

Cutoff-Wall for Georgia/Alabama Dam

Remembering Dr. O'Neill

New ADSC Equipment Insurance Plan

Seacore Wind Farm Off to Flying Start

Dry Mixing Method Reviewed

FOUNDRY

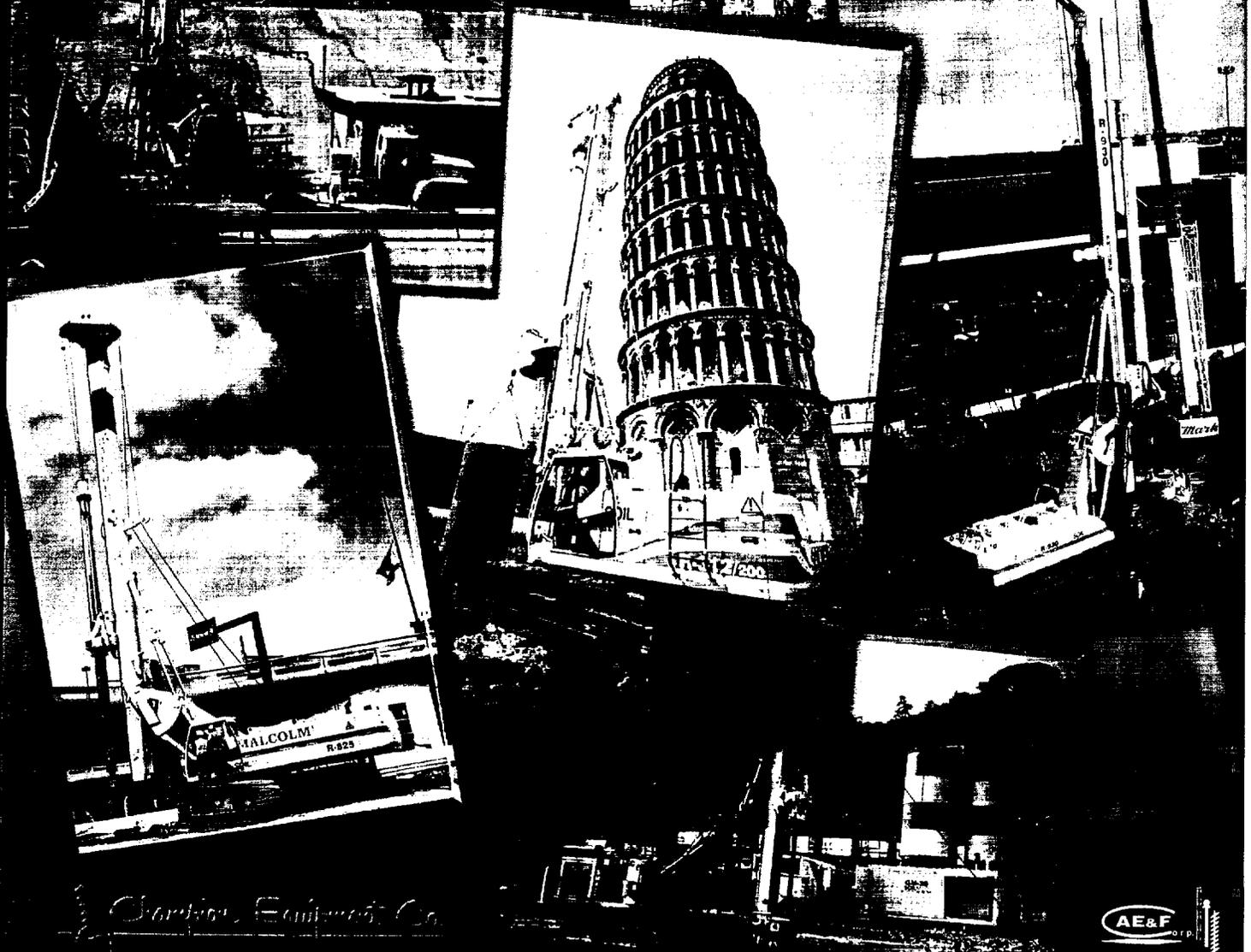
Drilling

ADSC: THE
INTERNATIONAL
ASSOCIATION OF
FOUNDATION DRILLING



SOILMEC

*Over 200 units sold in USA
since 1998*



U.S. West
CHAMPION EQUIPMENT SALES LLC.
701, Green Valley Pkwy. Ste. 200 - Henderson, NV 89074
Tel. (877) DRILLRIG Fax (866) SOILMEC
Info: info@championsales.net

U.S. Central & East
AMERICAN EQUIPMENT & FABRICATING Corp.
100, Water St. - East Providence, R.I. 02914
Tel. (401) 438.2626 Fax (401) 438.0764
Web site: www.american-equipment.com

Reader Service #0703



FEATURE ARTICLES

12 Multi-System Cut-off Wall for 2-State Dam

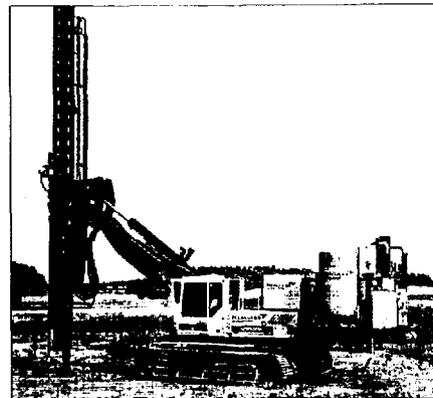
A combination of drilled Secant Piles and Slurry Walls installed by a Hydromill were used for the first installation of a Cut-off Wall in front of an active Dam ever undertaken by the U.S. Army Corps of Engineers. TRE-VIICOS/RODIO joined forces for this project on the Chattahoochee River.



Secant piles and slurry wall solve dam problem for U.S. Corps of Engineers. See feature page 12.

17 Innovative European Technologies: The Dry Mixing Method

This is the fifth in a series of articles that highlight a variety of soil embankment technologies in use in Europe that provide innovative relevance for construction in the U.S. Transportation Industry. The main advantages of the Dry Mixing Method are explored.



A dry mixing machine with on-board binder silo. See feature page 17.

22 Remembering Dr. Michael W. O'Neill

Dr. O'Neill passed away suddenly on August 3rd of this year. Several of Dr. Michael O'Neill's colleagues and friends, from a variety of professional domains, share their personal remembrances of Dr. "O" the man, and what he meant (still means), to the drilled foundation industry.



Dr. Michael W. O'Neill
1940 - 2003
See feature page 23.

26 ADSC Offers New and Exceptional Equipment and Liability Insurance Plan

The ADSC is pleased to announce that in conjunction with Special Risk Services Group, a new very attractive equipment and liability insurance plan which includes "In-Hole" coverage, can now be offered through your company's local agent. Available to ADSC Members and modeled on a plan already in place in the Crane Industry, this plan is truly "special".

32 Seacore Wind Farm Off to a Flying Start

ADSC International Contractor, Seacore, adds another deep water drilling project to their impressive resume.

ADSC

4 Editor's Note

8 Letters to the Editor

10 President's Message

31 Mini Feature

42 Focus On Committees

48 Safety Record

52 Mud on Your Boots

54 Keeping Up

64 People Watch

68 New Product News

69 Calendar

70 Advertiser's Index

33 Years of Industry Leadership

Design/Printing
Phoenix Design
972.675.1525

ON THE COVER

Combination secant piles and slurry wall for Army Corps of Engineers dam on Georgia/Alabama border. See feature page 12.

ADSC is Not Just for the Big Boys, Check the Mud...

by S. Scot Litke

This column was originally scheduled to appear in the August 2003 issue of *Foundation Drilling* magazine. It referenced a new department in this publication, "Mud On Your Boots" which appeared for the first time on page 38 of that issue. This issue carries the second in what we hope will be a continuous series of articles focusing on the activities of the ADSC's Category III and IV Contractor Members. So, here is the scheduled August issue's Editor's Note. (Editor)

Regarding the August issue of *Foundation Drilling* that introduced the new *Mud On Your Boots* Department, the following summary primer on how the ADSC membership is organized may help.

The ADSC is an international professional trade association comprised of specialty subcontractors engaged in drilled geo-engineered construction; manufacturers and suppliers of equipment, tools, materials and services to the industries represented; design professionals, academicians, and students. The common thread is involvement with drilled shaft foundation and anchored geo-support system design and construction. The membership which numbers approximately 900 companies (and in some cases individuals) worldwide is almost equally divided into Contractors, Associates (manufacturers, suppliers, etc.), and Technical Affiliates (design engineers, etc.). The Contractor Members are further divided into four categories of membership (I-IV), all based on the magnitude of projects they normally undertake. U.S. Category I Members are those that take on single projects in excess of \$750,000 U.S. in value. Category IV Members take on projects not to exceed \$50,000. Quite a spread. A similar system is in place for our



Canadian members as well as for non-North American Contractors. One major challenge for the ADSC over the years has been to be able to provide viable service to a wide range of member types, and technology ("Product") groups. You can imagine that there could be a great deal of difference in the needs of a company that is typically taking on a total volume of \$500,000 worth of projects per year with one whose balance sheet is in the \$100 million range. In addition, the smaller contractors tend to work in a very local environment, don't have a great deal of time to be actively involved in the activities of a proactive international association, nor are they necessarily in need of similar services. However, this should not be taken too far as there are an enormous amount of ADSC activities that have tremendous value for members of every stripe. ADSC training programs immediately come to mind as having crossover value to anyone in the industry. On the other hand, it is also true that much of the thrust of the organization as it relates to establishing specifications, interfacing with government agencies, funding research, and the like, may have more *direct* value for the larger companies. "*Direct*" is the operative word as there is an enormous amount of "*trickle down*" impact for smaller contractor firms. In fact, in the case of the impact of the ADSC overall, "what is good for the goose, is good

(continued on page 6)

FOUNDATION DRILLING

Serving Geo-Construction Professionals Throughout The World

Vol XXIII No. 7 September/October 2003

The only magazine devoted entirely to the international affairs of the Foundation Drilling, Anchored Geo-Support, and other related industries.

FOUNDATION DRILLING (ISSN 0274-5186) is published eight times a year, monthly except December/January; March/April; June/July; September/October by ADSC, 9696 Skillman, Suite 280, Dallas, Texas 75243.

Subscription rate: \$75 per year for US residents; \$95 per year for non-US; included in membership dues.

"Second class postage paid at Dallas, Texas"

POSTMASTERS: Send Address Changes to FOUNDATION DRILLING, P.O. Box 550339, Dallas, Texas 75355-0339, (214)343-2091.

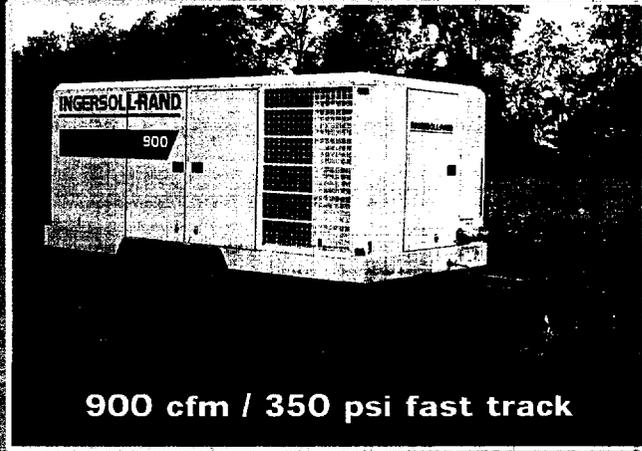
E-mail address: adsc@adsc-iafd.com

Web page: www.adsc-iafd.com

The ADSC, its directors, employees and legal assigns, do not attest to the accuracy and efficacy of any items that appear in this issue of FOUNDATION DRILLING magazine.

- | | |
|---|---|
| Publisher | Mike Hayes, President |
| Editor | S. Scot Litke |
| Managing Editor | Teri Dres |
| Advertising Manager | Ted Ledgard |
| Associate Editors | Ted Ledgard
Marilyn Ellis
Wendy Sweet |
| Susan King | |
| Lori Schirpke-Jordan | |
| Cindy Colao | |
| Executive Committee | |
| Mike Hayes | President |
| Dan Cadenhead | Vice President |
| Bill Maher | Treasurer |
| Jim Melcher | Immediate Past President |
| Ben Dutton | Associate Member's Chairman |
| S. Scot Litke | Executive Director |
| Board of Directors | |
| Tom Armour | Jim Maxwell |
| Jim Cahill | Tom Myers |
| Rebecca Fisher | Eric Reuther |
| Brent Grow | John Roe |
| James Harmston | Kevin Sharp |
| Mike Heinz | Lon Spencer |
| Mike Kemery | Tom Witherspoon |
| Tony Kraut | Ben Dutton, ex officio |
| Past Presidents Advisory Council | |
| Jack Watson | Barry Kannon |
| Jene Hayes | Alan Macnab |
| Bob Long | Thomas Buzek |
| John Malcolm | Richard Millgard |
| Stan Anderson | Bruce Long |
| Don Morin | Ty Savage |
| Stan Case | Jim Melcher |
| Bill Guinn | |
| ADSC Chapter Presidents | |
| Mid-Atlantic | Ted Moroney |
| Mid-West | Charlie Johnson |
| Ohio Valley | Scott Koker |
| Rocky Mountain | Mike Waldren |
| South Central | Dan Parker |
| Southeast | Bruce Long |
| West Coast | John Roe |
| Northeast | Martin McDermott |
| Women's Association | |
| Debbie Reuther | President |
| Linda Marshall | Vice President |
| Denise Maher | Secretary |
| Keli Cadenhead | Treasurer |

HIGH PRESSURE AIR



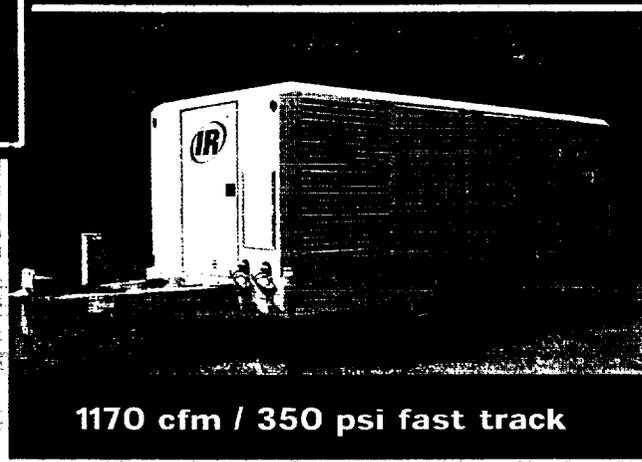
900 cfm / 350 psi fast track



1070 cfm / 350 psi fast track



1600 cfm / 150 psi fast track



1170 cfm / 350 psi fast track

... YOU??
 Take the Quantum Leap[®]

MODEL	HOLE SIZE
QL40	4.125" - 5"
QL50	5.125" - 6"
QL60 PLUS	6" - 8.5"
QL80	7.875" - 12"
QL120	12.25" - 17.5"
QL200	17.5" - 26"
QL200S	28" - 36"

800.221.0586
 814.443.2670

fax:
 814.443.6974

email:
sales@keystonedrill.com

Sales & Rentals

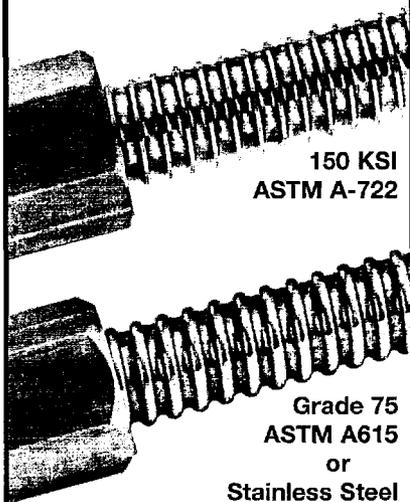
Reader Service #0728



ALL-THREAD BARS

The Right Choice For:

- Post Tensioning
- Foundation Anchors
- Rock & Soil Anchors
- Soil Nails
- Concrete Forming
- Multiple Corrosion Protection Anchors



AVAILABILITY:

- Lengths up to 50 feet
- Ultimate Strengths up to 960,000 lbs.
- Couplings, Nuts, Plates & Washers for all bars
- Torque Tension Ability

Send For Free Brochure!



WILLIAMS
FORM ENGINEERING CORP.
280 Ann St., Grand Rapids, MI 49504
Phone: (616) 365-9220
Fax: (616) 365-2668
Web: www.williamsform.com
E-mail: williams@williamsform.com

Williams Form Hardware & Rock Bolt
670 Industrial Road
London, Ontario Canada N5V 1V1

Reader Service #0749

for the gander." Examples include the association's safety programs, equipment operator training, supervisory personnel training, advancing the state-of-the-art-and-practice, and promoting technologies in which members engage, no matter at what level. Another shining example is the direct benefit that smaller contractor members gain from developing friendships with those operating at a variety of levels. The networking, shared learning, and cooperative business venture opportunities are unique in this organization. This cuts across all categories of membership be they specialty subcontractor, design engineer, or manufacturer and supplier. The ADSC tent is broad indeed.

Way back in 1984 a number of ADSC members led by then Director Johnie Stephens, N.L. Schutte Drilling, Dallas, Texas, began to realize that in order to meet the needs of our smaller contractors, and at the same time to be able to effectively address important issues at the "local level," regional chapters should be formed. The idea gained traction with Stephens taking the leadership role in establishing the association's first such group, then known as the "ADSC Texas Chapter." This Chapter has expanded its reach to take in several states in the southwest and is now known as the ADSC South Central Chapter. Soon Johnie headed out to California at the request of West Coast members to assist them in organizing a chapter of their own. The result was the ADSC's second chapter, that being the West Coast Chapter. This is the association's largest chapter in both geographic reach and size of membership. The West Coast Chapter has expanded to the point that they employ their own Executive Director. There are now eight chapters including not only the South Central and West Coast, but also the Northeast, Mid Atlantic, Southeast, Ohio Valley, Midwest, and Rocky Mountain. Virtually every region in the U.S. is covered by a local ADSC entity well positioned to represent all members, particularly the smaller companies whose person-

nel cannot regularly participate at the national level. In order to be a member of a regional chapter, you must first be a member of the international association. Chapter by-laws must conform to those of the parent organization. Chapter initiatives include providing liaison to State DOTs, conducting regional design, construction, and inspection seminars covering the entire spectrum of technologies that come under the ADSC umbrella, as well as offering ADSC-developed training programs such as OSHA Certification, Operator Training, and Slurry Schools. This formula has proven extremely successful especially as it relates to providing services to State DOTs in the area of project specifications review and technology transfer (training). ADSC regional chapters participate in engineering conferences providing speakers, exhibitors, and sponsorship. The *ADSC University and Engineering Society Speakers* programs bring knowledgeable Contractor and Technical Affiliate presenters to university classrooms, and local and regional sister organization meetings. Construction site visits are arranged for students at local universities in both Construction Management and Civil Engineering. The ADSC's Intern Program offers learning opportunities of a similar type. All of these operate at the local/regional level and are administered by ADSC Chapters.

