

PROTECH - THE PROSPECTIVE TECHNOLOGY COMMUNICATION SYSTEM

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ABSTRACT

ProTech - The Prospective Technology Communication System describes innovative environmental cleanup technologies to a wide audience. The technologies described are funded through the Department of Energy's Office of Technology Development (DOE-OTD). The primary audience for ProTech is individuals and/or groups who are interested in or feel they have a stake in waste management activities at each Integrated Demonstration (ID) site. These stakeholders include the interested public, regulators, Native Americans and technology users. ProTech's objective is to provide three main benefits. First, ProTech functions as a communication tool which can greatly enhance ID and IP (Integrated Program) public involvement activities. Second, ProTech describes innovative technologies to varied stakeholders with the intent of soliciting input on technology acceptance. Finally, ProTech will increase national exposure for technologies and enhance technology transfer activities. ProTech's secondary objectives include providing management support to Integrated Demonstration Coordinators (IDCs) and DOE-OTD personnel and increasing communication between people involved in technology development activities throughout the DOE complex. A demonstration of ProTech and its capabilities will be provided. A discussion regarding the long-term plans for developing a national system for ProTech will also be addressed.

BACKGROUND

ProTech was developed in 1992 as a communication tool to describe innovative technologies being demonstrated at DOE sites. The intended audience for ProTech is stakeholders interested in or concerned about DOE's Office of Technology Development's activities. Currently, ProTech focuses on Integrated Demonstrations (IDs) being conducted across the DOE complex. ProTech includes site maps, summary fact sheets, technology profiles, and technology diagrams. A prototype version of ProTech has been developed for the VOC-Arid Site ID. Customized applications of ProTech were available in January 1994. These versions describe technologies supporting the

- Volatile Organic Compounds at Arid Sites ID
- Underground Storage Tank ID
- Mixed Waste Landfill ID
- Volatile Organic Compounds at Non-Arid Sites
- Uranium in Soils ID
- Buried Waste ID.

ProTech and the associated profiles can also be used to provide general information about the technologies to users and industry. Some of the more common questions asked about ProTech are answered below.

1. Why Was ProTech Developed?

As public involvement activities were developed for the VOC-Arid ID, it was clear that the traditional sources of information for stakeholders were Technical Task Plans (TTPs), technical reports, and presentations. However, these sources were often unavailable, difficult to understand because they were too technically written, or incomplete because the information wanted was not available or the uncertainties about the information were too great. It became clear that no tool provided information on these technologies in one place and in an understandable format and that a new approach to

disseminating information about new technologies was needed.

ProTech was initially conceived as a tool to assist in stakeholder involvement activities and to thereby evaluate and enhance public, regulator, and technology user acceptance of VOC-Arid ID technologies. The tool was expected to

- describe to stakeholders what they wanted to know about the technologies in a form they could understand
- describe how technologies relate to one another.

ProTech filled an identified consumer need for data to make informed decisions about new technologies. The development requirements were to create a tool that was appropriate for meeting that consumer need, so ProTech's design is

- user friendly
- based on existing hardware and software
- understandable
- low cost.

2. What Are ProTech's Functions?

ProTech allows users to learn about innovative technologies by displaying fact sheets and comparing innovative cleanup technologies to established baseline technologies or to other innovative technologies. Figure 1 shows the main menu screen from ProTech. The fact sheets include a text description (the need, process, advantages, and challenges) and a diagram of each technology. They are simple and can be used in a number of ways, such as press releases. For example, the fact sheet on a drilling technology called cone penetrometer appeared in "Tech Trends." The fact sheet on Hybrid Plasma Technology developed by MIT was used by the Boston Globe in a news article.

The technology comparison feature allows the user to compare technologies based on criteria of interest in five categories: effectiveness, environmental safety and health,

