

First Annual Technology Solutions Forum Held by ETV Greenhouse Gas Technology Center

The ETV Greenhouse Gas (GHG) Technology Center, in collaboration with industry and government cosponsors, hosted an international forum, *Commercial Greenhouse Gas Technology Solutions*, in New York City on March 14 - 15. The purpose of the forum was to identify and examine commercial-ready GHG technologies and provide an open and unbiased venue for information exchange on these technologies. Approximately 150 people attended the forum, representing over 50 organizations and 11 nations.

At the forum, organizations with active GHG mitigation programs showcased their accomplishments and future plans, and vendors of commercial and near-commercial GHG mitigation and monitoring technologies displayed their products. The event included two plenary sessions. The first focused on efforts to mitigate GHG emissions by governments, private industry, and international bodies. The second provided an international panel of experts on GHG trading, reporting, verification, and certification. Discussions addressed distributed electrical power generation, oil and gas industry technologies, energy efficiency, semiconductors, combined heat and power, transportation, horticulture, commercial buildings, construction, refrigeration, waste management, and biomass. The forum ended with an open session, allowing participants to network with colleagues and converse with speakers.

In addition to the ETV Program, 12 government and industry organizations provided financial support for the forum: The Government of Canada, the State Agency of Energy and Energy Resources - Bulgaria, EPA's Natural Gas STAR Program, Consolidated Edison of New York, Southern Company, Gas Technology Institute, Super Blue Box Recycling Corp., First Environment, EcoSmart Concrete, Mariah Energy Corp., The IT Group, and The Industrial Center.

The ETV Greenhouse Gas Technology Center will use information gathered at the forum to direct its activities over the next few years. The Center intends the event to be the first of many international meetings designed to provide industry with the opportunity to exchange information on commercial GHG mitigation technologies.

EPA and U.S. Coast Guard Sign Memorandum of Agreement to Verify Ballast Water Control Technologies Under ETV



The U.S. Coast Guard (USCG), which is directed by Congress to develop a National Ballast Water Management Program, signed a Memorandum of Agreement (MOA) with EPA to conduct joint verifications of

ballast water control technologies under the ETV Program. The MOA was signed by Rear Admiral Paul J. Pluta, Assistant Commandant for Marine Safety and Environmental Protection in the USCG, and Henry L. Longest II, Acting Assistant Administrator for the Office of Research and Development at EPA, on June 12, 2001 at a stakeholder meeting on ship ballast water treatment systems. This stakeholder group is part of the source water protection technologies area of the ETV Water Protection Technologies Center. Over 70 stakeholders represented various U.S. and international organizations interested in ballast water control technologies, including nonprofit organizations, technology vendors, universities, Congressional offices, and state and federal agencies.

Ballast water discharged from ships is a major means by which nonnative organisms, such as zebra mussels in the Great Lakes and Asian clams in the San Francisco Bay, are introduced into the aquatic ecosystems of the U.S. Trillions of gallons of ballast water from foreign regions, containing many thousands of organisms per gallon, are discharged into U.S. waters each

Continued on page 2

What's Inside

Center Stage.....	2
Web Watch.....	3
Calendar.....	4

Center Stage

ETV Advanced Monitoring Systems Center

Advanced Monitoring Systems

- Completed the second phase of field testing on 13 ambient fine particulate monitors.
- Completed the first phase of testing of four mercury continuous emissions monitors (CEMs).
- Completed testing of an online turbidimeter and a test kit for nitrate in water.

Site Characterization and Monitoring Technologies

- Held a lead-in-dust detection technologies vendor meeting on June 27 in Washington, DC.

ETV Air Pollution Control Technology Center

- Held a dust suppressants and soil stabilizers technical panel meeting on May 30 in Research Triangle Park, NC to review the draft Generic Verification Protocol for Fugitive Dust Suppression Control and Soil Stabilization Products.
- Held a dust suppressants and soil stabilizers vendor meeting on May 31 in Research Triangle Park, NC.
- Held two mobile sources technical panel teleconferences in May to discuss the Generic Verification Protocol for Retrofit Control Technologies.

ETV Greenhouse Gas Technology Center

- Completed testing for Mariah Energy Corp.'s Heat PlusPower™ System and for Honeywell Power Systems, Inc.'s Carbon Monoxide Control Device.
- Signed up three new vendors to verify a combined heat and power system (TransCanada PipeLines Limited), a diesel fuel cleaning and maintenance system (JCH Fuel Solutions), and a refrigeration sight glass monitor (KMC Controls).
- Formed a refrigeration systems technical panel and an engine and fuels testing technical panel.

ETV Drinking Water Systems Center

- Held a stakeholder group meeting on June 4-5 in Cincinnati, OH.
- Exhibited at the American Water Works Association (AWWA) Conference and Exposition on June 17-21 in Washington, DC.