While it is admittedly impossible to be all-things-to-all people, the ADSC has continued to respond to a wide variety of member needs. The newly formed Category III and IV Contractors Committee, and the new *Mud On Your Boots* editorial department of *Foundation Drilling* magazine are but two manifestations of the way in which this growing international organization continues to provide value-added services to all of its membership.*

For information about the activities of the ADSC Category III and IV Contractors Committee, contact Cindy Colao at: ccolao@adsc-iafd.com.

*See page 52 this issue. ■

WFJ Drilling Tools Inc. Industry Experience and a Large Inventory to Better Serve You

Drills either 40'
or 60' Deep

New & Used
Rigs for Sale

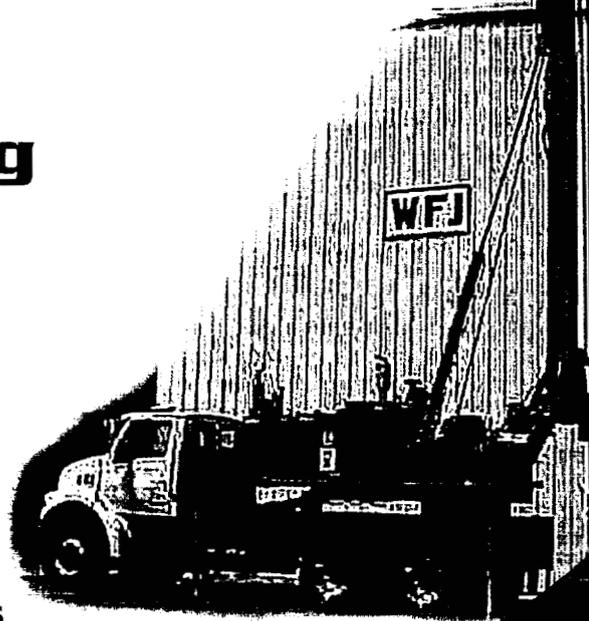


ANNAMETAL



CD-30L Hydraulic Drilling Rig

- ◆ Rigs
- ◆ Parts
- ◆ Auger Sales
- ◆ Custom Tooling
- ◆ Dealer for CLO Rigs
- ◆ 60 Ft. Digging Depth
- ◆ Telescoping Bars



WFJ DRILLING TOOLS, INC

Odessa, Texas

1-800-343-1530 ◆ (432) 366-2514

FAX (432) 366-8739

Email: wfjjakew@texol.net

or lenag@texol.net



WFJ

www.wfjdrillingtools.com

Reader Service #0746

Mike O'Neill

The following letter comes to Foundation Drilling magazine in response to the Editors Note, which appeared in the August issue. The "Note" focused on my personal recollections of Dr. Michael O'Neill who passed away in early August. I truly appreciate these words. Thanks for writing. (Editor)

Scot,

Thank you for sharing your recollections of Mike O'Neill in your Editor's Note in the August issue. Even though my personal recollections of Mike are far fewer than yours, all that you said about him was true of my limited experiences with him. But more importantly, your comments were from the heart – and your readers will enjoy them as much as I have.

James L. Withiam
D'Appolonia
Monroeville, PA

ADSC Women's Association Vice President Expresses Appreciation

Dear Editor:

On behalf of the ADSC Women's Association, we wish to thank the ADSC staff, Susan, Lori, Cindy, Marilyn, Ted, and Scot, for all of their hard work that they put into running our semi-annual meetings. We understand it takes months of preparation to make things run so smoothly. We truly appreciate all your efforts.

We would also like to express our appreciation to Scot Litke for his exceptional auctioneering skills. We know without his time and talent we would not have raised the money we did at our silent auction recently in Whistler, British Columbia. Thank you Scot! To all of our gift contributors of "The Great Outdoors" Silent Auction, and to all the bidders and buy-

ers, without you, we would not be able to raise the money we do for the scholarship fund. A heartfelt THANK YOU!

Sincerely,

Linda Marshall
Vice President
ADSC Women's Association

Scholarship Recipient Expresses Thanks

Eleven scholarships have been awarded for the school year 2003-2004 from the ADSC's Industry Advancement Fund. All recipients will be introduced to the membership at the ADSC's 2004 Annual Meeting and EXPO. This letter was sent to Alan Macnab, Condon-Johnson & Associates, who interviewed this candidate for his scholarship. (Editor)

Dear Alan:

The other day, I received my official notification from Tom Wither- spoon of my receipt of the ADSC Industry Advancement Fund scholarship. I'm writing to express my appreciation for your help in my application for this award.

As you may know, my current research efforts deal with internal reinforcement of soils and are primarily focused on fill-type applications, including geosynthetic-reinforced soil and mechanically-stabilized earth. However, my interests are much broader than this, encompassing many areas of geotechnical and civil engineering, especially lateral reinforcement and earth retention. This is partly due to my exposure to many different types of shoring and earth retention systems while working with Golder Associates for the last three years, here in Seattle. I consider myself a generalist, not a specialist. Because of this, I am very excited about the opportunities that the ADSC-IAFD IAFD scholarship and membership in the association will afford. I believe it

will enable me to broaden my experience even further and enhance my professional and technical capabilities. I am very much looking forward to the annual meeting in 2004 with the partnership of ADSC and ASCE and the Equipment and Technology Exposition, this appears to have the markings of a great convention. I had planned on attending already – but being a poor graduate student, the help of ADSC will make life much easier for me as far as transportation and conference costs are concerned.

Again, please accept my great appreciation for your efforts on my behalf. Whether my career leads to academia and research or back into practice following the completion of my degree, I look forward to working with ADSC and you, both now and in the future.

Best Regards,

Michael D. Hamey
University of Washington

We Have A Winner!

Congratulations on Free Registration

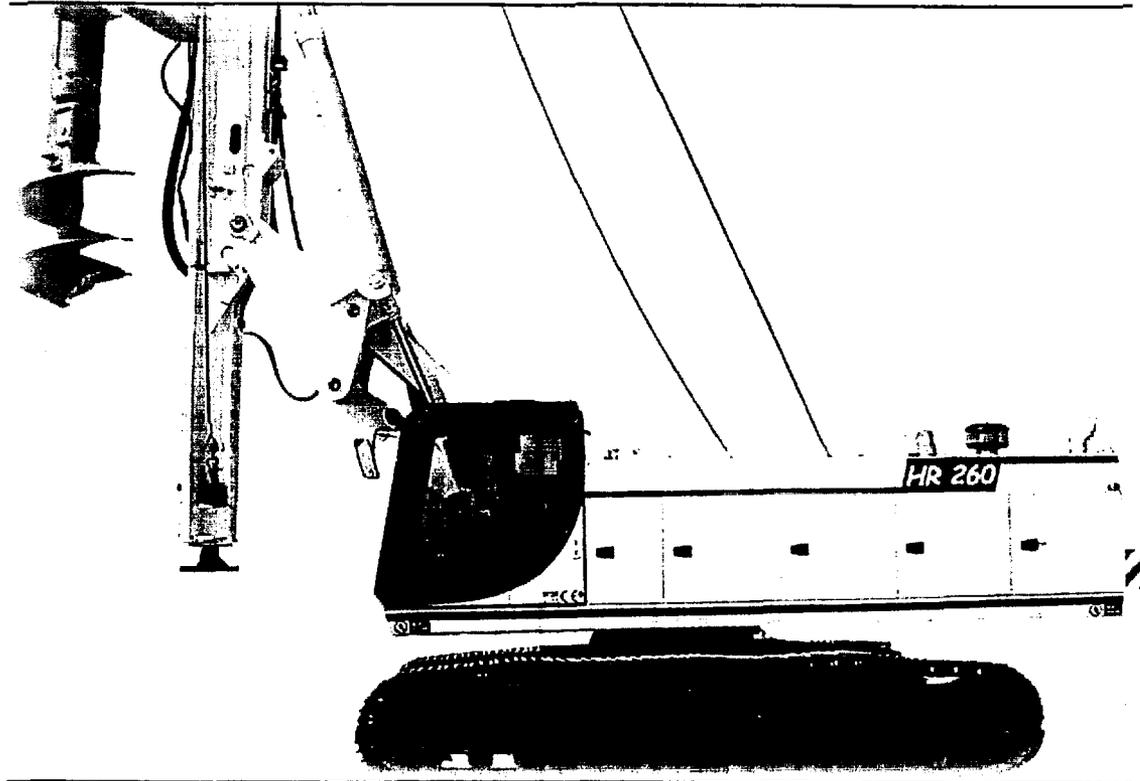
Congratulations to Daryl Wurster, Wurster Engineering & Construction for winning a complimentary full registration for Geo-Support 2004!!!

He was entered into a drawing when he registered on-line for the 2003 Summer Meeting.

Do not miss your chance to register on-line for Geo-Support 2004 and save \$25.00 (U.S.\$) per full registration. Plus a chance to win an airline ticket with a value up to \$500.00. Some restrictions apply. See the enclosed brochure for details. On-line registration ends January 15, 2004.

THE MOST COMPLETE RANGE OF DRILLING RIGS FOR:

MAIT



- Bored piles
- Jet grouting
- Soil exploration
- Continuous Flight Auger
- Waterwells
- Direct casing with rotary
- Diaphragm Walls
- Quarries

For further information, please call us or the dealer nearest to you:

MAIT USA Corporation

League City, TX

Toll Free: 800-830-6248

Ph. (281) 534 8662 Fax (281) 534 8696

E-mail: maltusa@airmail.net

ECA - Equipment Corporation of America

Contact name: Mr. Roy Kern Jr.

Coraopolis, PA

Toll free: 800-745-3872

Ph. (412) 264 4480 Fax (412) 264 1158

MISSISSIPI VALLEY EQUIPMENT COMPANY

Contact name: Mr. Rich Henry

St. Louis, MO

Toll free: 800-325-8001

Ph. (314) 869 8600 Fax (314) 869 6862

NEW ENGLAND CONSTRUCTION PRODUCTS, LLC

Contact Name: Mr. David J. Sciortino

Taunton, MA

Ph. (508) 821 4450 Fax (508) 828 5081

BAY MACHINERY CORPORATION

Contact name: Mr. Jim Arkin / Mr. Jeff Arkin

Pt. Richmond, CA

Ph. (510) 236 9000 Fax (510) 236 7212

ECA CANADA COMPANY

Contact name: Mr. Steve Calow

Toronto, Ontario

Toll free: 800-760-0925

Ph. (416) 787 4259 Fax (416) 787 4362

MAIT s.p.a. Drilling Rigs

Head office:

Via Flaminia Seconda N. 149/153 - P.O. Box 39 60027 Osimo (AN) - Italy

Tel. + 39-071-7822186 Fax +39-071-780535

E-mail: info@mait.it Web: www.mait.it

Reader Service #0732



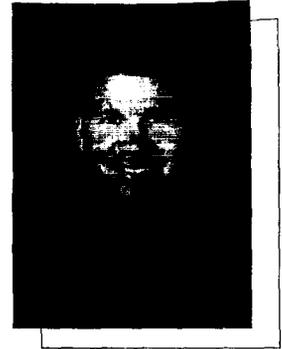
My Fond Recollections of Dr. Michael W. O'Neill

by Mike Hayes

As many of us returned to our offices on that first Monday in August, we received the news of the sudden passing of our good friend Dr. Michael O'Neill. I had just returned with my family from our Summer Meeting in Whistler, B.C. and there amongst my many unanswered emails were several notices concerning his untimely death. For those of us who knew Dr. O'Neill personally, we knew we had lost a man of great character, a modest and unassuming person and one of the most important influencers of our industry for the past 25 years. Ironically, also among those emails was a notice concerning an upcoming conference at the University of Missouri in Rolla in which Dr. O'Neill was

scheduled to speak.

I first met Dr. O'Neill probably 20 years ago at a drilled shaft seminar for a local DOT in our area. I was fresh out of college with a degree in business, and as I listened to Dr. O'Neill expound on the various theories of drilled shaft design, I have to admit at the time I had no idea what the heck he was talking about. I can still remember his demonstration of the different properties of slurry as he mixed his variety of concoctions as if he was conducting a cooking class. Dr. O'Neill was always at ease in these situations and I was impressed how he interacted with equal comfort among design engineers and contractors. He was always ready to help the ADSC and its members in any way he could.



I asked several people here at Hayes Drilling for their memories of Dr. O'Neill over the years. Jene Hayes remembers Mike's commitments to assisting young people continue their engineering career and how much he appreciated the ADSC scholarship program. He remembers how Mike always stressed the practical aspects of constructing a deep foundation project and how it went hand in hand with the design issues.

Bill Powers remembers the Faculty Workshop in 2000 and the look on Dr. O'Neill's face after arriving at the field demonstration portion of the workshop the first day. He was clearly in his element around all of the geotechnical construction. Bill remembers how he took numerous pictures, observed the construction techniques with a keen eye, asked many questions and proudly gave short "field" lectures to the civil engineering professor attendees. A look of sadness transpired when the day's activities were over; however, his enthusiasm returned the next day as he got out of the car driven by Horst Aschenbroich the next morning at Pingree Park. He proceeded to lecture for nearly four hours on axial and lateral loading for drilled shafts, topics that he pioneered with others, made understandable for the industry, and without which drilled shafts would see much less acceptance today.

It is because of Dr. O'Neill's legacy of service to our indus-

(continued on page 11)

FRICHTL STEEL & WELDING

Rolled and Welded Steel Pipe
24" - 180" Diameter
Up to 1.500" Wall

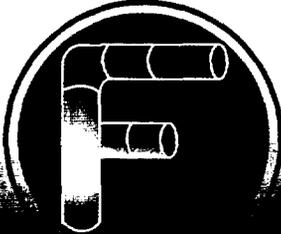
Larger Diameter Offered in Bolted and Hinged Sections

Large Inventory of New, Surplus, and Used Pipe
Mill Size 8" - 30" Diameter

Supplier of Street Plate and General Steel Plate
Segmented Fittings
Including Elbows and Cones

Processing Includes:
Cutting and Welding to Length
End Preparation
Installing Rings
Cleaning, Sandblasting, and Coating

Other Items Including:
Caissons, Elevator Shaft Casing, Smoke Stacks,
Sign Poles & Rings, Road Boring Casing,
Piling & Accessories, & Custom Fabrication



9550 E. State Hwy. 33
Newton, Illinois 62448
FAX: 618-783-3118
618-783-8323
Visit our Web Site at:
www.frichtlsteel.com

MESSAGE Contd.

try and more importantly, a reflection on him as a person, that a groundswell of support has developed to honor his life and his contributions to our industry. A committee represented by members of the contracting, engineering, academic and government communities has come together for the sole purpose to determine the appropriate method of doing this. The ADSC is taking a lead role in this with Scot Litke serving as a fund raising chairman for this tribute. I have no doubt that our members will also take a lead role in helping honor Dr. O'Neill and his life of contribution to our industry. ■

Watch For!

Coming in November
Foundation Drilling
Magazine

- Spotlight on Exhibitors
- EXPO 2004 Preview
 - European Technologies Part VI
- ADSC's Summer Meeting Review

NOVEMBER FEATURE ARTICLES

Why

leading Contractors choose

TITAN-IBO Micro Piles

Fourteen Advantages over conventional Micropiles

- One step installation
- 2 times faster installed
- Smaller equipment at lower cost
- Higher load capacity
- Simultaneous drilling and grouting
- Combination injection/jet grouting
- Ground improvement (consolidation)
- Higher skin friction
- Shorter piles, less deflection under same load
- Hollow bar, can be post-tensioned internally
- Total corrosion protection
- Low overhead and limited access installation
- Various sizes and capacities
- Various drill bits for various grounds

Meets CalTrans Test Requirements

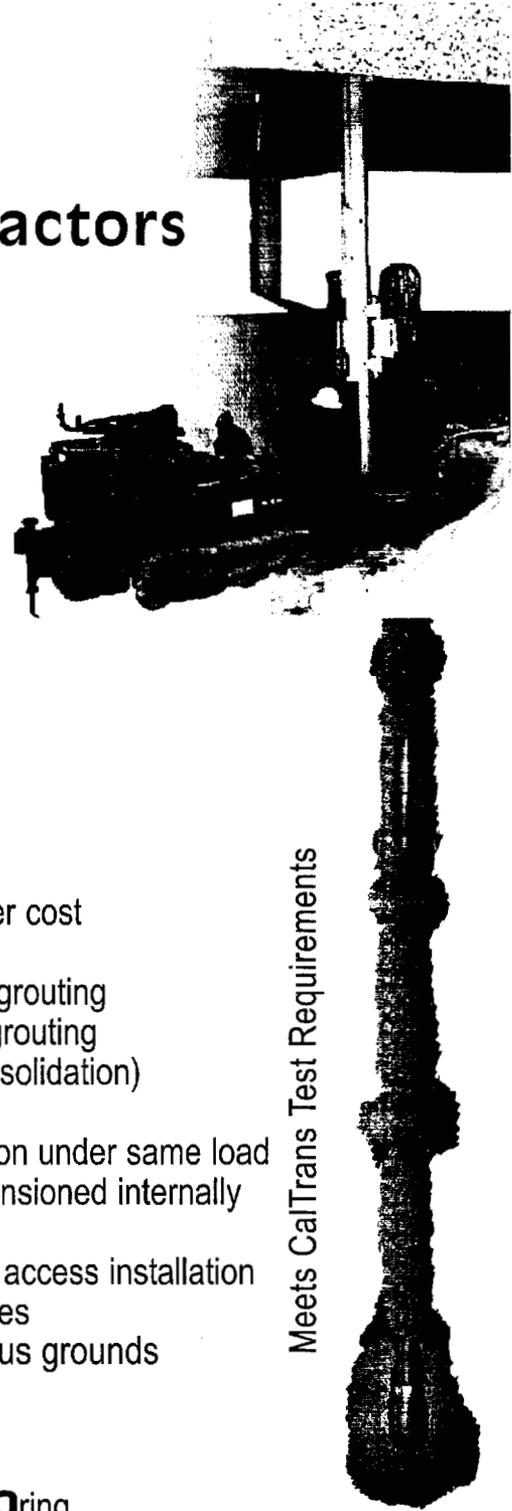
IBO: Injection grouting self **BO**ring

CON-TECH SYSTEMS LTD.
Web: www.contechsystems.com
email: con-tech@contechsystems.com

Head Office
8150 River Road
Delta BC, V4G 1B65
Canada

Plants
Brockville, ONT
Blaine, WA
Clearwater, FL USA

Partner of
ISCHEBECK
in North America



Dusk at the Georgial/Alabama Dam Site



Multi System Cut-off Wall For 2-State Dam

by Wesley Schmutzler
QC/Safety Manager
TREVVICOS/RODIO JV
Fort Gaines, Georgia

The TREVVICOS/RODIO Joint Venture was chosen by the U.S. Army Corps of Engineers on August 15, 2001 to construct a positive Cut-off Wall upstream of the Walter F. George Lock, Dam and Spillway. Of the three proposals received by the COE, the JV provided the method that best met their requirements and received the notice to proceed on October 5, 2001.

