



**Keyhole Technology
Collaboration
Project**

Keyhole Technology



May/June 2003

Volume 1, Issue 4

A newsletter for Keyhole Technology Research Collaboration Project participants and manufacturers

Inside this issue:

<i>April 1st Keyhole Meeting</i>	1
<i>Vacuum Excavation</i>	2
<i>MBW</i>	2
<i>Concept Engineering</i>	2
<i>Omega Tools</i>	3
<i>Pacific-Tek</i>	3
<i>MBW Visits GTI</i>	4
<i>RFP's</i>	1

New Service Installation

Mike Arioli of Mich-Con (a division of DTE Energy) is working with Omega Tools to develop a process for new service installation of a PE service to a 2-inch to 6-inch steel main. This process will include the use of a Continental Industries mechanical punch tee and an encapsulation process for corrosion protection by Trenton Corporation. A 1¾-inch

piercing tool by TT Technologies is used to shoot the service from the house to the main. The service is run through an existing steel service or adjacent to the existing service. The new service installation will be conducted under live conditions.

Mike Arioli's contact information:
Phone: 313-389-7273
Email: ariolim@dteenergy.com



**New service installation tool
Omega Tools**

Requests for proposals for the following keyhole tooling, equipment and process developments/enhancements were recently sent out and also posted to the keyhole website (www.gtiservices.org):

- Main and service leak repair: Steel and Cast Iron pipe
- Main and service leak repair: PE pipe
- Service Installation
- Service Abandonment

Proposals are due to GTI by June 20th.

April 1st Keyhole RC Project Meeting

A Keyhole Technology RC Project meeting took place on April 1, 2003. Several project participants discussed their companies' latest involvement with keyhole technology:

- PECO Energy—new project with GTI to improve facility pinpointing through small holes
- SoCal Gas—evaluation and enhancement of tools, coring machines, and keyhole process methods
- Washington Gas—new project with GTI to obtain jurisdictional acceptance of keyhole technology
- MichCon—can perform keyhole processes year round with the

development of a heating system for removed cores. Also working on developing new tools.

- TXU—will host keyhole workshop this summer to inform Dallas-Ft. Worth metroplex of keyhole technology
- Small group breakout sessions were held in order to develop requirements for manufacturers for new keyhole processes and tools.

At the end of the meeting, Frank Russo of Omega Tools and Greg Goble of RW Lyall discussed and presented their perspectives on keyhole tools.

VACUUM EXCAVATION

Vacuum excavation is a two-phase process that can be described by the two R's – the Reduction Phase and the Removal Phase. In the Reduction Phase, an air knife directs compressed air into the soil at a high velocity and pressure loosening it and reducing the particle size so that it is suitable to fit through the vacuum hoses. During the Removal Phase, a high power vacuum extracts the loosened soil at a rate equal to or greater than the reduction rate. The entire process is quick, simple and safe. The use of air eliminates the possibility of damaging utilities while excavating, and

allows for the spoil to be used for backfill. The small hole excavation minimizes the amount of surface and soil to be removed, ultimately lowering time and labor costs. In the event of non-porous soils (clay) and hard packed soils, water can be used to aid in breaking it apart, but the spoil cannot be used for backfill. Vacuum excavation equipment comes in a wide range of sizes and specifications, from small skid mounted units to heavy-duty units mounted to large trucks. In this way the specific needs of a particular application can be met. Some of the equipment and manufacturers are outlined below.

MBW



MBW's "Put-It-Back-Vac"

Why is this vacuum system called the "Put-It-Back-Vac"? The name is designed to emphasize an integrated approach to vacuum excavation and excavation reinstatement which recommends dry methods of excavation. Dry excavation enable crews to reuse the resulting spoil as backfill for reinstatement purposes. For this reason, the "Put-It-Back-Vac" is not designed to haul spoil away from an excavation site. Instead, spoil is discharged from the "Put-It-

Back-Vac and reinstated into the excavation from which it came. Use of spoil for reinstatement purposes provides the highest probability of achieving sub-soil uniformity in and around an excavation. Uniformity in soil performance reduces the probability of subsidence as well as stress concentrations, variable deflection rates and pavement failures at the periphery of excavations.

Contact information: Andy Multerer, 262-644-5234, www.mbw.com.