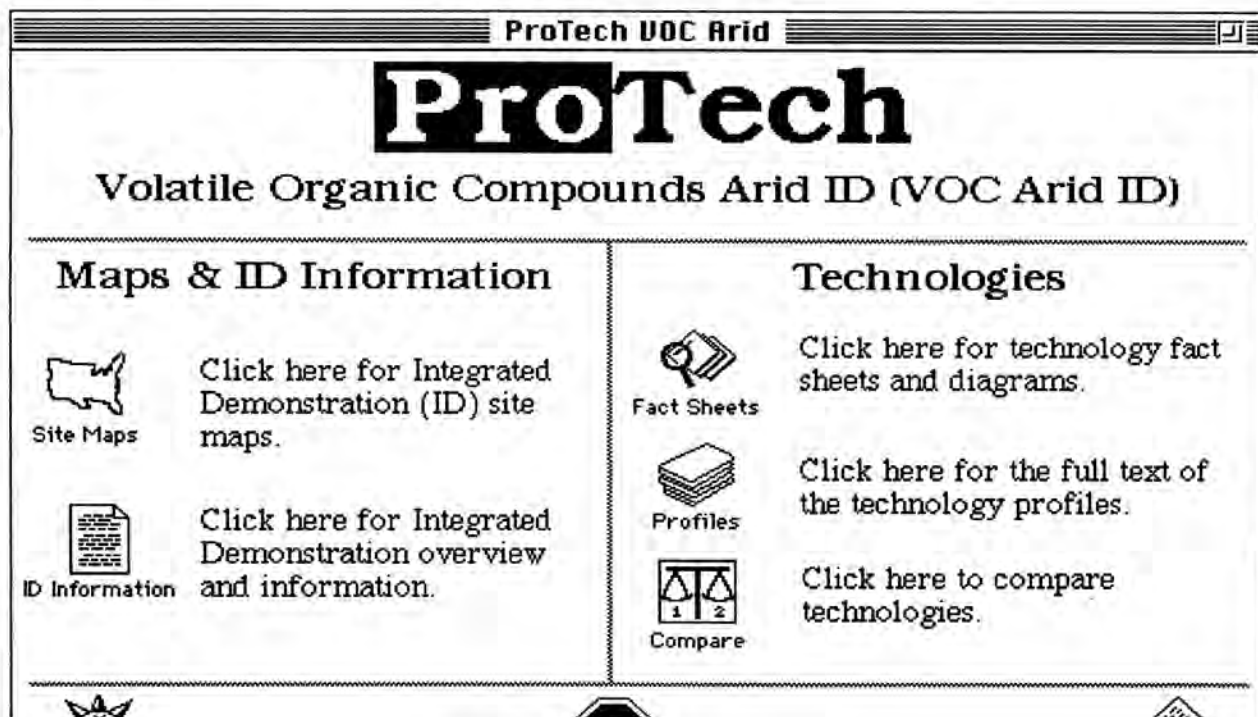


Fig. 1. ProTech main menu screen.

socio-political interests, and regulatory objectives. ProTech then looks up the two technologies (two innovative or one innovative and one baseline), retrieves data on the selected criteria for both technologies, and summarizes the results in a comparison chart. Technology information for both the fact sheets and the comparisons comes from a ProTech technology profile, a detailed form based on interests and concerns identified in over 40 stakeholder interviews and two workshops.

The comparison capability is an important function of ProTech in that it allows the user to compare apples to apples to understand the advantages and, in some cases, the limitations of the innovative technologies in comparison to the baselines or other innovative technologies. This comparison feature has been found to be important to industry.

Each application of ProTech also allows users to get an overview of the problem addressed by and the technologies supporting the ID. A series of site maps is also provided for each of the six ID sites; the maps progress from a map of the United States to a cross-sectional view of the site and the problem that the ID addresses. ProTech also furnishes contact names for those who require further information.

3. What Are the Current and Future Benefits of the System?

ProTech's goal is to provide three main benefits. First, ProTech functions as a communication tool which can greatly enhance ID public involvement activities. Second, ProTech describes innovative technologies to varied stakeholders with the intent of soliciting input on technology acceptance. It is structured to identify regulatory, public, and technology user acceptability issues. Finally, ProTech will increase national exposure for technologies and enhance technology transfer activities. ProTech's secondary goals include 1) providing management support to Integrated Demonstration Coordinators (IDCs) and DOE-OTD personnel and 2) increasing communication among people involved in technology development activities at ID sites across the country.

Table I shows specific benefits for groups interested and involved in environmental cleanup.