ADSC Contractor Member TREVVICOS is a Boston based company and RODIO International, a sub-

siary of RODIO SpA. These companies are well suited for a project like this. This is the first Installation of a Cut-off Wall in front of an active Dam that the Corps of Engineers has ever done.

The Dam, located on the Chattahoochee River in southern Georgia/

This is the first Installation of a Cut-off Wall in front of an active Dam that the Corps of Engineers has ever done.

Alabama, was completed in 1963 and problems with seepage started almost immediately. The Dam forms the W.F. George Lake which is 80 miles long and covers an area of 45,000 acres with a normal pool capacity (Elevation 190') of 934,000 acre feet. 244,000 acre feet are reserved for power generation through four, 3.2

megawatt units. 9'x100' navigation channel extends the entire length of the lake. The Lock is 82'x450' with a lift of 88'.

In 1981 and 1985 Cut-off Walls were installed in the West and East embankments. While this greatly reduced the seepage under the embankments, the seepage under the concrete structures increased. In 1982 a flow of over 30,000 gallons per minute developed under the Powerhouse. This was mitigated by locating the connection on the lake bottom and filling with concrete. Also a grouting campaign was performed upstream of the Powerhouse. This grouting had little effect on the downstream Piezometers.

The formation that the Cut-off Wall is being installed in is the Clayton formation.

This consists of three distinct layers. The uppermost is Earthy Limestone followed by Shell Limestone

(continued on page 13)

and Sandy Limestone. The Sandy Limestone contains a 4'-6' layer that has an unconfirmed compressive strength of up to 19,000 psi. Immediately below this is a 4'-6' layer of unconsolidated sand. The Cut-off wall continues to Providence sand formation at elevation -5.

The JV's proposal for installation of the Cut-off Wall consisted of a combination of two reverse circulation methods, Secant Piles using a casing mounted drill rig, and Slurry Walls done by a Hydromill RODIO HF12000.

Before the Cut-off Wall was started, a grouting campaign was completed along the entire center line of the wall. This was done in order to fill any large cavities or solution channels that may have had a negative impact on the installation of the Cut-off Wall.

The Slurry Walls are being done from land using a Bentonite stabiliz-

The JV's proposal for installation of the Cut-off Wall consisted of a combination of two methods, Secant Piles using a reverse circulation, casing mounted drill rig and Slurry Walls done by a Hydromill.

ing fluid. The excavated panels are up to 22' long and 212' deep. In order to form a continuous barrier, our wall ties into the existing walls on the East and West embankments.

The Hydromill is also being used in a very unique capacity. The Lock walls needed to be cut in order for the Secant Piles to be continuous. It is being used to cut the two concrete Lock walls. These walls are 110' deep and up to 88' thick at their base. Several other options were studied for cutting of the Lock walls but all utilized divers extensively, and by



Photo #2. Template for the installation of the Secant Piles.

utilizing the Hydromill, divers were not required. This reduced the safety hazards considerably.

In preparation for the Secant Pile portion of the work, the lake bottom in front of the Powerhouse, Spillway and Lock were dredged in order to remove debris and form a trench that a flowable fill was placed in to provide a working apron. Our subcontractor for this operation is Vortex Diving, from Oakland, California. A remnant of a sheet pile coffer cell that was used in construction of the Dam was in line with the Cut-off Wall and had to be removed. This operation involved a team of 5 divers completing over 100 dives. The dives were in water that is 100' deep requiring an onsite decompression chamber.

Once the working apron was in place, specially designed templates were installed on the Dam buttresses. (Photo #2) These templates were positioned so that the cross frames cantilevered out enough to miss the face of the dam below water level. Beams on the frames were located 33" on center and act as guides to install the temporary casings.

The casings are 54' diameter, 3/4" wall thickness and 130' long. Each casing is fitted with a collar that fits the template to assure the 33' on center spacing. The casing is then positioned using a survey instrument on each axis to assure plumb installation. The casing is driven into the apron approximately 8' using an ICE Vibratory Hammer*. (Photo #3) An ICE impact hammer is used occasionally. This embedment serves to

(continued on page 14)

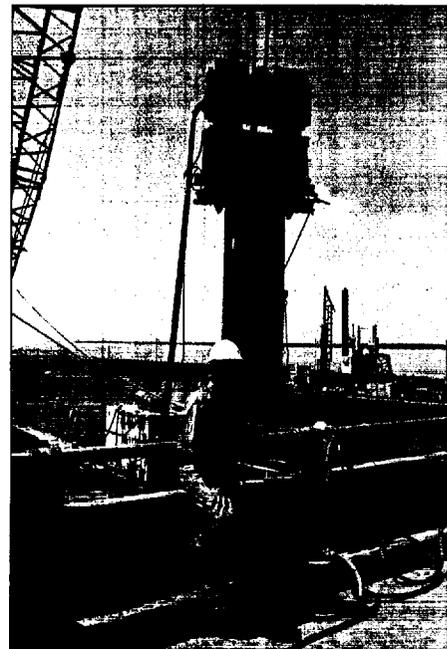


Photo #3. Installation of the 54" x 130' casing.

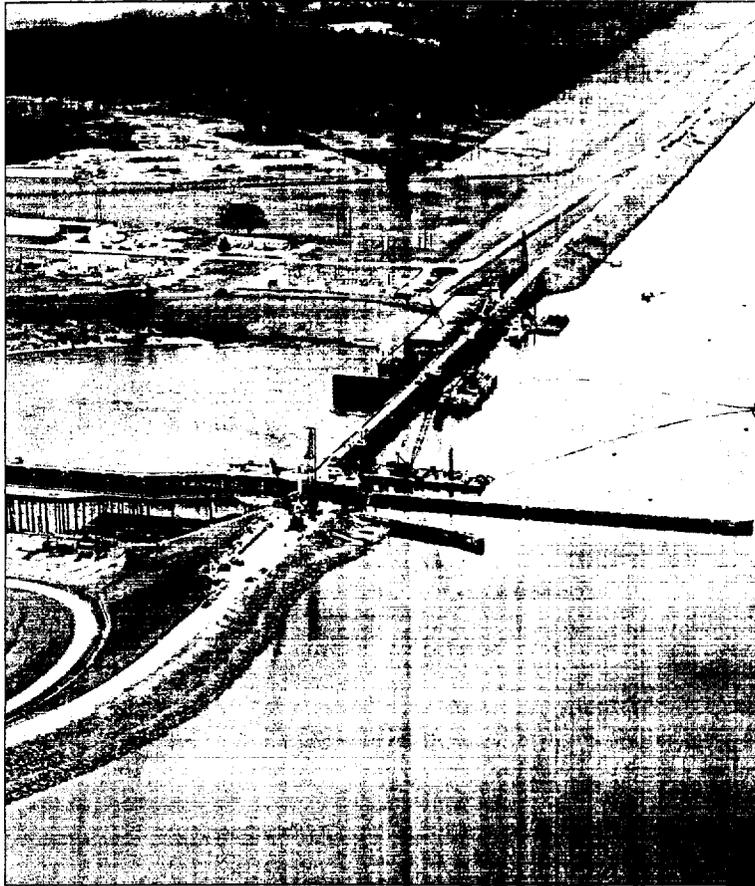


Photo #4. Aerial view of the concrete Cut-off Wall at the Georgia/Alabama Dam site.

isolate the pile from inflow of lake water when cavities are encountered. The cranes used for casing installations are mounted on two 54'x180'x12' barges anchored in front of the Dam. The piles are installed in a primary/secondary sequence. Usually two casings are available so that once a pile is drilled the drill rig is positioned on the other casing. Two Wirth PBA 612* reverse circulation drill rigs are being used to install the secant piles. (Photo #7) The drill rig is set on the casing by the barge mounted crane. The pile is drilled to a depth of about 230' from the top of the casing. Water from the lake is used as the drilling fluid. The drill cuttings are airlifted to a barge fitted with silt curtains around the perimeter and deposited on the lake bottom. Water

quality is monitored constantly using a RUSS system. When drilling is complete, the pile is checked for vertical by using a bi-axial inclinometer. The results of these are plotted against adjacent pile to assure that a positive cut-off is provided. Concrete is then placed using a Tremie pipe installed within 1' of the bottom of the pile. Concrete is placed to a level corresponding to the bottom of the lake. When placement is complete, the

casing is removed and reset and the operation starts again.

Concrete for the wall is a plastic mix that produces a 28 day unconfined compressive strength of 900 psi. The concrete is supplied by Lafarge Building Materials at a plant erected on site just for this project. Over 40,000 cubic yards of concrete has been placed to date. A total of 462 piles are to be drilled with 353 completed to date.

In order to monitor the effectiveness of the Cut-off Wall, the Corps of Engineers has a series of Piezometers just downstream of the wall. These are monitored weekly and show a considerable drop where the wall is complete, indicating a successful cut-off.

All of the work is done within 20' of the Dam and all of the operations have required a tremendous amount of cooperation and coordination

(continued on page 15)

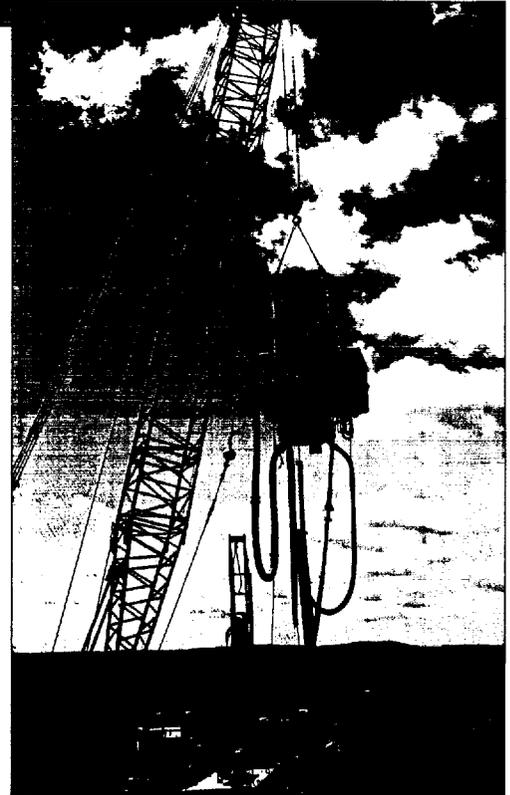


Photo #5. Moving the Wirth PB 612 Drill Rig.



Photo #6. Hydromill HF 12000 cutting the Lock Wall concrete.



Photo #7. Wirth PB 612 on the casing.

with the Corps of Engineers. The power generation schedule is reviewed and adjusted on a daily basis to accommodate the work in

front of the generators. Opening of the 14 Spillway gates during high water has delayed the JV for a few days but usually the Corps is able to

keep the gates closed that are adjacent to our work. The project is currently ahead of schedule.

**Indicates ADSC Associate Member. ■*

PROJECT TEAM

Project Name:	Concrete Cut-off Wall, Walter F. George Lock, Spillway and Powerhouse
Location:	Fort Gaines, Georgia
Owner:	US Army Corps of Engineers, Mobile, Alabama District Resident Engineer – Don Simpson
Joint Venture Partners:	TREVIIÇOS Corporation and RODIO International Project Manager – Ricardo Saleh Project Engineer – Stefano Valagussa General Superintendent – Eduardo Ferber Quality Control Manager – Wesley Schmutzler
Marine Specialist:	Vortex Diving Project Manager – Jason Phillipi Superintendent – Brad Shofitt
Concrete Supplier:	Lafarge Building Materials (60,000 cubic yards) Plant Manager – Mark Whaley
Excavation Equipment:	Wirth PB 612 (2) and a Hydromill HF12000



A full service geotechnical and foundation contractor



- Slurry Walls
- Slurry Trenches
- Secant and Tangent Pile Walls
- Caissons
- Soil Improvement
- Jet Grouting
- Chemical Grouting
- Drilling and Grouting
- Soft Ground Tunneling
- Turn Key Foundation

For information, budget estimates, innovative solutions and fair pricing, contact us at:

- Corporate Office
250 Summer Street
4th Floor
Boston, MA 02210
Tel: (617) 345-9955
Fax: (617) 345-0041
E-mail: info@treviicos.com

with offices in:

- New Jersey
- Florida
- California

www.treviicos.com

Innovative European Technologies to Accelerate Construction of Embankment Foundations

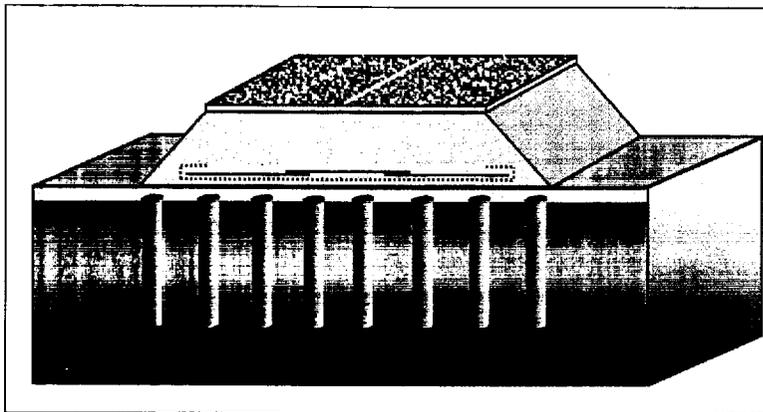
Part V:

Dry Mixing Method

by Ali Porbaha, California State University, Sacramento & Alan Macnab, Condon-Johnson & Associates, Inc.

The following article is the fifth in a series that will focus on the findings of an AASHTO/FHWA sponsored European Technology Scanning Tour conducted in 2002. The ADSC has been represented on these kinds of fact-finding activities since they were initiated by the FHWA several years ago. This article addresses Dry Mixing Methods. Even though several of the technologies that will be described in the series do not currently fall under the purview of the ADSC, it is important that those in the drilled foundation and anchored geo-support industries become aware of the international construction trends that are being considered by engineers in the U.S. Transportation industry. (Editor)

Dry mixing, also known as lime-cement column, blends in situ soil with a dry binder using specially designed equipment with paddles. The binder used in dry mixing is usually cement or lime (unslaked), or a combination of cement, lime, gypsum, blast furnace slag or pulverised fuel ash in granular or powdered form. Air is used to feed (or



Concept of dry mix method for embankment support.

incorporate) the binder into the soil.

The main advantages of dry mixing are:

- (a) the probe is less expensive than wet deep mixing, drilled shaft construction, and jet grouting
- (b) utilizes light equipment allows high mobility; and
- (c) produces little or no spoil.

Originated in 1960's by the Swedish Geotechnical Institute (SGI), the lime column was developed to improve the settlement characteristics of soft and plastic clays. The Japanese version of dry mixing, known as Dry Jet Mixing (DJM), was developed by the Public Work Research Institute (PWRI) in 1970's. In the US the dry mixing method has been used for a number of projects since late 1990's. Several projects include (a) stabilization of Interstate 1-15 highway embankments in Salt Lake City, Utah for 2002 Olympic games; (b) stabilization of bay mud to mitigate liquefaction in Colma Creek in San Francisco, California connecting Bay Area Rapid Transit (BART) system to the airport; and (c) stabilization of a railway embankment in New Jersey.

The Nordic countries (such as Sweden and Finland) use the equipment capable of installing columns to a depth of 25 m (82 ft) with a column diameter of normally 0.4–1.0 m

(1.3-3.3 ft). The machines usually have one mixing shaft with the injection outlet positioned at the mixing tool. The columns can be inclined up to about 70 degrees with vertical.

The dry deep mixed columns are used to reduce settlement and to ensure stability. For settlement purposes the columns are installed in an equilateral or square patterns, while for stability purposes the columns are arranged in panels perpendicular to the direction of expected failure plane.

Several factors affect the quality of the treated soil, including the type of mixing tool, installation process, mixing condition, type of binder, quantity of binder and type of soil, etc. Due to uncertainties related to these factors, several laboratory mixing tests, accumulated experience from the past projects, pre-construction field trials and verification tests are used to estimate field strength. The initial design should be modified based on the laboratory mixing tests to reach the desired strength or permeability required for the project.