ETV Water Protection Technologies Center

Source Water Protection Technologies

- Held a ship ballast water treatment systems stakeholder meeting on June 12 in Alexandria, VA.
- Finalized two protocols: one for verification of wastewater treatment technologies and one for verification of in-drain treatment technologies.

Wet Weather Flow Technologies

- Completed laboratory testing for two flowmeters at Utah State University in Logan, UT. Field testing for these technologies is currently underway in Quebec, Canada.
- Began testing of technologies used to treat combined sewer overflows (CSOs).

ETV Pollution Prevention, Recycling, and Waste Treatment Systems Center

P2 Innovative Coatings and Coating Equipment

- Held a joint stakeholder group and vendor meeting on June 4 in Rosemont, IL.
- Exhibited the ETV booth at the Finishing 2001 conference on June 5-7 in Rosemont, IL.
- Presented at the 2001 Painting Technology Workshop on June 5 in Lexington, KY.
- Presented at the Northeast Waste Management Officials Association's (NEWMOA's) P2 Innovative Technology Workshop on June 12 in Boxborough, MA.
- Presented at the 94th Annual Conference and Exhibition of the Air and Waste Management Association, held June 24-28 in Orlando, FL.

P2 Metal Finishing Technologies

- Completed testing of The MART Corporation's organo-clay treatment system for the recycling of alkaline cleaners.
- Completed testing of Davis Technologies International Corp.'s dissolved air flotation/flocculation technology for treatment of combined oil/metal-bearing wastewater.
- Presented a paper on alkaline cleaner recycling technologies at the Society for Manufacturing Engineers Finishing 2001 Conference.
- Held a stakeholder group meeting on June 27 in Nashville, TN.

Continued from page 1

year. Introductions of nonnative species have had significant and adverse ecological and economic impacts in the U.S.

Responding to growing awareness of the issue, Congress, in the National Invasive Species Act of 1996, directed the USCG to develop a National Ballast Water Management Program to prevent introductions of nonnative species into U.S. waters. A key part of this effort is the development and implementation of innovative technologies for treating ballast water to remove unwanted organisms. A number of potential ballast water treatment technologies are being investigated worldwide by government, industry, academia, and non-governmental interests. However, comparisons among these efforts are stymied by a lack of standardized testing protocols.

The USCG plans to work with the ETV Program to assess the performance of private-sector, commercial-ready ballast water technologies in controlling the introduction of nonnative species into U.S. waters. The USCG views its partnership with the ETV Program as an opportunity to facilitate the development of test protocols for evaluating the capabilities of ballast water treatment systems. The ETV Program is also a source of information for USCG in its efforts to develop regulatory procedures for approving ballast water treatment systems for installation on ships.

Upcoming plans include informational workshops to be held by the USCG on the east and west coasts and technical panel meetings to develop testing procedures.

Total Number of ETV Verifications Reaches 120!

Two ETV Centers recently completed verifications, increasing the total number of ETV verified technologies to 120!

The ETV Drinking Water Systems Center verified the performance of two different types of arsenic removal technologies. Removal of arsenic from drinking water improves water quality and protects human health. The Hydranautics ESPA2-4040 Reverse Osmosis Membrane Element Module is a hollow membrane made from a composite polyamide material with a molecular weight cut-off of 300-500 daltons. Reverse osmosis membranes are designed to reject dissolved salts and operate at pressures that are typically an order of magnitude higher than membrane filtration processes designed to remove only particulate matter. The Watermark eVox® Model 5 Removal of Arsenic by Coagulation/Filtration uses ferric hydroxide [Fe(OH)₃] (converted from FeCl₃) to react with the soluble arsenic to produce an insoluble precipitate that can be removed with a backwashing media filter.

The verified technologies were developed by:

- ✓ Hydranautics; Oceanside, CA
- ✓ Watermark Technologies, LLC; Draper, UT

The ETV Advanced Monitoring Systems Center verified the performance of two optical open-path monitors. The monitors continuously measure pollutant levels in the air and are valuable tools for providing early warnings of potentially serious pollution or safety problems. The SafEye 227 Infrared Open-Path Monitor is an alarm system that detects hydrocarbons with a high-frequency infrared flash source and two absorbed band sensors. The SafEye 420 Ultraviolet Open-Path Monitor is an alarm system that detects ammonia, aromatics, and hydrogen sulfide, using a high-intensity ultraviolet flash source. For each of these monitors, the flash source projects a wavelength (specific for the type of gas to be measured) to the detector over an unobstructed line of sight. The beam is attenuated when a hazardous gas traverses it at any point along its path.

These two technologies were developed by:

- ✓ Spectrex, Inc.; Cedar Grove, NJ

The new verification reports and statements are available on the ETV Program web site at <http://www.epa.gov/etv/library.htm>.

