Construction Productivity Advancement Research

A revolutionary program to help the U.S. construction industry improve productivity and regain its competitive edge nationally and internationally was begun in 1989 under the direction of the Assistant Secretary of the Army (Civil Works). The Construction Productivity Advancement Research (CPAR) Program is a cost-shared partnership among the Corps of Engineers and the U.S. construction industry, state and local governments, academic institutions, and other groups to facilitate research, development, and application of advanced technologies through cooperative research and development, field demonstrations, licensing agreements, and other forms of commercialization and technology transfer. Two important new Cooperative Research and Development Agreements (CRDA) for microtunneling and horizontal directional drilling are highlighted in this issue.

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A Department of Defense Information Analysis Center

The SMIAC bulletin is published and distributed periodically. Please contact the Director of SMIAC for more information:

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Fail-Safe, Retrievable Microtunneling

Industry and laboratory partners have signed a Cooperative Research and Development Agreement (CRDA) to demonstrate, evaluate, and gain commercial acceptance of an innovative, fail-safe, retrievable microtunneling system that is ideally suited for environmental restoration and other critical projects where surface access is severely limited (drives under highways, airport runways, or railroad tracks). Features that set this microtunneling system apart include the versatility to handle practically any ground conditions by the use of temporary high strength steel pipes during the jacking process, a reamer system that allows the installation of a variety of product pipe diameters, and a provision for successful retraction in the event that unexpected conditions are encountered. This particular method has been successfully demonstrated in Europe. The U.S. Army Engineer Waterways Experiment Station (WES) has teamed up with McLaughlin Manufacturing Company, Greenville, SC, and Markham & Company, Ltd., Chesterfield, England, to evaluate the performance of the system under a variety of known, controlled ground conditions at WES's extensively instrumented Trenchless Technology Test Facility. The results are expected to provide U.S. owners, designers, and contractors the justification and documentation they need to specify and use the system in the United States.

Microtunneling system undergoing evaluation at WES' Trenchless Technology Test Facility
Horizontal Directional Drilling Beneath Levees

The U.S. Army Engineer Waterways Experiment Station has teamed with O'Donnell Associates, Inc., Sugar Land, TX, to develop guidelines for installing pipelines beneath rivers and within levee rights-of-way using horizontal directional drilling (HDD) techniques. The Cooperative Research and Development Agreement (CRDA) is expected to demonstrate that these techniques offer substantial economic and operational advantages over current practices. A two phase program is designed to investigate hydraulic forces, determine the effect of the drilling fluid, establish techniques for eliminating undesirable fluid returns, and develop guide specifications. The first phase includes development of a conceptual model to evaluate machine-ground interaction and stability problems using numerical modeling methods. Various ground conditions, geometries, and machine operational characteristics will be considered. Findings are to be validated during the second phase where subsurface pressures will be monitored during actual drilling beneath inactive levee sections. Industry participation will be derived from individual pipeline and utility companies who have expressed an interest, and industry associations that include the American Gas Association's Pipeline Research Committee (AGAPRC), the Gas Research Institute (GRI), the Directional Crossing Contractor's Association (DCCA), and the North American Society for Trenchless Technology (NASTT). The elimination of features normally required in construction and maintenance of levee and adjacent road crossings (bridges, concrete boxes, earthen cover, and ramps) is expected to save the pipeline industry millions of dollars.

Come to DTIC for the Answers to Your Needs

By: Ms. Denise Mahalek

Program Analyst, Defense Technical Information Center

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Technical Report (TR) Bibliographic Database is a collection of nearly 2 million bibliographic records and abstracts of completed print and printout products submitted to DTIC, such as technical reports, DoD patent applications, conference papers, theses, soft-
ware, data files, databases, and videos. Classified, limited, and unclassified reports are available to qualified users.

Research & Technology (R&T) Work Unit Information System (WUIS) is a collection of ongoing DoD research and technology efforts at the work unit level submitted to DTIC. WUIS answers the questions of what, where, when, how, at what cost, and by whom research is being performed. This database also includes NASA efforts.

Independent Research and Development (IR&D) Database contains descriptions of research and development efforts currently performed by U.S. Government contractors. Access is limited to DoD personnel and other federal agencies with the approval of DoD. Online access to this proprietary data can only be accommodated through the use of a classified terminal or via a STU-III.

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Recurring Reports Program matches a user’s profile against newly acquired information in the WUIS or IR&D databases. It can be supplied monthly, quarterly, semi-annually, or annually, according to user preference. The end product contains management summaries which match a user’s interests. Information included depends on the summary format selected.

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### Partial Listing of Recent Geotechnical Laboratory Publications

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The reports listed above having AD numbers can be obtained from: National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161; telephone (703)487-4650. Please refer to the listed AD number. For those reports that do not have AD numbers, the report can be obtained from WES at (601)634-2571.
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