The execution consists of inserting the mixing tool to cut the soil to the desired depth and injecting binder into the soil at a constant rate. The compressed air transports the binder from a bulk trailer to an intermediate storage tank, from which it is transported to a separate carrier or

(continued on page 18)



Watson Inc.
Fort Worth, Texas

MODEL 1100
Short Mast
Option Available
for Truck
or Track Rig

MODEL 2500CM
Available
from Stock

Watson track
conversion puts
new life
in truck rigs

Kelly bar material
available,
most sizes

For more information
contact
John Monroe or
Steve Drury
at
817.927.8486
or
sales@watson.usa.com

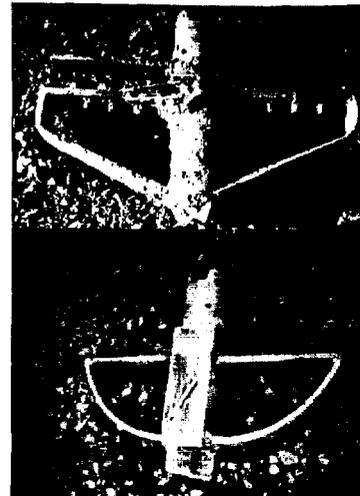
TECHNOLOGIES Contd.

installer with rear-mounted silos. The carrier is then connected to the installation machine and the binder is transported by compressed air to the mixing tool.

The binder is injected during insertion and/or retrieval. The mixing blades rotate in the horizontal plane to mix the soil with the binder. Adjustment is made to the rotational speed of the mixing tool and the speed with which it is withdrawn to ensure uniform mixing. Based on the European experience, a higher amount of mixing energy is required when cement is used as the binder compared to lime only. The air pressure is kept as low as possible during the mixing process to avoid problems of air entrainment and ground movements.

Construction control includes recording the penetration and retrieval speed of the mixing tool, rotational speed and torque of the mixing tool, overlapping width, depth of treatment and rate of delivery of the binder.

In dry mixing, the in-situ moisture content of the soil should be higher than 20% to allow for hydration and cementation of the binder/soil mixture. This requirement may cause difficulties in dry or semi-dry areas in which soil moisture close to the surface is insufficient for dry mixing. To expand the scope of applications for dry mixing, a modified dry mix (MDM) method, recently was devel-



Mixing tools for dry deep mixing.

oped by LC Technology. In this improved process water is added, as needed to ensure availability of adequate moisture for interaction of soil with the binder. The mixing tip of the MDM is equipped with sensors to estimate moisture content and to inject water into the layers with low moisture content, while the operation still remains dry mix. This concept looks very promising, since the soils in the southern part of the US may not have adequate moisture for efficient use of conventional dry mix method.

Project Example

A 500 m (1500 ft) long embankment was constructed on a 4 to 5 m thick (12 to 15 ft) extremely soft silty clay layer for a site in the UK. To guarantee the stability of the embankment, improvement of the silty clayey layer was required. Dry mix method was used for this project in which 63000 linear meters (200,000 ft) of cement columns, 1.0 m (3 ft) in diameter, were installed to an average depth of 6 m (18 ft).

The working area was located within the tidal zone with up to 6 m (20 ft) of tidal fluctuation. Due to this situation the ground improvement work had to be carried out in the time windows of low tide. Two dry mix column units were used; working from both ends of the



Mixing tool and the shaft.

(continued on page 20)



YOU NEVER SEE OUR BEST WORK...

But you have confidence in knowing we've been there.

North America's Leading Geotechnical Contractor

Grouting Compaction Grouting Chemical Grouting Cement Grouting Jet Grouting Soilfrac Grouting
Ground Improvement Vibro-Replacement Stone Columns Vibro-Compaction Vibro Concrete Columns
Dynamic Deep Compaction Soil Mixing Lime Columns Injection Systems for Expansive Soils
Earth Retention Soil & Rock Anchors Shoring Soil Nail Walls Reticulated Micropile Walls
Structural Support Micropiles Drilled & Driven Piles Slurry Trench Cut-Off Walls

800-456-6548 www.haywardbaker.com

**HAYWARD
BAKER**

A Keller Company



Reader Service #0722



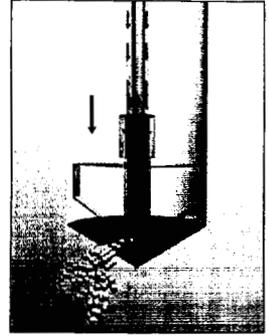
Automated quality control system.

embankment towards the center. Two rows of lime columns on each side were installed in each tidal window. The rows were partly inclined 4:1. The binder consisted of Portland cement at a rate of 80 to 120 kg per cubic meter. The columns were topped with a 1 m (3 ft) thick sand layer acting as a working platform for the machines. Before dumping

the crushed stone of the embankment, a strong geogrid was placed on top of the sand fill for uniform load distribution onto the columns.

In short, the dry mixing method is an alternate solution for support of embankments on compressible soils (soft clay, looses sand, or problematic soils). The high mobility, no spoil, low vibration and noise make dry mix foundation system attractive for embankment support.

Acknowledgements: The authors are grateful to G. Holm, S. Hansbo, H. Erick-



Concept of MDM.

son, M. Esrig, EuroSoilStab, WG10, LCM-Keller, and LC Technology. ■

Number of mixing shafts:	1
Diameter:	0.4–1.0 m (1.3-3.3 ft)
Maximum depth:	25 m (82 ft)
Injection pressure:	400 – 800 kPa (58-116 psi)

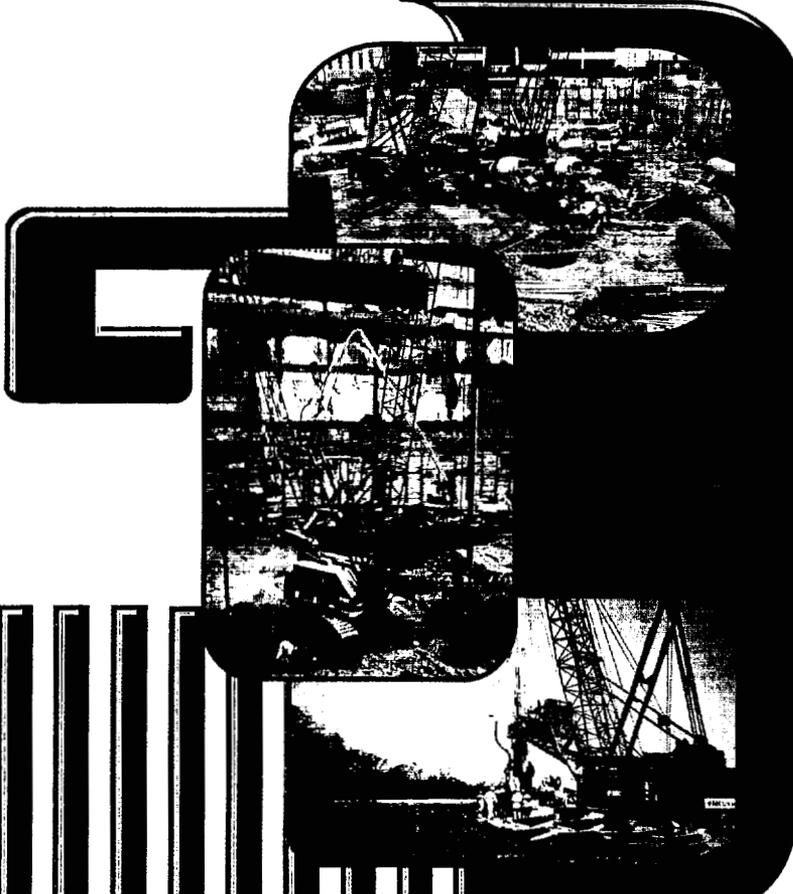
Penetration speed of shaft :	2.0–6.0 m/min (6.6-19.7 ft/min)
Retrieval speed of shaft:	1.5–6.0 m/min (5.0-20.0 ft/min)
Rotational speed of blades:	100–200 revolutions/min
Blade rotation:	150–500 rotation/m

GOETTLE



 Piles & Piers
 Sheet piling & Shoring
 Underpinning & Stabilization
 Marine Construction

RICHARD GOETTLE, INC.
 12071 Hamilton Avenue
 Cincinnati, OH 45231
 Phone: 513-825-8100
 Fax: 513-825-8107
WWW.GOETTLE.COM



GOT AN OVERHEAD PROBLEM? GET UNDER IT!

The New LōDril® XHT Puts Power in a Tight Spot

Torque	50,000 ft./lbs.
Hole Depths	30 feet - 80 feet
Hole diameters	up to 96"
Attachment Weight	13,000 - 17,000 lbs.
Attachment Height	16' 6" - 21'

"Choosing the LōDril was the best decision I've made in this business."

Pat Patureau, Owner
Auger Services, Inc.

The new LōDril® XHT can take you places no other drill rig on the market can touch. Under power lines, under bridges, under overpasses--almost anywhere there's an overhead clearance problem, the LōDril XHT can have you in place and making money while your competitors are still scratching their heads. And with 50,000 ft./lbs. of torque you'll make short work of holes as large as 8 feet in diameter-- even in difficult soil conditions. Call Bay Shore Systems and find out how the LōDril XHT can help you get under your overhead problems.

Don't forget to ask about adding round auto-locking kelly bars to your LōDril for the ultimate in down crowd power!

(800) 290-1548

BAY SHORE SYSTEMS, INC.

(800) 290-1548 Telephone: (208) 687-3311 Fax: (208) 687-4153

1424 Ohio Street Rathdrum, Idaho 83858 web site: www.bayshoresystems.com

Remembering

Dr. Michael W. O'Neill

As most readers of *Foundation Drilling* are now aware, one of our industry's true giants, Dr. Michael W. O'Neill passed away on August 3rd. His loss will be felt for a very long time by family, friends and among those in the industries represented by the ADSC. We have asked several people who knew Dr. O'Neill in a variety of capacities, to share with our readers their thoughts on what knowing, working with, and being a colleague of Dr. O'Neill's meant to them. Mere words never approximate the measure of a person, but they do serve to provide insight into one's impact on the profession we share. Thanks go to those good folks who have shared their thoughts with all of us. (Editor)

**From: John A. Focht, Jr., P.E.
Past President, ASCE
Houston, Texas**

The geotechnical profession and civil engineering in general lost a major contributor and practitioner in Dr. Michael W. O'Neill. He was an eminent researcher, teacher, friend, and gentleman. I was fortunate to have worked closely with Mike on two separate occasions in addition to general ASCE activities.

I was asked in 1983 to present the Theme Lecture on Piles at the 1985 International Soils Conference in San Francisco. I asked Mike to be a co-author with me. We worked closely for two years conducting and summarizing a worldwide survey on design and installation of axially loaded piles. I learned a great deal about Mike and piles in that time. His contribution was substantial; he even operated the slide projector during the presentation.

In 1995 ASCE asked me to assist in establishment of the Geo-Institute

with my involvement. Mike was then Chairman of the Executive Committee of the Geotechnical Engineering Division. He aided greatly in the development of the Institute concept and the switch from a Division to an Institute. His cooperation and support of the transition were invaluable and contributed much to the success of the changeover. Once more he demonstrated to me and ASCE the kind of man he was - competent, humble, generous with his time and knowledge, unassuming - truly outstanding.

Mike will be missed. He still had much to offer as a man and as an engineer.

**From: Lymon C. Reese, Ph.D.
Austin, Texas**

I met Michael O'Neill when he came from San Antonio to The University of Texas in the late 1950's. He selected civil engineering as his major and the Department was eager to retain the best students until graduation and instituted the Freshman Honors Program. Mike was one of the first members in the program. He received a gift of a slide rule, was invited to special seminars, and was a special guest to meetings of the Austin Branch of the American Society of Civil Engineers. It was the good fortune of the Department, and mine especially, that Mike remained a civil engineer.

Under my direction, but mostly on his own initiative, Mike completed a Master's Degree in May 1964 and a PhD in December 1970, after serving for two years in the United States Army. The topic for his MS and PhD was the behavior of deep foundations under combined loading, a topic that Mike continued to follow



Dr. O'Neill in action at the 2002 ADSC Civil Engineering Faculty Workshop.

with distinction throughout his career. He was an internationally known expert in that area, gave lectures worldwide, and intensively in the United States. He received many awards from the American Society of Civil Engineers, from the Deep Foundations Institute, and from ADSC: The International Association of Foundation Drilling. He was slated to receive the award of GeoHero from the Geo-Institute of ASCE at a forthcoming meeting. It was my privilege to nominate him for membership in the National Academy of Engineering, the most prestigious society for engineers in the U.S. Based on messages of support from many distinguished engineers, I believe his membership was assured.

One of the most recent achievements of Dr. O'Neill was as principal author of the book *Drilled Shafts: Construction Procedures and Design Methods*, sponsored by the Federal Highway Administration. The document has been accepted as the guideline for the majority of an entire foundation industry in the U.S. and is expected to be important internationally.

Beyond his technical accomplish-

(continued on page 23)

ments, Mike's personal characteristics were superb. He was always pleasant, kind, and generous. I worked with him on technical and professional matters over his entire adult life and am unable to recall even one incident where we had a heated conversation. I met Mike many times in recent years; the last one was in early July this year when he lectured in a short course in Austin. I never met him without a feeling of pleasure. Mike's untimely death is a severe blow to the civil engineering profession and to me personally. I am deeply saddened and extend my deep felt condolences to his wife and son.

**From: Ty Savage
Texas Shafts
Fort Worth, Texas**

The first time I met Dr. O'Neill was in the early 70's. I was about twenty years old, working on a pull-out test of several drilled shafts on a dam project in East Texas. As an "obnoxious" young swamper on the project installing Calwell splices above the jacks, I was a little overwhelmed by the students, faculty, instrumentation, etc. involved. Having the aforementioned tendency, I still asked a thousand questions. Dr. O'Neill answered each patiently as if I were one of his students.

The next time we met was on a load test in Dallas in the mid 80's. As an "obnoxious" production superintendent, I had many reasons why we should not take so long with the test. Although Dr. O'Neill's temper was evident, he patiently explained to me why we should take the time necessary to conduct each step of the test. He won!

Those moments with him that day had a profound impact on my career. He was one of the most important people in our industry and will always be an inspiration to me.

Over the years since then, on more than several occasions, his Christian work ethic and God-given wisdom has always humbled me (of which I need a regular dose). My only regret is that I have to write these words



Dr. O'Neill at the ADSC's first Civil Engineering Faculty Workshop in 1987 discusses design with Fu Hua Chen in CSU's Geotechnical Lab.

posthumously. I had to do the same thing with Ed Nolan. We spend a lot of time acknowledging measurable accomplishments, but very little time praising the character of a man who has the ability to make a "rookie" feel important. It is a special gift. Thanks Doc, thanks Ed, and because I do not want to continue to be late, thanks Bobby Harris, Stan Case, Barry Kannon, Tom Buzek, Bob Melcher, Teri Dres, Scot Litke and the many others who are encouragers and take the time for "rookies." You are Blessed.

**From: Dan Brown, Ph.D.
Auburn University
Auburn, Alabama**

I first met Mike O'Neill in 1983 when I was a graduate student at the University of Texas working for Lymon Reese. We had an opportunity to do some research on pile group behavior but of course had limited funds to do so. Mike offered to let me do our research at his test site in Houston and to utilize some existing foundations that he had already installed. I came to learn that this unselfish offer was typical of his generosity and general willingness to help advance our profession. Mike O'Neill was always eager to help in my work and served on my PhD committee at UT, even though he had to travel from Houston to Austin to

participate in these activities.

After I finished at Texas and joined the faculty at Auburn, Mike O'Neill was my colleague, mentor, and personal friend. Although we worked in the same field and could have on occasion been considered competitors, he was always helpful and encouraging to me and generous with his advice. I recall many instances when we were jointly before groups of engineers and he would introduce me as the expert on some thing or another, when I knew very well that he was more knowledgeable on the subject than I. We had the opportunity to collaborate on several projects. Such occasions were always a treat for me personally because Mike had such insight and experience that the work was always intellectually stimulating.

Mike was a true gentleman in every sense, as well as a great friend. Our engineering profession has been blessed by his contributions and his memory will always be with me.

**From: William M. Isenhower,
Ph.D., P.E.
Ensoft, Inc./Lymon C.
Reese & Associates
Austin, Texas**

I first heard of Mike O'Neill in a class while I was an undergraduate at

(continued on page 24)

Remembering Dr. Michael W. O'Neill

the University of Texas. Later, I met Mike O'Neill in the fall of 1975 on a visit to a construction site in Houston. My first impression of Mike was that he was an extremely polite individual and very good geotechnical engineer. He reinforced these impressions in many encounters over the subsequent years.

During one recent conversation, I remarked to Mike that, as far as I could tell, he had no interests other than drilled shafts. Mike told me that I was wrong. He said he had been thinking a lot about auger cast piles recently. Those who didn't know him might not have realized that he was joking. Mike's interest was all types of foundations and understanding the conditions under which a foundation could perform best. His many publications showed engineers how to avoid problems during construction by designing for constructability.

Mike died too early to receive all the professional honors that he justly deserved. He will be greatly missed by those who knew him.

*From: Fred H. Kulhawy, P.E., G.E.
Cornell University
Ithaca, New York*

Mike was a very good colleague who will be missed by a great many of us. He was an excellent engineer and a top-notch academic. He had earned the respect of all segments of our professional community. We had many interactions over the past 30 years, discussing research, serving on committees, organizing conferences, etc. It was always a pleasure to work with him. He was the penultimate team player, always giving his best for his colleagues and our professional community. He worked tirelessly behind the scenes for all of us, and our profession is a better one because of his efforts.

*From: W. Barry Kannon
Malcolm Drilling
San Francisco, CA*

The O'Neill Family,

I do not know you, but feel that I should because I considered Michael one of my friends. I have been responsible for some of the occasions that he has dropped everything to come to my aid, whenever I asked.

Michael headed up a team from around the world in presenting new types of drilling equipment to the California Department of Transportation. His efforts are an integral part of why rotator and oscillator type of equipment is now allowed in the drilled shaft industry. Through his efforts, our industry advances itself in product quality and professionalism.

In addition, when I called on Michael to meet me in some remote place because I had a problem on a job, he would always be there. Not only would he simply be there, he would come with solutions or influence that would carry the day.

I wish to emphasize what you already know. The academic world in which Michael thrived, and the construction industry has lost an icon, I have lost a friend.

