The Environmental Technology Verification (ETV) Program
Striving to Achieve Acceptance of Innovative Environmental Technologies

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Abstract

For many years, a common misconception has propagated through the environmental community concerning "regulatory acceptance" of technologies used for environmental problem-solving. Decision makers and technology users want to use the right tool for the job, but are often unwilling to try something innovative or new because it may be considered to be "untested" or "unproven." Few people want to be the first to try something new, particularly if it doesn't work for their application or is misapplied and results in a failure. This presentation attempts to put this technology acceptance problem in perspective and describes an approach used by the U.S. Environmental Protection Agency to accelerate the recognition and use of environmental technologies.

Introduction

For most of this country's history, we did not notice (or maybe we *chose* not to notice) the damage we were causing to ourselves and our environment through formerly accepted hazardous and municipal solid waste disposal and treatment practices, the inadequate control of air emissions from mobile and stationary sources, and even from the lead-containing paints we used on and in our homes, to name a few. However, over the last 30 years, the Nation has experienced a measurable improvement in environmental quality, due, in large part, to the public's outcry for a solution and the Congress' response by passing numerous new environmental laws or amending existing ones. The overarching goal of these pieces of environmental legislation has been and continues to be to protect human health and the environment. One of the many common threads tying all the pieces of environment-related legislation together is technology – specifically "environmental" technology.

During the environmental problem-solving process, decision makers and the public are preoccupied with assessing and managing the risks associated with the introduction, control, or migration of contaminants in the environment. Preventing pollution requires us to know what contaminants pose a threat and how to measure, control, or eliminate them. To clean up a contaminated site requires, at a minimum, an understanding of the nature and extent of contamination and the expected or desired land use to select the appropriate remedy. Clearly technology plays a pivotal role in our pursuit of a healthier and cleaner environment. We must have confidence that the technologies used to measure, control, and remediate contamination do so without compromise. Technology users and the public want assurances that a technology will perform as advertised. Typically State and Federal governments are looked to for providing some type of "regulatory acceptance" of the technologies that are being used in pursuit of environmental protection. But can regulatory agencies deliver and is this what technology users *really* want or need?

What *is* "Regulatory Acceptance"?

By the very nature of the phrase, "regulatory acceptance" implies that a technology has received some form of recognition, recommendation, or approval in a (State or Federal) regulation. The phrase has been used rather haphazardly, without really thinking about or understanding what it may mean to the uninitiated or uninformed user. Although there may be some benefits in having technologies specifically identified in an environmental regulation or a policy dictum, it is not a panacea for the selection of the appropriate technology to do a given job. The "regulatory acceptance" moniker may give the mistaken impression that a technology is the "best in its class" and a potential user may assume a false sense of security in using it and may ignore other, possibly more appropriate technologies. Or, the "regulatory acceptance" label may be tied to a specific, model application(s) which may wrongly be assumed to be the *only* appropriate applications for the technology, thereby inappropriately disqualifying the technology from consideration for non-specified applications.

Occasionally letters of endorsement are written by regulatory officials or reports are prepared for a regulatory agency concerning technology performance. These types of documents are prepared to try to encourage decision-makers to try something new, but they cannot alleviate the risks associated improper application. Regulatory acceptance is simply not offered and, in fact, may work to the detriment of technology.

Striving for Acceptance by Regulators

We should be striving for recognition and acceptance of environmental technologies by all those with a vested interest – regulators, the regulated community, technology users (e.g., consulting engineering firms and analytical laboratories), and technology developers. Each of these groups has information needs concerning environmental technologies.

Regulators need:
- Performance information generated using the technology under real conditions
- Somebody they trust telling them that it's okay to try it
- Assurance that the technology works as advertised
- Some way to minimize the risk in trying something "unconventional"

Technology users need:
- Acceptance and/or recognition by regulators
- Confidence that the technology really works
- An indication that the technology can provide a low(er) cost solution for solving an environmental problem

Technology developers primarily need a market that depends on:
- Acceptance and/or recognition by regulators
- Timely information dissemination
- Low-cost testing
- A return on their investment spent in testing. There must be a value-added!

But how do we get there? There is not single, simple solution. In the early 90's, the U.S. Environmental Protection Agency (EPA) acted to address these needs through the creation of a

program – the Environmental Technology Verification (ETV) Program.

What is ETV?
ETV was created in 1995 by EPA to accelerate the introduction of new environmental technologies into the marketplace by supplying technology buyers, developers, consulting engineers, states and EPA Regions with high-quality, credible data on the performance of new technologies tested through neutral, third-party testing organizations under the direction of EPA. The Site Characterization and Monitoring Technologies (SCMT) Center managed by the Environmental Sciences Division of the National Exposure Research Laboratory (NERL-Las Vegas), is one of six Centers that coordinates testing and verifies the performance of technologies that fit a wide range of uses. These include characterizing contaminated sites and buildings (Superfund and Brownfields), water quality monitoring, food safety, remediation monitoring, and emergency response, to name a few.

What does ETV do?
ETV administers a rigorous verification testing process. It also administers an extensive outreach network for providing timely verification testing results to decision makers and technology developers. Verification testing requires that each technology be operated under conditions that a user would typically encounter in the field. Hundreds of real-world samples are analyzed. In addition, samples with known concentrations of pollutants are analyzed to ensure that there is an adequate amount of quality assurance and quality control built into the test. The verification testing process is comprised of a number of steps:

- Technology solicitation and selection
- Verification test plan development
- Field testing
- Data analysis and reporting
- Information outreach

ETV works with stakeholders and technical experts to identify key environmental data or information needs and potential candidate technologies. The stakeholders also play an invaluable role in sharing and disseminating information. The ultimate goal of ETV is to facilitate the recognition and acceptance of innovative environmental technologies into accepted practice.

Conclusion
ETV verification testing generates high-quality performance data. However, these data can only satisfy part of the technology-selection equation. The decision maker must define his or her data and data-quality needs for the application at hand (typically by using the data quality objectives (DQO) process) and use the ETV-generated information in conjunction with other sources of information, such as that available through the Interstate Technology and Regulatory Cooperation (ITRC) Work Group and the California EPA Technology Certification (CalCert) program, to provide a more robust data set from which a decision maker can determine the applicability of a technology to his or her specific need.

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