Concept Engineering Group



CEG's SAFEX® vacuum excavator

Concept Engineering Group (CEG) is devoted to the development and use of air excavation. CEG products include the SAFEX® line of air-vacuum excavators, the smallest practical air-vacuum excavator. SAFEX® is designed for larger and deeper excavations where there is a need to vacuum the excavated soil into a storage tank. The SAFEX® equipment package is skid mounted so that it can be

transported on any type of vehicle, such as trailer, truck, or even off-road vehicles. The unit is equipped with an AIR-SPADE Series 2000 hand tool along with accessories, and also comes with air and vacuum hoses. It is available in various compressor and soils storage sizes. Contact information: Andy Jaraback, phone: 888-557-2339; website: www.air-spade.com.

Omega Tools

Omega Tools, Inc. is the designer and manufacturer of SerVac vacuum excavation systems. SerVac systems include innovative, patented technology such as the "Constant Clean" filtration system, the "Automatic Dump Valve" and the "Vac-port" which result in vacuum excavation systems that never need filter cleaning, have the ability to excavate an unlimited quantity of soil without the need to leave the worksite

to dump soil, and a remote excavating capability that allows for excavation as much as 200 feet from the machine. Each SerVac system is designed to meet the specific requirements of utilities using a flat bed truck configuration, trailer mount, or enclosed crew truck design. Contact information: Frank Russo, phone: 570-897-6138; website: www.omegaservac.com.



Omega Tools SerVac Vacuum Truck

Pacific-Tek

Pacific Tek "Power-Vacs" are offered in 9 different standard sizes, but that is only part of the story. All vacuum systems are built as self-contained skid mounted units first, and then mounted to a truck bed or trailers, along with any number of options available. Over 90 versions have been built and delivered to date. Pacific-Tek units are best described as: powerful, simple, rugged, and operator friendly. Pacific-Tek strives to tailor all systems to fit customers' individual needs. From very small 66 gallon skid mounted units to the 1200 gallon "Power-Vac", a package can be assembled to fit applications that call for digging, cleanout, water recovery or a combination of all three.

Pacific-Tek offers water jet or air jet cutting systems, manual or hydraulic hose booms, single or multiple vac-

uum hose inlets, manual or hydraulic dump hatches, standard or high output drive packages, and diesel or gas drives. The free-standing gas powered core drill allows excavating in streets without tearing up the pavement. The core drill can be fitted onto a vac system or furnished as a trailer mounted stand-alone unit complete with cooling water pumping system. Many custom truck mounted systems have been supplied using a customer's existing vehicle that was not being utilized in its previous configuration.

The Pacific-Tek "Power-Vacs" are used by municipal water & wastewater utilities, gas companies, and contractors serving them as well as other industrial customers. Contact information: Dan Skorz, phone: 800-884-5551; website: www.pacific-tek.com.



Pacific-Tek "Power-Vacs"

Please look for articles about additional vacuum equipment manufacturers in upcoming issues. Thanks to SerVac-Omega, Excavac and VacMasters for information used for the introductory paragraph of this vacuum excavation section.

Gas Technology Institute
1700 S. Mt. Prospect Road
Des Plaines, IL 60018-1804
847-768-0500

Dennis Jarnecke
Phone: 847-768-0943
Fax: 847-768-0501
Email: dennis.jarnecke@gastechnology.org

Angie Wood
Phone 847-768-0636
Fax 847-768-0569
Email: angie.wood@gastechnology.org

Jim Otzko
Phone: 847-768-0523
Fax: 847-768-0569
Email: james.otzko@gastechnology.org

Contact List Updates

The new contact person for the Keyhole RC Project at Keyspan Energy is:

Joe Vitelli
phone: 516-545-4400
email: jvitelli@keyspanenergy.com

If someone in your organization would like to obtain a copy of the keyhole newsletter, please contact Jim Otzko at 847-768-0523 or send an email to james.otzko@gastechnology.org

Have a question? Register for the Q&A Board on the Keyhole website !

Q&A: Please register for the new **Question and Answer Board** on the keyhole website at www.gtiservices.org. Participants can post questions on keyhole related issues and read about issues other utilities face.

MBW Visits GTI



MBW Airammer



MBW Soil Pick

Andrew Multerer and Pat Montag of MBW visited GTI on April 24th. They demonstrated two of the MBW products for us: the Soil Pick and the Airammer.

The Soil Pick is an air excavator utilizing a converging/diverging nozzle to break up the soil (see picture at left). The Soil Pick now features a new polymer trigger which reduces operator fatigue. The Airammer is a pneumatically powered rammer used for soil compaction. In addition, MBW brought along the portable Put-It-Back-Vac. Once the demonstration was finished, the vacuumed soil was returned from the portable vacuum truck to the GTI field.

Andrew and Pat first demonstrated the equipment and then allowed all at GTI to try the equipment for ourselves.

Contact information:
Andy Multerer: 262-644-5234. Email: andym@mbwcom
MBW website: www.mbw.com