My thoughts and prayers and those of his friends at Malcolm Drilling, are with your entire family.

*From: Shamim A. Sheikh,
Ph.D., P.E.
University of Toronto
Toronto, Ontario, Canada*

I did not believe the news at first, that I received through an e-mail, about the death of Michael O'Neill—rather I did not want to believe it. So I called a common friend and that is when the shock set in at the unexpected loss of a dear friend and a colleague.

Mike had heart problems long

before I met him in 1981 when I joined the University of Houston as one of his colleagues. It was not until the late eighties that I came to know about his heart condition when he was not feeling well during a field trip involving testing of large drilled shafts for one of our joint research projects. We successfully completed the tests. Mike would not let something like heart palpitations come in the way of completing a good test.

Mike was a very private man. He would not burden anyone with his problems but was always receptive to discuss and solve problems of others. I have seen him helping students in financial constraint, spend hours making an overseas call to resolve issues for them, and stay late to work with the students who could not come during the daytime. He was always generous in spending time for others, whether it was for helping a colleague in the office or a colleague at-large, or discussing philosophical issues about engineering practice and engineering education. He did not care about the return on his time investment, not a good business strategy, perhaps. Or perhaps he knew better, because he was an excellent human being.

Among his many virtues, Mike had an outstanding ability to think out of the box. He and I worked on several projects together although we were trained in different specializations. We traveled together, carried out field tests together for days and lectured together. I remember hours of stimulating discussions and arguments that we had while working on our joint projects. It was always an enriching experience for me.

Mike's contributions in the area of geotechnical engineering are numerous and very significant. Most researchers and designers in this area and readers of this magazine are quite familiar with that. They will continue

(continued on page 25)

to benefit from the extensive work Mike has produced. With his passing away, engineering has lost an able leader. We have lost a great friend and that makes us sad. But we will build on his work and by doing that will celebrate his life - a life that deserves to be celebrated for a long time for its accomplishments.

*From: C.Vipulanandan (Vipu),
Ph.D., P.E.
University of Houston
Houston, Texas*

I knew of Professor Michael W. O'Neill first as an author of leading papers in drilled shafts and other pile foundations, where his findings were used in my graduate work. For the past 19 years he was my mentor and colleague at the University of Houston. It was really a privilege and honor to have worked with a world-renowned researcher on pile foundations who respected you for your talent. He was a visionary and had the knack for assembling successful research teams to address complex problems. An icon in the area of pile foundation research, Mike was a tireless and fearless researcher who had the appreciation for both theoretical modeling and full-scale experimental verification, a unique and rare combination which was the trade mark of Professor O'Neill. He was a hard worker and approached the problem at hand in a multi-dimensional way to search for the solutions and leaves no stone unturned. He had pioneered number of research work in the area of pile foundations over three decades and I had the privilege of working with him on vibratory pile driving, drilled shafts and most recently auger cast in-place piles. It was a delightful and enlightening experience for me to work with Mike and I will truly miss him. I had the honor of coauthoring a number of papers with Professor O'Neill.



Dr. O'Neill with two of his graduate student research assistants from the University of Houston near Dallas, Texas at a Texas DOT-ADSC South Central Chapter research site.

*From: John Turner, Ph.D.
University of Wyoming
Laramie, Wyoming*

One thing I found with Mike O'Neill was that, most of the time, he was strictly business. Whenever I had an occasion to speak on the phone with Mike about an upcoming conference, a paper review, or some other professional issue, he'd always be somewhat formal and no nonsense. Even in person, at committee meetings or workshops, he gave me the impression that work came first and there wasn't much time for other "things." I do, however, have fond memories of a few occasions when Mike seemed to let his hair down. One was at a drilled shaft workshop we did in Davis, California. After the workshop a few of us went out for a beer. Mike seemed a lot more relaxed and cracked us up with stories about his student days at the University of Texas. Another was an enjoyable dinner with Mike, Teri Dres, and I at a meeting in Dallas for something or other. Mike talked quite a bit about his family and how proud he was of his son Ron. Although he was a private person when

it came to his life outside of professional circles, it was clear to me that Mike enjoyed a lot of things we'll never know about, and he was certainly a dedicated family man.

Whenever I think of a role model for civil engineers, the ideal to which you'd like your students to aspire, Mike O'Neill is a person who comes to mind. He was modest, never self-promoting, and very polite. His work ethic was exemplary and I believe he was one of the most thorough researchers I've ever known. The recent FHWA drilled shaft manual may be the most comprehensive manual of its type in the field of geotechnical engineering. Every technical detail that is known about any aspect of drilled shafts, from construction to design and testing, is covered. He was that way, thorough and meticulous, in every endeavor.

We will all miss Mike very much. I will remember him as a gentleman, an eminent scholar, a talented educator, a mentor, and a friend. I extend my sincere condolences to his family and to his many student and colleagues at the University of Houston. Thanks, Mike.

ADSC Board Approves Offering Exceptional New Equipment and Liability Insurance Programs

by Ted Ledgard
ADSC Administrative Director

The ADSC Board of Directors, at its Summer Meeting on August 2, 2003, authorized the offering of a new and unusual approach to equipment and liability insurance by ADSC.

This process began with a presentation to Members of the ADSC Safety Committee by Kevin Cunningham, President of Special Risk Services Group, LLC (SRS), an independently owned Managing General Underwriter based in Chicago, Illinois. Kevin described a program his company had developed and is now in effect for the crane industry through SC&RA, the Specialized Carriers and Rigging Association. The program includes risk management education and a unique litigation control mechanism, that will be

included in the ADSC program.

Cunningham later addressed the ADSC Board of Directors and presented an interesting proposal to ADSC about an insurance program that offers customized Inland Marine Coverage specific to the Foundation

The ADSC Board of Directors, at its Summer Meeting on August 2, 2003, authorized the offering of a new and unusual approach to equipment and liability insurance by ADSC.

Drilling Industry. The foundation drilling industry program is available to all qualified ADSC Members. Coverage is available immediately. It has been endorsed for ADSC and has experienced program administrators

ready to get involved.

The program offers broadened coverages for ADSC Members including "In-Hole" coverage, Waterborne Protection (Inland Waterways and 5 mile radius from coastal areas), boom length restrictions are waived, vehicle chassis coverage is available for truck mounted equipment, tire and wheel assembly coverage and conversion protection for leased and rented equipment are also available in this customized offering.

This program is available to ADSC Members now and is competitive with other current insurance programs. SRS is currently administering a similar program to over 350 crane users throughout the U.S. It is handling the business through the insured's local agents or brokers with whom they have established relationships. The same can be done with ADSC Members.

The program is backed by AIG Insurance Company. AIG maintains

(continued on page 28)

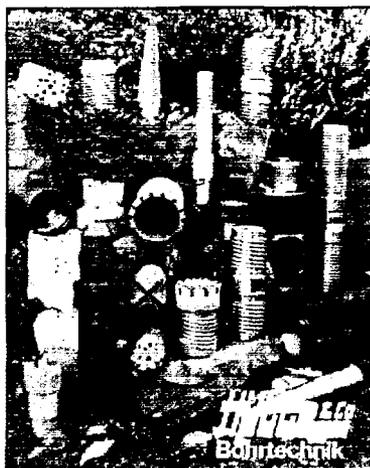


HUTTE HYDRAULIC TIEBACK DRILLS

• CASING

• DRILL STEEL

• ACCESSORIES & PARTS



Tieback equipment, pile driving hammers, clamshell/concrete buckets, barge tuggers, hoisting & erection equipment. A full-service distributor.

EQUIPMENT CORPORATION OF AMERICA

P. O. BOX 306
CORAOPOLIS, PA 15108
FAX # (412) 264-1158
1-800-PILE-USA

Pittsburgh, PA

Philadelphia, PA

Washington DC



- Bridges ●
- Tanks ●
- Domestic Buildings ●
- Commercial Buildings ●
- Excavations ●
- Slope Stabilization ●
- Tunneling ●
- Mining ●
- Hydro and Marine Structures ●

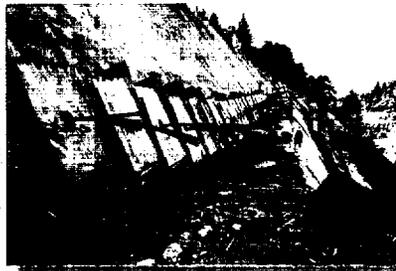
DYWIDAG Geotechnical Systems



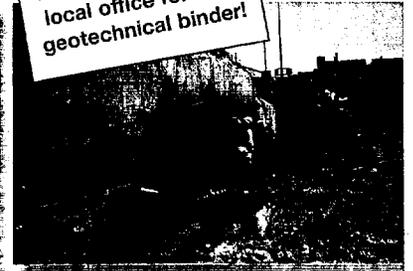
Dallas/Fort Worth International Airport, TX, USA



Buchanan Dam and Roy Inks Dam, TX, USA



Retention Reservoir, CA, USA



Harbor Landing Excavation, CA, USA



DSI Hollow Bar Anchors for the Little Mountain Reservoir, BC, Canada

- ▶ **DYWIDAG THREADBAR® Anchors**
- ▶ **DYWIDAG Multistrand Anchors**
- ▶ **GEWI® Piles (Micropiles)**
- ▶ **Driven Cast Iron Piles**
- ▶ **DSI Hollow Bar Anchors**
- ▶ **DYWIDAG Rock Bolts**
- ▶ **Fiberglass Bolts**
- ▶ **DYWIDAG Soil Nails**
- ▶ **DYWIDAG Tierods**

DYWIDAG-SYSTEMS INTERNATIONAL USA Inc.

HQ Americas
320 Marmon Drive
Bolingbrook, IL 60440
Phone 630-739-1100
Fax 630-972-9604

North Central Division ● IL
Phone 630-739-1100
North East Division ● NJ
Phone 973-276-9222
South Central Division ● TX
Phone 817-465-3333

South East Division ● GA
Phone 770-491-3790
Western Division ● CA
Phone 562-531-6161
Latin America Division
Phone 973-276-9222

Eastern Canada Division
Phone 905-888-8988
Western Canada Division
Phone 604-888-8818

E-mail: dsiamerica@dsiamerica.com

www.dywidag-systems.com

INSURANCE Contd.

an A++XV rating from A.M. Best Company and is the only insurance company to maintain a AAA rating from Standard and Poors, Moody's and A.M. Best.

Special Risk Services provides litigation management to its clients, and is willing and capable of providing risk management training to ADSC Members and their Committees. SRS' National Legal Defense Council, Robert C. Moore, of Stone and Moore in Chicago, also attended the meeting at Whistler and pledged to provide litigation management and assistance to ADSC Members in managing insurance claims as part of the SRS package.

Another approach SRS will use in education is to provide articles about risk management for ADSC's *Foundation Drilling* magazine. Cunningham was adamant that "training is a key factor in preparing for and managing safety and risk management." "We are already involved in the crane side of the construction industry and we can offer our experience and knowl-

The foundation drilling industry program is available to all qualified ADSC Members. Coverage is available immediately. It has been endorsed for ADSC and has experienced program administrators ready to get involved.

edge to ADSC Members as well," he said.

ADSC is re-establishing a Risk Management and Insurance Committee which will be Chaired by Jim Maxwell of Hub Foundation, and Vice Chairman, John Roe of Malcolm Drilling, recently appointed by ADSC President Mike Hayes. Another officer of the committee is Tom Myers of Davey Kent. The first meeting of the Committee will take place at the ADSC Fall Board Meeting October

10, 2003 at the Harvey Hotel at DFW Airport.

Kevin also mentioned that by working with Past Associate Committee Chairman, Tom Myers of Davey Kent, he has developed a similar program for equipment distributors and manufacturers that he has offered to the crane industry.

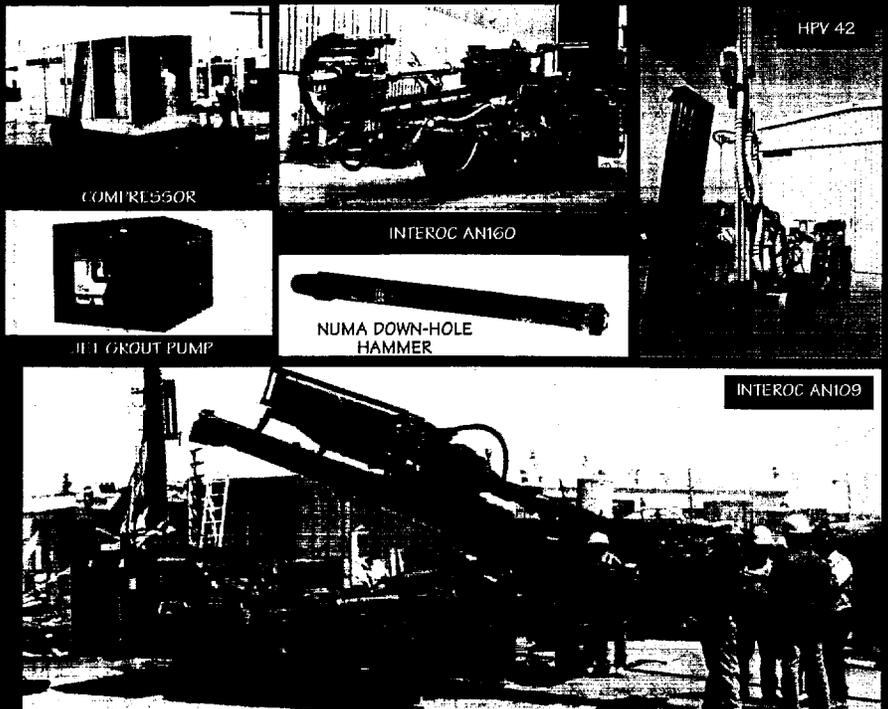
Both of these recently approved ADSC programs are available immediately to all ADSC Contractor and Associate Members. Special Risk Services Group and ADSC Associate Member, Summit Global Partners, will be contacting ADSC members to inform them of the facets of the new program.

Members that are interested in obtaining detailed information about these two new ADSC Member benefits can visit SRS' website at www.specialriskservices.com or contact Kevin Cunningham at SRS at One Wacker Drive, Ste. 2910, Chicago, IL 60606, tel. 312-795-1040 or have their current insurance agent/broker make the contact. ■

HENNESSY INTERNATIONAL

- KELLY BARS
- FOUNDATION - INTEROC DRILLS, TOOLING
- JET GROUT - Y.B.M. - DRILLS, PUMPS
- SOIL MIX - Y.B.M. - DRILLS, PUMPS
- COMPRESSORS
- ROTARY HEADS - INTEROC
- DRIFTERS - INTEROC
- DRILL PIPE
- CASING - PERCUSSION
- CASING - ROTATION
- SHOCK SUBS
- DOWN-HOLE HAMMERS: 2" TO 30"
NUMA/SANDVIK/SECOROC
- DRAG BITS - TRICONE BITS
- BUTTON BITS
- UNDER-REAMING SYSTEMS

ASK FOR:
JOHN HAGFORS



800.656.6766 or 805.693.8880

Fax 805.693.8870 • Cell Phone 805.701.1324 • E.MAIL: henint@silcom.com • P.O. Box 1983 • Buellton, CA 93427

Yields More | Costs Less

Shore Pac™ GCV

The Clear Choice For Foundation Slurry Drilling

call | 800.527.9948

Easy to Mix

Water Soluble

Recyclable & Reusable

Non-Toxic/Non-Hazardous

Shore Pac™

GCV

7.5 lbs. / 3.4 kg

- Stabilizes the excavation; creates high viscosities.
- Easily reusable, readily degradable.
- Can be mixed directly in the hole/excavation.
- Maximizes frictional load bearing.
- Improves soil cohesion for rapid removal of spoil.
- Non-toxic, non-hazardous.

OSHA NON-HAZARDOUS

This product has been determined to be non-hazardous in accordance with OSHA 29CFR1910.1200. However, this product is intended for industrial use only, and should be handled in accordance with good industrial hygiene and safety practices. Avoid any unnecessary exposure.

CAUTION

Irritant, irritating to eyes, nose, mouth, and throat. **KEEP OUT OF REACH OF CHILDREN.**

FIRST AID EMERGENCY MEASURES:

Eyes/Skin: Flush with plenty of water. **Inhalation:** If breathing is difficult, move to fresh air; consult a physician.

Spills of this material present a slip hazard when wet. Sweep up spilled material while still dry. **DO NOT WET.** After clean-up, flush area thoroughly with water.

SEE MATERIAL SAFETY DATA SHEET (MSDS) FOR FURTHER INFORMATION.

CETCO

COLLOID ENVIRONMENTAL TECHNOLOGIES COMPANY

CETCO

DRILLING PRODUCTS GROUP

800.527.9948 www.cetco.com

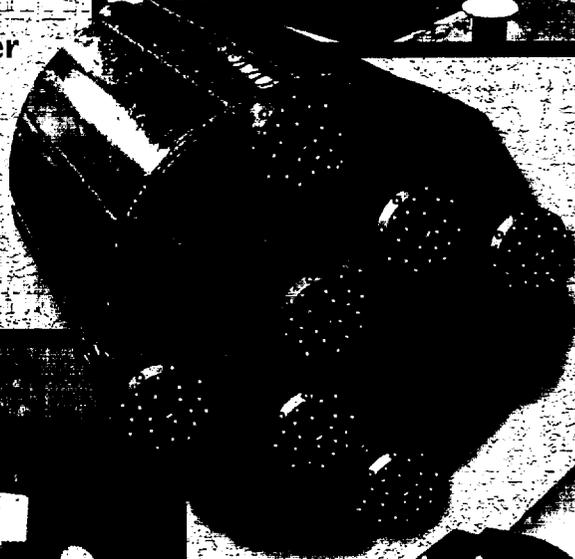
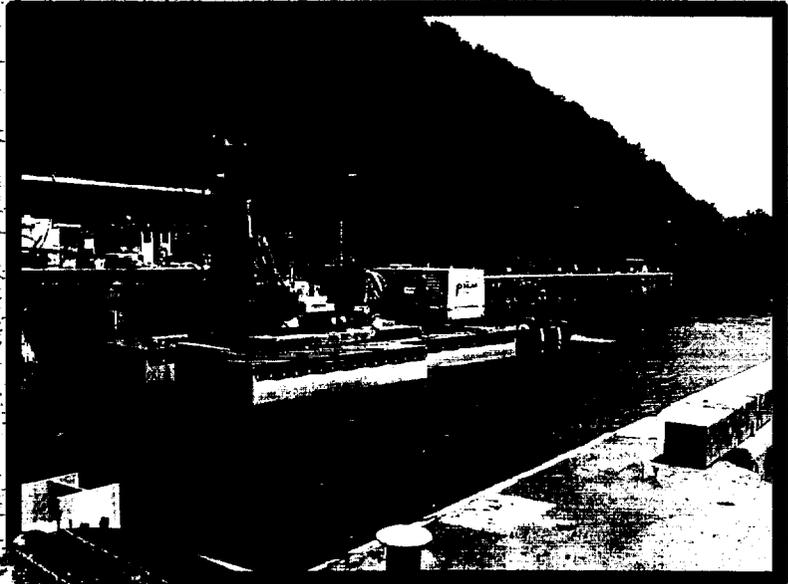
1500 West Shure Drive • Arlington Heights, IL 60004
PH 847.392.5800 • FX 847.506.6150

CENTER ROCK, INC.