Environmental Technology Verification Workshop to be Held in India



During the week of September 10, 2001, the U.S. EPA, U.S.-Asia Environmental Partnership (U.S.-AEP), U.S. Agency for International Development (U.S. AID), and Federation

of Indian Chambers of Commerce and Industry (FICCI) are sponsoring an Environmental Technology Week in India. As part of this landmark event, India's first workshop on environmental technology verification will be convened. The week-long event will be held in New Delhi and is expected to draw up to 300 participants from industry, government, financial institutions, technical institutions, technology suppliers, and the media.

To kick-off the workshop, two general sessions will provide a broad overview of environmental technology verification, including the technology verification process and procedures, how verification works in the U.S., success stories, and options for verification in India. The latter part of the workshop will include sessions on three technology areas of particular interest to India's industry and government participants. These technology areas are drinking water systems, greenhouse gas mitigation technology, and advanced monitoring systems. Representatives from the ETV Centers that evaluate technologies in these areas will provide presentations at the workshop. Vendors with verified technologies in these areas have been encouraged to attend and to participate in the technology showcase.

The Environmental Technology Week is expected to generate awareness and a better understanding of environmental technology verification, and alleviate risk aversion by environmental technology purchasers and permittees. The upcoming Environmental Technology Week, the ETV meetings held in Thailand in March 2001, and the ETV International Workshop held in Research Triangle Park, NC in October 2000 for five Asian countries are all efforts to support the international proliferation of ETV - an Agency Government Performance Results Act (GPRA) goal.

Web Watch

- ✓ **Verification reports for the four newly verified technologies are available at <http://www.epa.gov/etv/library.htm>.**
- ✓ **Profiles of the following technologies are available from the site characterization and monitoring technologies area of the ETV Advanced Monitoring Systems Center at http://www.epa.gov/etv/02/02_main.htm: Decision Support Software, Field Analytical Explosives Measurements, Field Analytical PCB Measurements, Groundwater Sampling, and On-site Analysis of VOCs in Water.**
- ✓ **"Cost Evaluation Strategies for Technologies Tested Under the Environmental Technology Verification Program" is available at <http://www.epa.gov/etv/dload/600r99100.pdf>.**

ETV Events

<u>Date</u>	<u>Location</u>	<u>Event</u>
July 8 - 11	Bellevue, WA	ETV Water Protection Technologies Center - Wet Weather Flow Technologies exhibit and presentation at the Water Environment Federation's 2001 Collection Systems Specialty Conference
July 17 - 19	Atlanta, GA	ETV Advanced Monitoring Systems Center - Site Characterization and Monitoring Technologies presentation at the Environmental Restoration Technology End User Conference (ERTEC 2001)
Aug. 20 - 23	San Antonio, TX	ETV Program and ETV P2, Recycling, and Waste Treatment Systems Center - ETV exhibit and P2 Metal Finishing Technologies presentation at the 6th Annual Joint Services Pollution Prevention Hazardous Waste Management Conference and Exhibition
Sept. 9 - 12	Philadelphia, PA	ETV Program and ETV Water Protection Technologies Center - ETV and Source Water Protection Technologies exhibit and presentation at Public Works 2001
Sept. 9 - 14	New Delhi, India	ETV Program, U.S.-Asia Environmental Partnership, U.S. AID, and the Federation of Indian Chambers of Commerce and Industry - Workshop on environmental technology verification
Sept. 10-14	Alexandria, VA	ETV Program - ETV exhibit at the Environmental Innovations Summit 2001
Sept. 20	Research Triangle Park, NC	ETV Air Pollution Control Technology Center - Stakeholder Group Meeting

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

ETV Team Awarded EPA Bronze Medal



On June 20, 2001, the EPA Office of Research and Development 2000 Honor Awards ceremony was held in Washington, DC. At this ceremony, the ETV Team was awarded a Bronze Medal for outstanding contributions to the nation's environment through the verification and facilitation

of improved environmental technology in all media. The ETV Team is a diverse group of approximately 20 research, quality assurance, and program management professionals in two ORD laboratories (National Risk Management Research Laboratory and National Exposure Research Laboratory), five Divisions, and eleven Branches in six different locations. The successes of the ETV Program to date are largely a result of the ETV Team's personal dedication to the program, and willingness to share lessons learned, to be creative

and collaborative, to compromise, and to work hard. The ETV Team works closely with the verification partner organizations and with over 1,000 stakeholders in 18 stakeholder groups to develop high quality generic test protocols and test plans and to verify a variety of environmental technologies. To date, the ETV Program has produced 120 verification reports, 60 generic test protocols, and 85 technology-specific test plans. Activity continues at a high level, promising many more high quality verification reports and documents.

The ETV Program is working with the State of Massachusetts to develop a partnership agreement for joint verification of environmental technologies. Additional details will be provided in the October issue of the ETV Program Quarterly Report.