4. What are Major Accomplishments?

The ProTech development team has worked together effectively to achieve the following accomplishments:

- Through the efforts of Kamilche Consulting, a small, minority owned business, ProTech were ready for distribution in January 1994.
- The technology profiles are based on criteria of concern that were identified in stakeholder interviews and workshops, so they respond directly to the consumers of the technology information.
- ProTech represents 100 innovative technologies. As more IDs and IPs are added to the system, this number will grow substantially.
- ProTech has been demonstrated in interviews, focus groups, and workshops with stakeholders (including members of the public, interest groups, regulators, and technology users) and PIs from a variety of sites.
- ProTech was selected to be presented at DOE Technology Fairs for the U.S. Senate and the House of Representatives.
- ProTech has gained support from Program Managers at DOE Headquarters, IDCs, IPCs, and TPOs.
- A national team has been established to coordinate ProTech activities. This team includes participants from several DOE sites, including Savannah River, Fernald, Sandia National Laboratories, Idaho National Engineering Laboratory, and Hanford. This team has been able to operate effectively as a result of support from the IDCs at those sites.

TABLE I
ProTech Benefits

Management	Reduces duplication of data gathering activities. Facilitates integration across all DOE Environmental Restoration and Waste Management activities.
The Public	ProTech contains information in a form stakeholders want and understand. Graphical orientation makes it easy for the user to use. Data is peer-reviewed.
Principal Investigators (PI)	Familiarizes the PI with the non-technical issues by having them listed in the profile. Serves as the basis for annual reports and press releases. Provides PIs with a tool to help them understand what their counterparts are doing at other ID sites.
Industry	Reaches the DOE customer and its contractors. Provides industry with a simple tool that informs them about opportunities to team and commercialize products.

- Requests for ProTech have been received from industry, national labs, contractors, and U.S. government agencies.
 - ProTech has contributed to the efforts of other data collection activities (Technology Catalogue, Cross-Walk, EnviroTrade).
 - Other data collection activities and technology databases (including the Environmental Protection Agency's ATTIC system, EnviroTrade, and ReOpt) have expressed interest in including ProTech information in their systems.
 - The Federal Remediation Technologies Roundtable has requested that ProTech be part of an integrated national effort to consolidate technology information.
5. What is the Strategy for Future Development and Deployment?

All future development and deployment decisions must be based on stakeholder needs. Therefore, it is critical that we continue to involve these stakeholders to ask them what information and functions they need and in what form. This evaluation of ProTech, as well as ongoing evaluation as the tool evolves and changes, is critical to making informed decisions

about further changes and to maintaining ProTech's effectiveness and usefulness to stakeholders.

It has been proposed that an integrated, national version of ProTech be developed as the next step. This software would bring together technology data from IDs and IPs in a single application, allowing a common framework from which to understand technology demonstrations at a given site, comparisons of technology demonstrations across sites, and definitions of demonstration objectives.

ProTech profiles will continue to use information from, and provide input to other technology information systems to avoid duplication of effort. This input may range from providing profiles in electronic form to direct electronic links with other systems. The goal is to reduce the overall effort to communicate details on DOE-OTD technologies.

Discussions with the Office of Scientific and Technical Information (OSTI) are occurring to explore potential electronic access to ProTech profiles, fact sheets, and diagrams through their office. OSTI is currently setting up a public access server for electronic information, which could be used to allow public access to ProTech information. OSTI is putting together an information proposal about ways to allow access to ProTech.

EPA's ATTIC system may be another option for ProTech and the profiles. This is an additional option that would increase the visibility of the profiles.

Another potential way to allow the public and other interested parties to get access to ProTech is through Mosaic. Mosaic is software developed by the University of Illinois that provides access to various electronic resources, including Internet resources. Using Mosaic, it is possible to make information available, in hypertext form, to anyone with access to a network; information in Mosaic is accessed by moving through the Internet to the computer where the information resides. It is very user friendly, and is already being used to provide information about the national laboratories (Oak Ridge, Argonne, Fermilab, Brookhaven, Lawrence Berkeley, Pacific Northwest Laboratory, Los Alamos, and Sandia). Mosaic also provides fairly easy access to photographs and other graphics, including computer video clips. The Mosaic software is free and available from the National Center for Supercomputing Applications.

6. What are the Challenges Facing ProTech?

ProTech must now take the final steps to deploy the system. There is a need to establish a more consistent application of guidance to the field, and to make the system IBM-user friendly to achieve maximum effectiveness. The capabilities of this communication tool will require that an appropriate level of quality (technical and editorial) be maintained. From the perspective of Quality Assurance, a peer review process needs to be in place to independently evaluate data accuracy. Meeting these challenges will provide a wide audience with vital innovative environmental cleanup technologies.