Proudly Serves the Oil, Gas, Foundation Drilling,
Construction, and Horizontal Drilling Industries

Center Rock, Inc., is a complete drilling service company, offering a full line of drilling equipment.

- Rental Hammers and Bits up to 48"
- Custom MFG Drills up to 96"
- High Pressure Air Compressor Rentals
- Underreaming Systems
- Complete Hammer and Bit Repair
- Top Drive Track Mounted Rigs Sales and Rentals
- On-site Service



Rental Hammers and Bits
up to 48"

**Custom
Manufactured Hole Openers**
Custom manufactured hole openers built to the customer's specifications. All hole openers are built using top quality sealed bits.



373 Mason-Dixon Highway
Berlin, PA 15530
888.267.9004 • 814.267.7100
814.267.6382 fax

Reader Service #0709

CENTER ROCK, INC.



ROCK DRILLING TOOLS

This Sinkhole Is Large Enough To Swallow A Small Bus!

by Joe Harris, Branch Manager
Denver Grouting/Hayward Baker

Denver Grouting / Hayward Baker takes on extreme emergency grouting project for Colorado I-70 sinkhole.

Denver Grouting, a division of ADSC Contractor Member, Hayward Baker, has been working an intense nonstop schedule on I-70 since June 4th to repair damage caused by raging runoff that developed into a sinkhole and weakened soil above and adjacent to a temporary diversion tunnel.

On June 1st, high water from extremely heavy snow runoffs in Bighorn Creek overwhelmed an I-70 drainage pipe and developed a 20 foot wide sinkhole that continued to grow, resulting in a two-day shut-down of the westbound lanes of I-70 between Copper Mountain and Vail, Colorado. Raging waters from the overflow greatly threatened upscale East Vail homes.

On June 4th, CDOT personnel detected settlement of the eastbound lanes above a box tunnel under all four lanes that had taken on the diversion overflow. Denver Grouting/Hayward Baker responded by initiating a variety of grouting techniques to stabilize the diversion tunnel. The entire embankment, for 200 feet of the four-lane highway, was apparently damaged and weakened by water saturation.

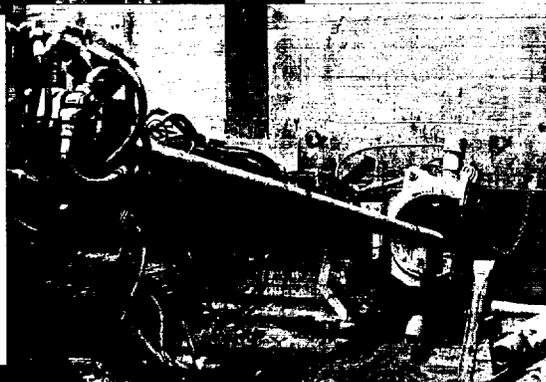
Denver Grouting/Hayward Baker, along with a number of other contractors, have been working around-the-clock in an attempt to stabilize the embankment and to install the new drainage pipe. Massive amounts of grout have been injected to stabilize the old pipe as well as pretreatment of the new pipe alignment which is being installed 10-12 feet below roadway elevation. Denver Grouting/Hayward Baker will also install 50 tieback anchors for the outlet structure of the new drainage pipe. ■

The flooding at East Vail washed out the road in many areas, threatening the foundations of homes (background).



The emergency grout curtain around a temporary bypass tunnel ensures safe operations while the main grouting procedures continue.

In addition to the demanding grouting work, Denver Grouting installed tiebacks to secure a new pipe outlet.



Denver Grouting crews burn the midnight oil as they use compaction grouting to heal the I-70 damage caused by the flooding.

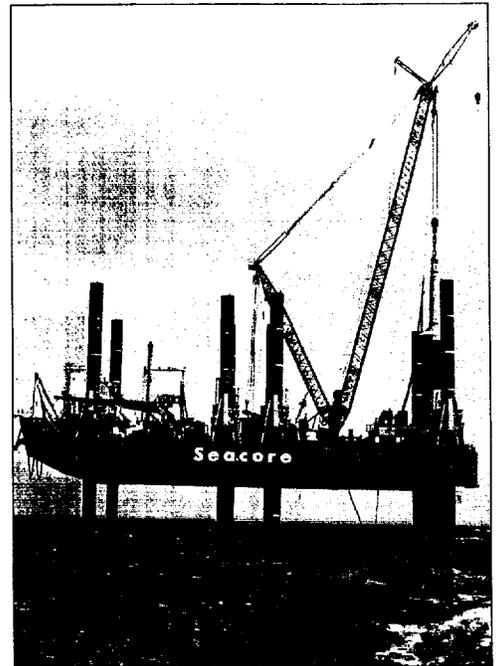
Seacore Wind Farm Off to a Flying Start

by Rodney Byles

ADSC International Contractor Member, Seacore, one of Europe's largest specialist marine construction and geotechnical drilling contractors, has been successfully working around the clock to get the UK's largest offshore wind farm at North Hoyle off to a flying start. The company, working from its specially built eight-legged jack-up platform Excalibur, is on schedule to complete, ahead of programme, its contract to install 30 large 4 m diameter steel monopile foundations in the seabed for the 60 MW North Hoyle Offshore Wind farm. Seacore is also responsible for the design,

build and installation of a 50 m high fully instrumented, monopile supported meteorological mast.

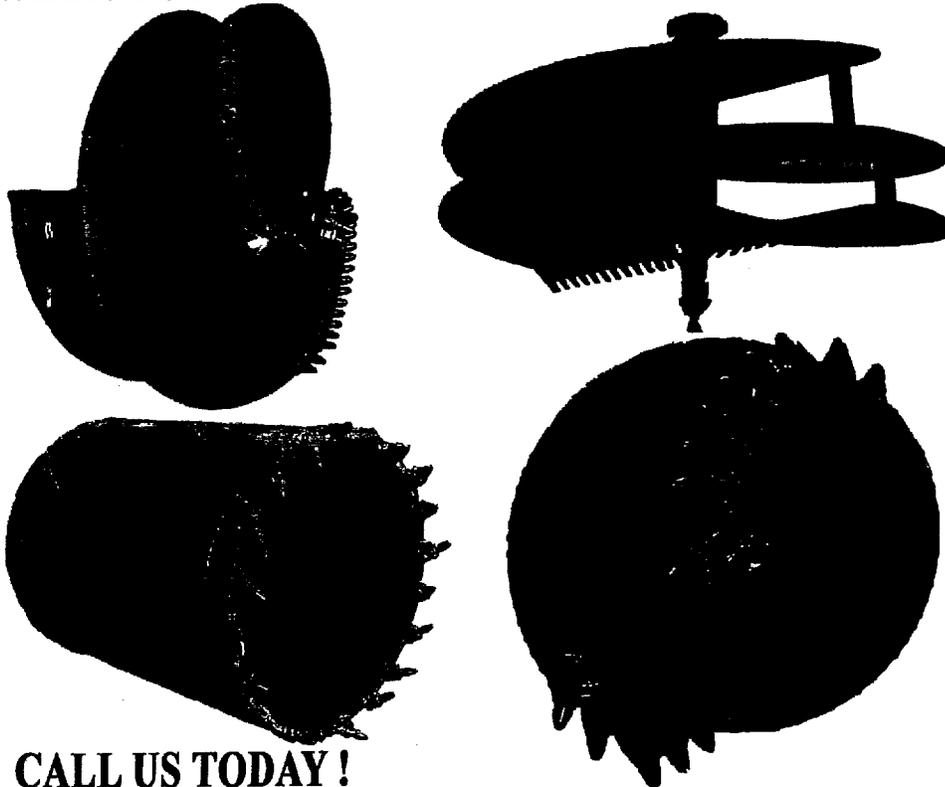
The North Hoyle Offshore Wind farm, located between 8 km and 11 km off the coast of Rhyl, North Wales, is to be operated by National Wind Power Offshore. It is one of 18 sites around the UK coast, identified by Crown Estates in the first phase of offshore wind farm development. The main contract for the construction of the wind farm was awarded to a consortium of Vestas-Celtic Wind Technology Ltd. and Mayflower Energy Ltd. Seacore, working as specialist sub-contractor to Vestas-Celtic Wind Technology, has been operating from the Excalibur eight-legged jack-up platform



Seacore working from its eight-legged jack-up Excalibur, initially used a Menck hydraulic hammer to drive the 4m diameter monopiles down to rock head.

(continued on page 34)

WHEN YOU NEED IT YOUR WAY...



CALL US TODAY!

Foundation Tooling

- Rock Augers
- Dirt Augers
- HD Drilling Buckets
- Cleaning Buckets
- Core Barrels
- Auger Cast-in-Place
- Hexagon Core Augers
- BETEK® Wear parts
- Replacement Teeth



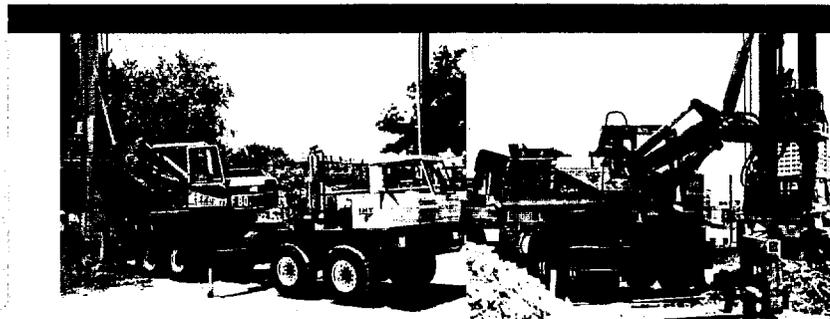
Call toll free: (800) 599-0211
www.pengocorp.com
 USA • PR China



INTERNATIONAL



Productivity, Performance, Profit... Advantage IMT.



IMT technology provides productivity that is truly "cutting edge." Combined with parts and service support offered by CAT® professionals in your area, you can be assured that your IMT drill will exceed your expectations.

We're as close as your neighborhood CAT® dealer.

Call us today.

KELLYTRACTOR 

Serving the Industry Since 1933

Dan Dragone

561-683-2015 Ext. 170

Email: djdragon@kellytractor.com

www.kellytractor.com

PETERSON
TRACTOR CO.



Mike Heinz

510-618-2934

Email: mheinz@petersontractor.com

www.petersontractor.com

Reader Service #0727

WIND FARM Contd.

in 6 m to 18 m of water. The company has been using a large Menck

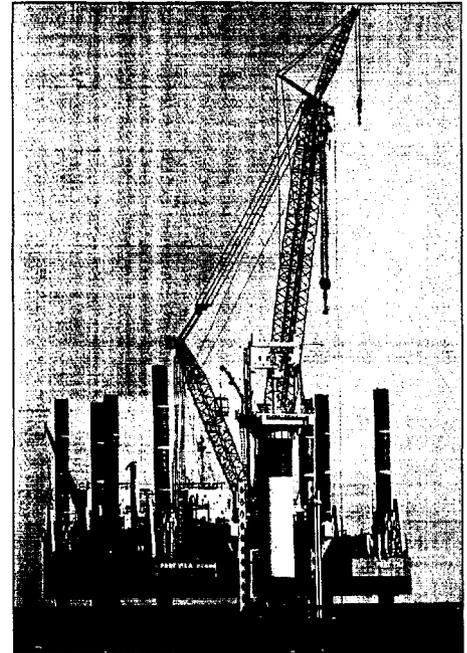
These tubular steel piles are believed to be the biggest ever installed over water in the UK using the combined "drive, drill, drive" technique.

MHU500T hydraulic piling hammer in conjunction with its own Seacore Teredo T40 reverse circulation drilling rig in a "drive, drill, drive" operation to install the 4 m diameter steel monopile turbine tower foundations deep into the seabed.

The North Hoyle steel monopiles, ranging in length from 48.4 m to 53.3 m, will each support a 2 MW

Vestas V-80 turbine with 80 m diameter, three-blade rotor. The wind turbines will have a hub height of 70 m above mean sea level and supply power into the national grid. These tubular steel piles are believed to be the biggest ever installed over water in the UK using the combined "drive, drill, drive" technique.

"North Hoyle is currently the largest offshore wind farm in the UK and has been a prestigious and challenging project for us," says Seacore construction director Peter Clutterbuck. "It follows on from our successes on the UK's first offshore wind farm in the North Sea off the coast of Blyth, Northumberland and the Swedish Yttre Stengrund and Gotland wind farms in



Seacore used its own pile top Teredo T40 reverse circulation drill rig to drill a rock socket ahead of the pile toe ready for the Menck hammer to drive the pile to its final penetration.

(continued on page 36)

DAVEY

Davey Drill has been manufacturing and servicing specialized drill rigs and drilling products for over 40 years.

DK620



Davey Drill offers its customers:

- Drill rigs and drilling products **Made in the USA**
- Unparalleled on-site service
- In-stock parts
- U.S. Compatible components
- Custom design for specific drilling needs

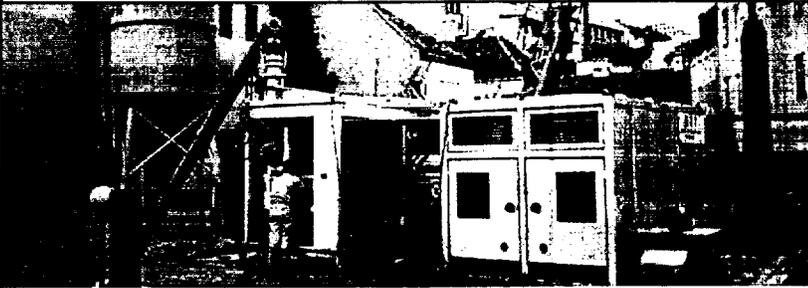
Manufacturers of equipment for:

- Mini & Micro Piling
- Environmental Drilling
- Soil Anchors/Tie-back Installation
- Geotechnical Drilling
- Soil Stabilization
- Jet Grouting

DAVEY DRILL

200 W. Williams St.
Kent, OH 44240
phone: (330) 673-5400
fax: (330) 673-9178
www.daveykent.com

Obermann Grouting Systems ...

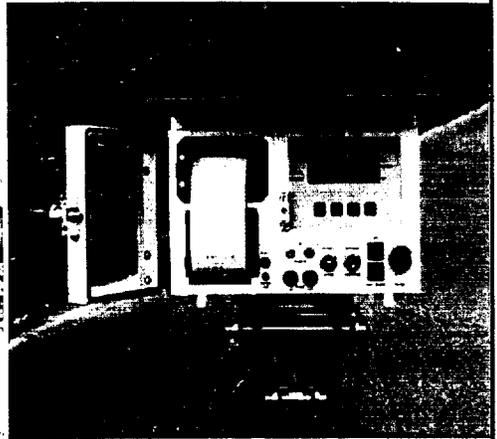
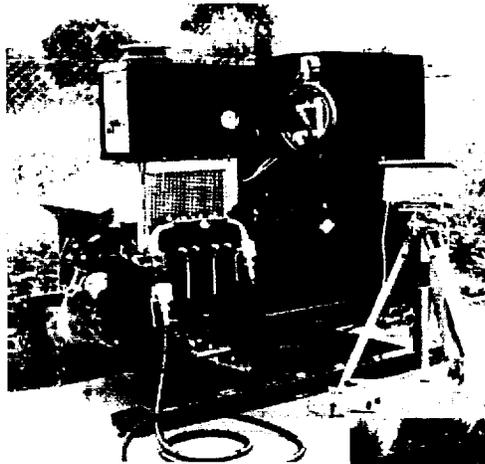


**Anchor, Soil-Nail
and Micro-Pile
Grouting.**

**Jet Grouting
Soil Mixing**

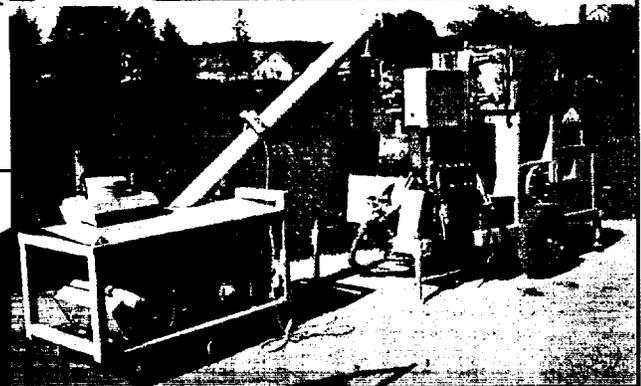
with

high speed colloidal
mixers and vertical
plunger pumps



Dosing • Grouting • Monitoring

**... and Technical
Service for Your
Advantage**



Partner
of **OBERMANN**
SYSTEMS

CON-TECH

SYSTEMS LTD.

www.contechsystems.com

e-mail: con-tech@contechsystems.com

Head Office

8150 River Road
Delta BC, V4G 1B5
Tel: 604 946-5571 Fax: 604 946-5548

Branches & Distributors

Brockville, Ont.	Tel: 613 342-0041	Fax: 613 342-0609
Blaine, WA	Tel: 604 946-5571	Fax: 604 946-5548
Clearwater, FL	Tel: 727 299-0767	Fax: 727 299-0738

MIRK

www.mirkinc.us

Aerial Man Lifts
Digger Trucks

THE MIRK ADVANTAGE

SALES & SERVICE

- New and Used
- Aerial Platforms
- Digger-Derrick Trucks
- Crane Trucks
- Specialty Equipment

RENTAL EQUIPMENT

- Fast Availability
- Experienced
- Nationwide Service
- Latest Equipment
- Fully Maintained

AUGER TOOLS SALES AND RENTALS
LARGEST STOCKING DEALER IN THE US!

