pittsburgh, PA
- ✓ Testo, Inc.; Flanders, NJ
- ✓ TSI, Inc.; Shoreview, MN

## On-line Turbidimeters

- ✓ Endress+Hauser Conducta; Gerlingen, Germany\*
- ✓ Monitek Technologies, Inc.; Hayward, CA
- ✓ Peak Process Controls, Inc.; Ontario, Canada

## Optical Open Path Monitors

- ✓ AIL Systems, Inc.; Deer Park, NY\*
- ✓ Boreal Laser; Alberta, Canada\*
- ✓ OPSIS; San Marcos, CA\*
- ✓ Spectrex; Cedar Grove, NJ (2 technologies)\*
- ✓ Thermo Environmental; Franklin, MA\*
- ✓ Unisearch; Ontario, Canada\*

## Paint Overspray Arrestors

- ✓ AAF International; Louisville, KY (2 technologies)
- ✓ ATI; Ottawa, KS (2 technologies)
- ✓ Columbus Industries; Asheville, OH (2 technologies)
- ✓ Koch Filter Corporation; Louisville, KY (2 technologies)
- ✓ Purolator Products Air Filtration Co.; Henderson, NC (2 technologies)
- ✓ Farr Company; El Segundo, CA

## Parametric Emissions Monitoring Systems

- ✓ ANR Pipeline Company; Detroit, MI

## PCB Analyzers

- ✓ Dexsil Corporation; Hamden, CT
- ✓ Electronic Sensor Technology; Newbury Park, CA
- ✓ Envirologix, Inc.; Portland, ME
- ✓ Hach Company; Loveland, CO
- ✓ Strategic Diagnostics, Inc.; Newark, DE (3 technologies)

## Pressure Release Valves

- ✓ The Protectoseal Company; Bensenville, IL

## Recycling Technologies

- ✓ Katec, Inc.; Virginia Beach, VA

## Sediment Sampling Technologies

- ✓ ARI; Lemhi, ID
- ✓ Art's Manufacturing and Supply; Sauk City, WI

## Soil/Soil Gas Sampling Devices

- ✓ Art's Manufacturing and Supply; American Falls, ID
- ✓ Clements & Associates, Inc.; Newton, IA
- ✓ Geoprobe Systems, Inc.; Salina, KS
- ✓ Quadrel Services, Inc.; Clarksburg, MD
- ✓ SimulProbe; Novato, CA
- ✓ W.L. Gore & Associates, Inc.; Elkton, MD

## Wellhead Monitoring Devices

- ✓ Electronic Sensor Technology; Newbury Park, CA
- ✓ Inficon, Inc.; East Syracuse, NY
- ✓ Innova AirTech Instruments; Denmark
- ✓ Perkin-Elmer Corporation; Wiltton, CT
- ✓ Sentex Systems, Inc.; Ridgefield, NJ

## Wastewater Treatment Systems - EvTEC

- ✓ ThermoEnergy Corporation; Little Rock, AR

## Indoor Air - Commercial Furniture

- ✓ Test Protocol Verification

## Indoor Air - Ventilation Air Filters

- ✓ Test Protocol Verification

\* Designates a newly verified technology

# ETV Events

<u>Date</u>	<u>Location</u>	<u>Event</u>
Oct. 30	Grand Rapids, MI	Source Water Protection Technologies - Decentralized Wastewater Treatment Stakeholder Group Meeting
Nov. 5-8	Salt Lake City, UT	Drinking Water Systems - NSF booth exhibit at the annual AWWA Water Quality Technology Conference
Nov. 9	RTP, NC	P2 Innovative Coatings and Coating Equipment - Stakeholder Group Meeting
Nov. 13-24	The Hague, Netherlands	ETV Program - ETV booth exhibit at the Conference of Parties (COP-6)
Nov. 14	Washington, DC	Site Characterization and Monitoring Technologies - Stakeholder Group Meeting
Dec. 11-14	Scottsdale, AZ	P2 Innovative Coatings and Coating Equipment - Presentations at the 11 <sup>th</sup> Annual International Workshop on Solvent Substitution and the Elimination of Toxic Substances & Emissions
Mar. 14-15	New York, NY	Greenhouse Gas Technology - Pilot will host an international forum entitled "Commercial GHG Technology Solutions"

**For more details on ETV events, check out our online calendar at <http://www.epa.gov/etv/highup.htm>**

## U.S. EPA National Environmental Monitoring Technology Conference

On September 19-20, the U.S. EPA National Environmental Monitoring Conference was held in Boston, MA. The conference provided attendees with the opportunity to hear from national experts, learn about the latest available technologies and related government programs, and discover opportunities to apply them to their projects or communities. Events included an opening plenary session, panel sessions, and an exhibitor hall. Approximately 500 people attended the conference, including about 100 exhibitors and over 100 speakers. Of the exhibitors, approximately 25 percent had been verified or were in the process of being verified through the ETV Program. Penelope Hansen (EPA/ETV), Karen Riggs (Battelle/ETV Partner), and Roger Jenkins (Oak Ridge National Laboratory/ETV Partner) moderated panel discussions on the ETV Program, air monitoring technologies, and monitoring technologies for brownfields, respectively. Steve Maxwell, (TechKNOWLEDGEy) moderated a panel discussion on water monitoring technologies. All sessions were well attended. Information on ETV monitoring technologies is available at the ETV website ([www.epa.gov/etv](http://www.epa.gov/etv)). Further information on the monitoring conference can be found at <http://www.epa.gov/region01>.

Check out the ETV website for the 32 new verification reports, soon to be available at <http://www.epa.gov/etv/library.htm>!

## Web Watch

- ✓ The August 2000 issue of The Monitor from the Advanced Monitoring Systems Pilot has been posted at <http://www.epa.gov/etv/07/08Aug00.pdf>.
- ✓ The updated Greenhouse Gas Technology Pilot Fact Sheet is available at [http://www.epa.gov/etv/12/12\\_fact.pdf](http://www.epa.gov/etv/12/12_fact.pdf).
- ✓ The article "EPA Group Verifies Performance of Greenhouse Gas Emissions Mitigation Technologies" has been posted at [http://www.epa.gov/etv/12/gemt\\_artcl.pdf](http://www.epa.gov/etv/12/gemt_artcl.pdf). A journal edited version of this article appeared in the August 28, 2000 Issue of the Oil & Gas Journal.

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