EXTENSIVE INVENTORY OF SPECIALTY MACHINERY



MIRK INC.
7629 Chippewa Rd.
Orville, OH 44667
330-669-2000
Fax: 330-669-3732

MIRK INC.
2555 Slate Rd. 60 E.
Barrow, FL 33830
863-533-0883
Fax: 863-533-1354

MECO
3700 Crazy Horse Rd.
Reno, Nevada 89510
775-475-2602
Fax: 775-475-2603

TOOMBS TRUCK & EQUIPMENT CO.
1800 Welcut Rd.
Columbus, OH 43228
614-876-3000
Fax: 614-876-1135

UTILITY LINE EQUIPMENT CO.
36 Noble Ave.
Roanoke, VA 24014
540-987-8340
Fax: 540-345-4400

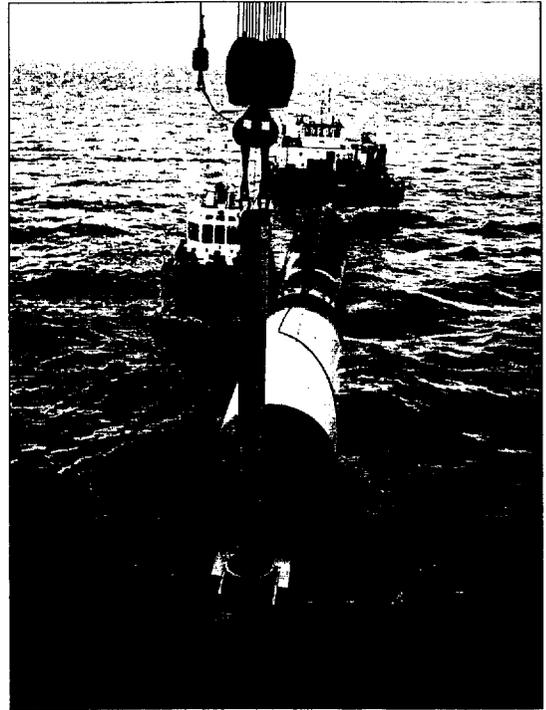
MIRK INC.
2458 W. Walkwood Rd.
Waukegan, Ill 60087
847-599-9584
Fax: 847-599-0448

Reader Service #0733

the Baltic Sea.”

Key to Seacore's success at North Hoyle has been the company's Excalibur self-contained jack-up platform. Seacore based the platform on the former six-legged Wijslift 6 jack-up, but has added two further legs and installed a completely new platform jacking system, which has considerably raised the speed of jacking the platform out of the water to 0.75 m/min on 3 m stroke jacks. The company has also upgraded the bow to improve towing characteristics, extended the deck length by 22 m to an overall area of 60 m x 32 m, upgraded the accommodation to cater for 25 people onboard, extended the boom of the 280 t capacity Demag Ringlift crane to 54 m and designed, built and fitted a special hydraulically operated twin masted pile leader handling frame to position, hold and guide the large, heavy steel monopiles during installation.

Once the *Excalibur* has been positioned by a differential global positioning system and jacked up, the pile leader frame legs are lowered and jacked into the seabed and preloaded. The twin masts are equipped with a pair of circular pile gate grippers, which can be hydraulically raised and lowered independently of each other. A floating pile, complete with remov-



The monopiles are towed out to *Excalibur* and attached to the crane with a special male to female spear and latching system prior to a buoyant lift into the vertical.

able stoppers in each end, is towed to *Excalibur* ready for lifting. Seacore has automated as much as possible the buoyant lifting sequence of the pile and has developed a special male to female cone latching lifting device on the top stopper and crane hook to spear and capture the pile, similar to the concept used by NASA for docking the lunar and service modules together in the Apollo space programme.

The jack-up's Ringlift crane lifts the buoyant pile into the vertical position and into the leader frame's open gates, which are then closed and pneumatic grippers in the top gate actuated to hold and take the weight of the pile. Lifting pins from the top stopper into the wall of the pile are retracted and

A 3.7 m diameter drill bit equipped with mill tooth cutters is tripped inside the pile on stabilized drill pipe to initially clean out the overburden down to the rock head.

(continued on page 38)

FOR ALL YOUR CONSTRUCTION DRILLING NEEDS

TWO WORDS: REACTION TIME.

**IT'S YOUR #1
REASON TO CALL
STAR IRON WORKS.**



Project managers and contractors know Star Iron Works offers a full line of construction drilling products, but it's our quick reaction time that makes 'em call.

Experienced people

Star personnel bring years of drilling experience to the table. Duplex drilling, overburden drilling, mini/micro-piles – customers learn to trust our advice on casing, bit or tool requirements. If we can't solve it on the phone, qualified Star technicians can be dispatched to help on-site.

Responsive service

Count on Star to do whatever it takes to keep your project going. We stock raw tubular goods, so we can quickly fabricate tools or cut, thread and ship casing to you – even overnight. Working on a large, complex job? Trust Star to handle all the supply logistics.

Product expertise

As a manufacturer, we make casing and tools for all types of drilling challenges, including duplex heads, flushing heads, cutting shoes and more. Low headroom? Need something special? Talk to us – we'll make it happen faster than you think.

Don't you deserve "the Star treatment," too? Before you start your next project, call Star Iron Works toll-free at 1-800-927-0560.



STAR IRON WORKS

Star Iron Works
R.D. #3, Box 155
Punxsutawney, PA 15767
Phone: 814.427.2555
Fax: 814.427.5164
Toll-free: 1.800.927.0560
email:sales@starironworks.com
www.starironworks.com

WIND FARM Contd.

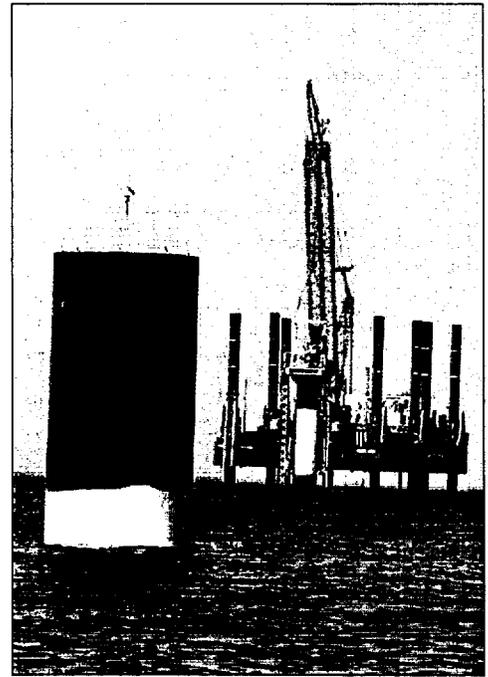
The drilling operation continues through the weak and strong mudstones and sandstone to complete a 3.7 m diameter rock socket ahead of the pile toe and down to the pile's final toe level.

pneumatic bladders round the circumference of this stopper deflated to allow the stopper assembly to be lifted away onto the supporting marine craft.

With the pile now held in the gripper gate an air actuated 150 mm ball valve in the bottom stopper is opened to flood the pile with water. The sealing bladder in the bottom stopper is deflated, allowing the stopper to fall about 2 m to the seabed. The stopper is then pulled away by a tug and winched back on

deck to take back to shore for the next pile. Whilst held in the gates the flooded pile is then jacked down the leader masts and pushed into the seabed about 1 m to 2 m. With the pile vertical the grippers in the piles gates are released, but with the gates still round the pile. The 120 t Menck hammer is then lifted onto the pile top and the pile driven about 13 m to 14 m into the seabed through a variety of sands, gravels and stiff clays to the underlying rock head.

The pile gates are released and hammer is then removed and replaced with Seacore's own Teredo T40

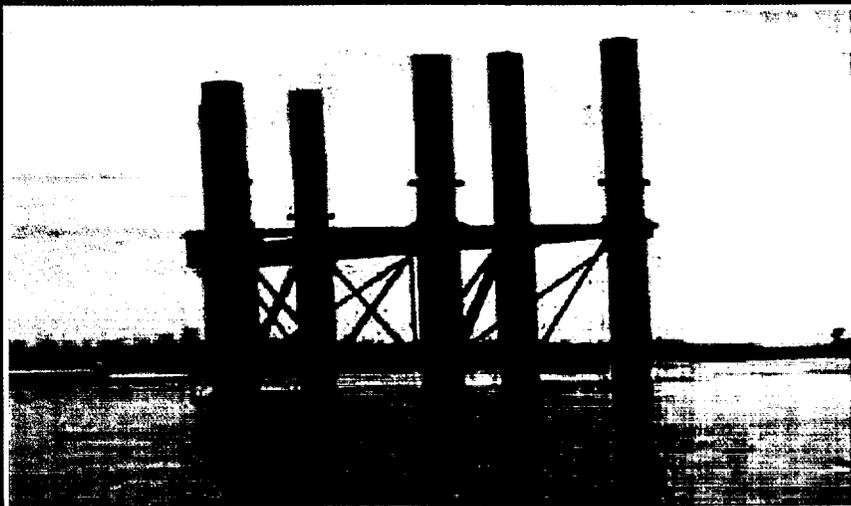


Seacore installing 30 large 4m diameter monopiles for the North Hoyle Offshore Wind Farm.

(continued on page 40)



Raughley Pipe & Tube, Inc.



**At Raughley Pipe & Tube, Inc. our steel will stack up
against anybody.....
Even the Mighty Mississippi**

Phone: 1-888-264-7473

Fax: 1-205-923-0601

Website:

www.raughleypipeandtube.com

Email:

raughleypipe@aol.com

A better way to make your projects move faster.

Construction drilling moves faster with Numa reverse circulation hammers and bits.

For the past decade, Numa reverse circulation hammers and bits have provided drillers with a faster alternative to conventional drilling in environmentally sensitive applications around the globe. Through our commitment to this cause, Numa now provides six different RC models to drill holes from 4-3/4 to 36 inches (121 - 914 mm) in diameter.

The reverse circulation method is vastly different from conventional drilling in that all cuttings are returned up the center of the hammer and drill string to be safely collected at the surface. No foam is required to clean the hole so lubricants are not free to contaminate the formation, which is essential in today's environmentally conscious society. The RC method also can eliminate traditional hole cleaning problems that can result when forcing all cuttings up the outside of the casing in unsuitable ground conditions. All of this serves to make your projects move faster when presented with environmental concerns at the job site.

To find out how you can get your reverse circulation projects moving faster, please visit www.numahammers.com or call Ralph Leonard or Bruce Palmer at 1.800.356.NUMA (USA only) or +1.860.923.9551.

**NUMA**[®]
MANUFACTURER OF DOWN HOLE HAMMERS AND BITS

Brian Greene
Rod Leonard
800-356-NUMA

Ted Foust
Pennsylvania
(717) 652-2401

Carl Chidester
West Virginia
(304) 924-6968

Eddie Menchaca
North Carolina
(828) 693-9900

Kathy Wagoner
Texas
(915) 396-4563

Chris Beare
England
+441 420 22918

Geoff Smith
Australia
+613 9593 7080

reverse circulation drill rig, which is held on the pile top by a pneumatically operated gripper can to resist the torque of the rotary drill. A 3.7 m diameter drill bit equipped with mill tooth cutters is tripped inside the pile on stabilized drill pipe to initially clean out the overburden down to the rock head. A pair of 200 mm submersible pumps keeps the pile flooded for the reverse circulation of the spoil, which, with the assistance of compressed air, travels up the hollow drill string and is exhausted overboard from the rig's rotary swivel. The drilling operation continues through the weak and strong mudstones and sandstone to complete a 3.7 m diameter rock socket ahead of the pile toe and down to the pile's final toe level.

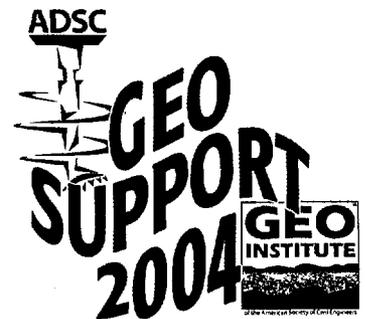
The drill rig, drill string and drill bit are all removed and replaced with the Menck hammer to drive the 4 m diameter tubular steel pile into the open drilled hole down to final eleva-

tion using an impact energy of about 450 kNm/blow and 150-200 blows/m penetration. With the pile protruding about 10 m above mean sea level, the hammer is lifted off and placed back on the deck of *Excalibur*, the pile leader retracted and the platform jacked down and moved to its next location.

"When we moved onto site we originally expected an average pile installation rate of one every 5.5 days working 24 hours round the clock," says Seacore project manager Phil Wilkinson. "But we have improved our technique and for the last 10 of the total 30 piles we will average 2.8 days/pile and an overall average of 3.7 days/pile for this particular project."

Seacore, based in Gweek, Cornwall, started on site at the beginning of April, four and a half weeks later than originally expected, and with 24 hour operations will finish towards

the end of July, over three weeks ahead of the programme, and over seven weeks faster than planned. Another contractor will follow on installing approximate 20 m long transition pieces over the finished piles, prior to the final erection of the turbines ready for the 60 MW North Hoyle Offshore Wind Farm going on stream late 2003. ■



**For complete details
regarding Geo-Support
visit our website:
www.geo-support2004.com**

Select Polystrand® Anchors

Wherever, whenever anchors are needed.



**Support you can build on...
since 1969.**

East 610 268-2221 • West 661 822-4424 • www.langtendons.com

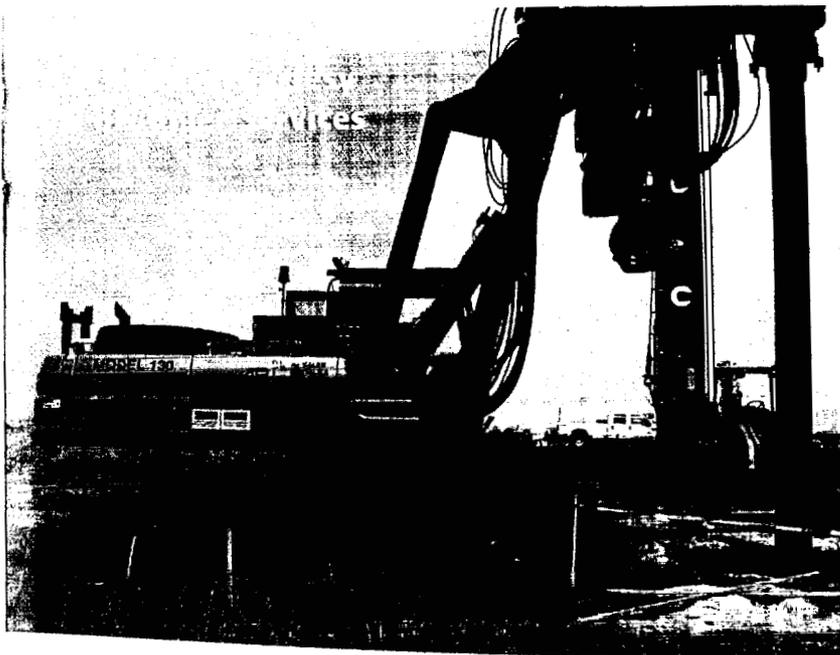


**Central Artery, Boston
15 Contracts Supplied**

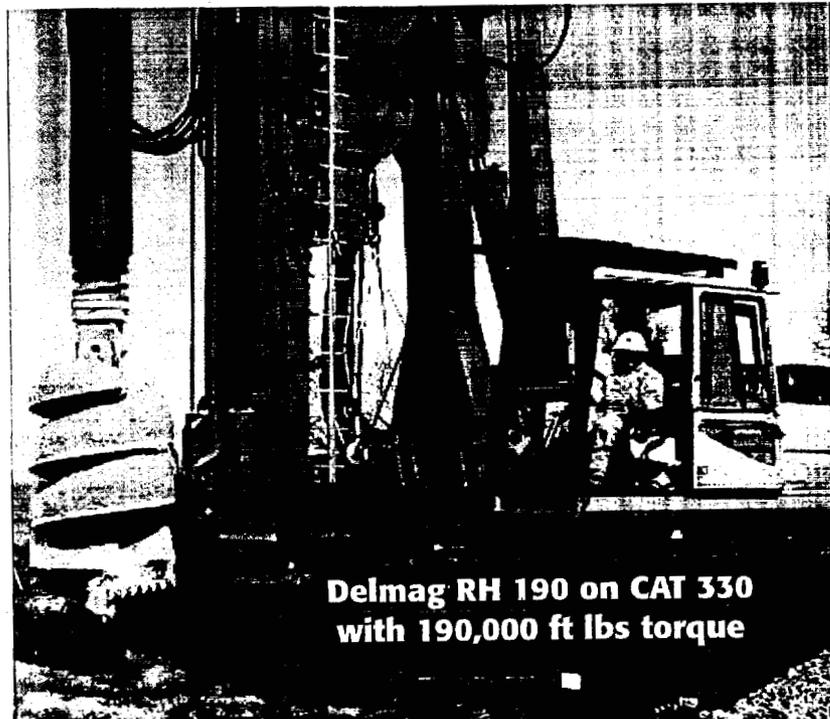
DESIGNED to be DIFFERENT, with Results that DELIVER!

DELMAG

- Designed to drill hard rock (22,000 PSI.)
- Drill up to 15 ft. diameter
- 1 hour set up/demob time
- Up to 70 ft. of stroke
- up to 295,000 ft.lbs torque
- Built on CAT carriers
- Spare parts stores & trained mechanics for quick support



Delmag RH 130 Drilling 8 1/2 ft. holes in 10,000 PSI blue limestone with 130,000 ft lbs of torque



**Delmag RH 190 on CAT 330
with 190,000 ft lbs torque**



**42" Delmag auger
drills 22,000 PSI
limestone,
30 ft deep
in 30-45 minutes,
with a Delmag RH 19**

**Ask For
Job Site
Videos**

For more information, contact us or visit our web sites!

Sales • Rentals • Service • Parts • Drilling Tools
Training • Method and Performance Consulting
Delmag USA Office: ABI, Inc., Benicia, CA. USA
CONTACT DELMAG TOLL FREE
(877) 224-3356

Reader Service #0701

E-mail: info@abi-delmag.com
USA Web Site: www.abi-delmag.com
International Site: www.delmag.de
Midwest Dealer
Hammer & Steel
1-800-325-7453

ADSC Associates Help Lead the Way

by Teri Dres

This series of articles concludes with this issue that focuses on the work of the Associate Members Committee. During the year we have highlighted the work of the Geo-Support, Micropile, Drilled Shaft, Education, Category III and IV and Safety Committees. There are many more active committees working for the ADSC, all of which deserve your support. To become actively involved on any ADSC committee, contact the ADSC office. (Editor)

As the ADSC prepares for its largest exhibit show ever, it is fitting that *Foundation Drilling* magazine spotlights the committee that is most

actively involved in the EXPO's development – the Associate Members Committee.

Did you know that over 85% of the exhibitors already registered for booth space at EXPO 2004 are ADSC Associate Members? Another 10% are either ADSC Contractors or Technical Affiliate Members. Since this show is co-sponsored by the Geo-Institute (and other associations/groups listed in the enclosed Official Registration Brochure), there are also some non-ADSC member exhibitors. Those that are eligible for ADSC membership are being actively recruited and hopefully will soon see the "light."



Associate Members Committee sponsors golf tournaments at each ADSC meeting to benefit the IAF Scholarship Fund. Christian Cress, Bauer; Ben Dutton, ECA; and Mike Heinz, Peterson Tractor are pictured left to right.

Background

A little research into past ADSC meeting minutes indicates that the group was originally referred to as the *Associate Member Advisory Committee*. This was at the July Mid-Year Meeting in 1980. It was chaired by Tom Peacock of Hughes Tool Company in Corsicana, Texas. The only topic discussed was a noise abatement issue. The next twenty-three years saw nothing but growth for the activities of the committee, as well as Associate Membership in general.

Some of the early projects focused on encouraging sponsorship at ADSC events, and in the early 1980s, the *Associate Members Night* was born wherein all Associate Members were encouraged to contribute a modest amount to host one of the most exciting events at the ADSC convention. Of course, those companies that could afford to do more were sponsoring some of the major events, but *Associate Members Night* continues to this day to be one of the most enjoyable events at our meetings.

A few years later, at the suggestion

(continued on page 44)



Bring DATA to the surface

Cross Hole Analyzer(CHA)

detects defects
in Bored Piles, Slurry Walls,
Cast in Situ Piles, and other
Concrete Foundations.

4535 Renaissance Pkwy.
Cleveland, OH 44128 USA
Tel: 216-831-6131
Fax: 216-831-0916
e-mail: Info@pile.com
www.pile.com



Pile Dynamics, Inc.
Quality Assurance
for Deep Foundations

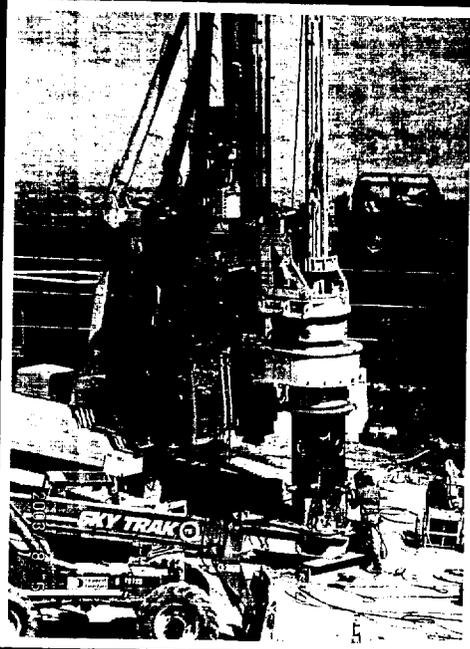


The BAUER Group proudly
presents the finest in
Machinery for
Special Foundation Works.

KLEMM
Bohrtechnik



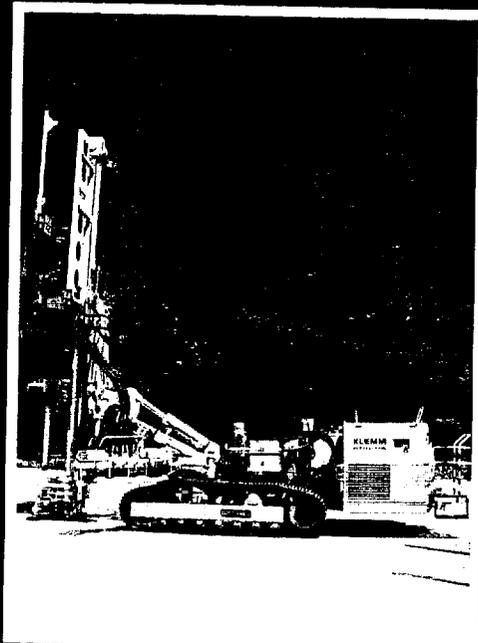
BAUER FlyDrill for Kelly drilling and reverse circulation, 6 ft and 8 ft caissons for a bridge foundation in New Jersey.



BAUER BG 22 H with torque multiplier (324,500 ft-lbs) drilling secant pile shafts in Federal Way, Washington.



BAUER BG 15 H, drilling caissons at the Capitol in Washington D.C.



KLEMM KR 806-4 with double head drilling unit type KH 16 / KD 1215 R and rod magazine type MAG 2.1.

We offer equipment to fit your individual needs or Turnkey Drilling Systems with unequalled technical support and technology.

Bauer Machinery Group:

- Rotary Drill Rigs and Oscillators
- Top Drive Units
- Specialized Piling Rigs
- Diaphragm Wall Cutters
- Caisson and Diaphragm Hydraulic Grabs
- Soil Improvement Units
- Desanding Plants
- Related Tools and Equipment

KLEMM Machinery Group:

- Anchor Drill Rigs
- Micro Drill Rigs
- Rotary Drives
- Hydraulic Drifters
- Drilling Accessories
- High Pressure Grouting Systems
- Soil Mixing Equipment

- Sales
- Rentals
- Lease
- Service
- Parts
- Accessories
- Technical Support
- Consultation

BAUER Equipment USA

205 Wilcox
McKinney, TX 75069

Contact: Robert Kaindl
Phone: 1-972-540 6361
Fax: 1-972-540 1411
E-mail: BMABranchUSA@aol.com
Homepage: www.bauer.de

of the Associate Members Committee, a time slot was reserved at ADSC meetings for Associate Member Presentations. These started out as concurrent sessions wherein six or eight Associate members would make a 10-minute product presentation to the assembled attendees. The Committee coordinated the presentations so every company that wanted to participate could do so over the years. This practice continues today, but instead of concurrent sessions, they are held back-to-back and limited to four presentations at each meeting.

In the mid-1980s, it was suggested that an ADSC *Yellow Pages* be published that would be made available to all members, but especially those operators and superintendents that needed an easy and quick resource reference to find products and services in their locales at a minutes' notice. This handy booklet has grown in recent years to be called the *Products and Services Guide*, and the newest version, that will be out prior

to the Geo-Support EXPO 2004, will be known as the ADSC's *Resource Book*. It is printed every three years in conjunction with ADSC's Exhibit shows.

More Projects

What better way to recruit new Contractor Members than have Associates that are already out calling on customers in the drilling business to talk about the ADSC's benefits of membership? A first-hand introduction of ADSC to potential Contractor Members is very effective. The Associates have done this from the very beginning and continue today. This was also accomplished by phone surveys conducted by Associates to determine the buying practices of Contractors. They also performed Manufacturers Market Surveys to help identify trends. In the Summer of 1992, a special *Buy Associates Member Campaign* was established

wherein a percentage of the profits from sales to ADSC Contractors would be donated to benefit the Industry Advancement Fund.

The ADSC has come to depend on the Associate Members for any number of support items including:

- Advertising in *Foundation Drilling* magazine and ADSC's Annual Membership Directory
- Supporting our seminars and meetings with sponsorships of functions and give-aways
- Sponsoring their Golf Tournament at ADSC meetings to provide fun and funds for the Industry Advancement Fund's Scholarship Program. (As a matter of fact, the Associate Members Committee is coming very close to having enough money in their account to fully endow one of the IAF scholarships.)

(continued on page 46)

ILLINI

Drilled Foundations, Inc.

14512 Perrysville Road • P.O. Box 1351 • Danville, IL 61834
Ph. 217.442.8765 • Fax 217.442.8440 • info@illinidrilling.com • www.illinidrilling.com



Watson 3000



LoDril

Our capabilities include :

- Straight or belled drilled shafts
- Cased or uncased
- 18" diameter to 12' diameter
- Drilling depths up to 137'
- Limited access pier drilling
- Limited access under 12 ft
- Installing auger cast piles



Texoma 900

We dig deep to build a solid foundation with our customers.



Drilling:

Original Equipment Manufacturers specify Pullmaster winches for their water well drilling, foundation boring, and oil exploration applications throughout the world. Depending on the application, this industry sector makes use of the "Freefall" and "Rapid Reverse" options.

Marine:

Pullmaster products are totally enclosed with all moving components running in an oil bath. Marine grade epoxy primer coating, heavy-duty stainless steel drum seal surfaces and rubber coated seals are just an example of the features engineered into every winch that we produce to promote longevity of service within a severe environment.

Logging:

Built to withstand the rigors of the logging industry, Pullmaster Winches have been adapted to existing equipment to increase production and profitability. The "HL" series of winches provide rapid reverse performance along with a rapid forward speed to provide log loader versatility.

Construction:

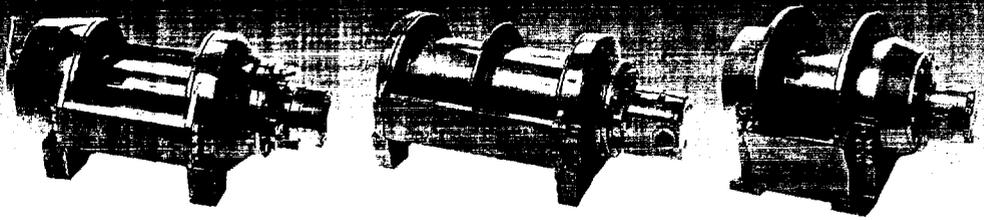
Hydraulic cranes, loaders, material hoists, piledrivers, sidebooms and pipelaying equipment are some of the applications that rely upon the smooth control and other features offered on Pullmaster winches. Two speed and high pressure motors used in conjunction with optional reduction ratios and cable drums enables a Pullmaster winch to be matched to our customers exacting requirements.

ISO 9001 Quality Approved

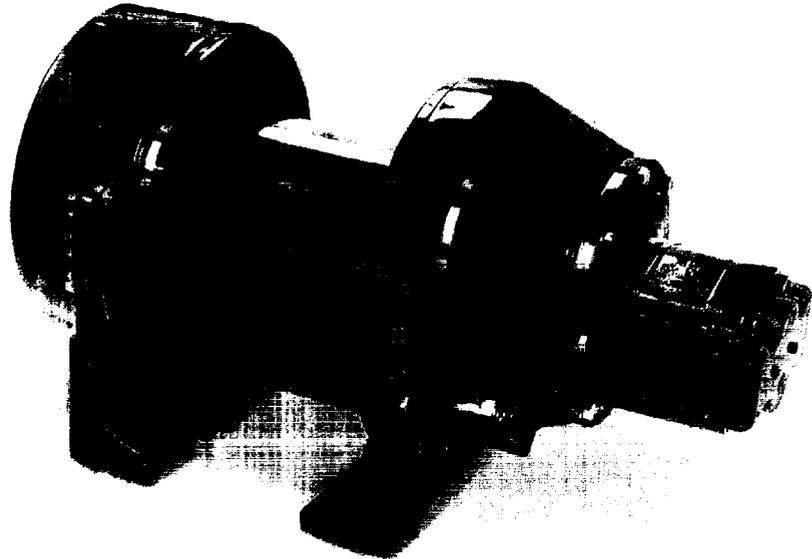
Pullmaster has built its reputation on manufacturing planetary winches of superb quality and reliability. Computer controlled manufacturing, pre-testing and our people's personal pride in every winch is your Assurance of Quality. Pullmaster's "Quality Management System" is registered to ISO 9001, which is recognized throughout the world.

For Details on all the features of Pullmaster winches, please contact us for the name of your nearest distributor.

Pullmaster Winch Corp.
8247 - 130th St., Surrey,
B.C. Canada V3W 7X4
Tel: (604) 594-4444
Fax: (604) 591-7332
Email: info@pullmaster.com
Website: www.pullmaster.com



PULL 24-7



Pullmaster planetary winches are highly reliable and built for years of dependable service, this year or any year. Our timeless standards are designed to meet your present and future needs.


STATE-OF-THE-ART-HYDRAULIC-WINCHES
A  DOVER COMPANY

• Supporting ADSC's Training Schools such as the Drill Rig Operators School (DROS) and Anchored Micropile Inspection School (AMPIS) by not only providing equipment but instructors and financial support as well.

The current items on the committee's plate includes *Product Liability Insurance* and getting our industry's equipment listed and updated in Data Quest's *Blue Book*. Of course, between now and February 2004, the focus is also on EXPO 2004.

Leadership

We give credit to the past chairmen of the Associate Members Committee that have all been the cream of the crop. This includes:

- Tom Peacock
Hughes Tool Company
- J.P. Self
J.P. Self & Associates

- Frank Gage
DESCO Drilling Equipment
- Ray Rihela
DrillEquip
- Ted Ledgard
Atlantic Equipment Company
(now with ADSC)
- Dennis Wiksten
Reedrill (now with
Advanced Foundation Systems)
- David Watson
Watson, Inc.
- Gary Rice
Reedrill
- Herb Minatre
Bay Shore Systems
- Gene Doyle
Ingersoll Rand (now with
Frontline Construction Equipment)
- Tom Myers
Davey Kent
Ben Dutton
Equipment Corporation of America

The current chairman, Ben Dutton, will be completing his second three-year term at the EXPO 2004.

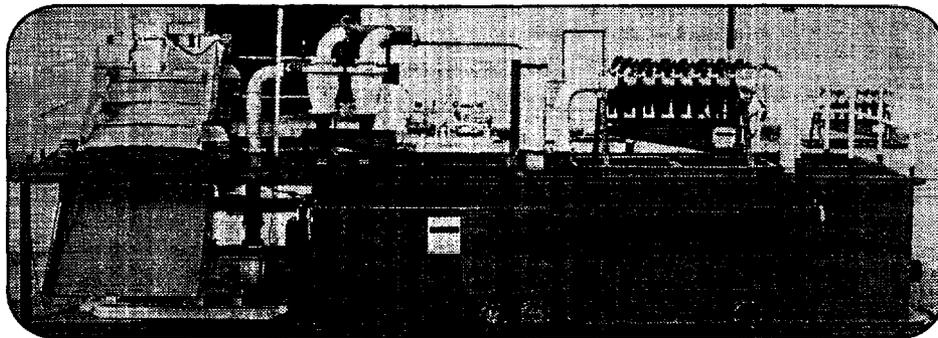
At that time, a new chairman will be elected. Tom Myers, past chairman, is serving as head of the Nominating Committee and will conduct the election. Currently serving as Associate Member Committee Vice Chairman is Mike Heinz, Peterson Tractor Company, San Leandro, California. Joe Patterson, TEI Rock Drills, Montrose, Colorado, serves as Committee Secretary. The accompanying sidebar lists current committee members. However, all ADSC Associate Members are always invited to participate in all committee meetings. Input is always needed on future exhibit show meeting locations and future direction of the committee's activities.

Everyone knows that the ADSC started out as a drilled shaft foundation contractors association. However, as years have gone by, the suppliers have and continue to have a strong influence on the projects the

(continued on page 47)



SINCLAIR is your PROFESSIONAL SOURCE for your FOUNDATION DRILLING SLURRY needs



- ★Bentonites, Polymers & Drilling Products
- ★Mixing Facilities
- ★Shakers, Desanders, etc..

- ★Dewatering & Slurry Disposal
- ★Testing Equipment
- ★Slurry Engineering, Training & Schools

Distributor for: ★ SUPER MUD ★ SHAFT SPACER SYSTEMS
800-782-3222 CALL TODAY!

ADSC promotes. If it wasn't for the Associates' support in advertising in *Foundation Drilling* magazine, and sponsoring events at our meetings, we wouldn't have the professional magazine and great meetings we enjoy. This visible support has paid off for the Associates as well. There are currently four Associates on the ADSC's Board of Directors (Mike Heinz, Tony Kraut, Tom Myers and Ben Dutton). As chairman of the Associate Members Committee, Dutton is also a member of the ADSC's *Executive Committee*, a very prestigious position. The rule of thumb is that the Chairman of the Associate Members Committee automatically becomes a member of the Executive Committee. If he

is not an elected ADSC Director, the number of Directors becomes a total of nineteen. If the chairman is already an elected Director, the total number of Directors remains at eighteen.

In the early days, the Associate Members Committee would meet for thirty minutes over a cup of coffee prior to the start of the business meeting. Times have changed. Now a full agenda of activities awaits its members' consideration. Very professional. Very organized - thanks to the past and current leadership.

We wish all our Associate Members the very best Geo-Support 2004 Show ever! Thanks for all your help.

Committee Members

- | | |
|---------------------------|---|
| Ben Dutton, Chairman | Equipment Corporation of America |
| Mike Heinz, Vice Chairman | Peterson Tractor Company |
| Joe Patterson, Secretary | TEI Rock Drills |
| Jim Arkin | Bay Machinery |
| Horst Aschenbroich | Con-Tech Systems |
| Gene Doyle | Frontline Equipment |
| Dan Dragone | Kelly Tractor |
| Steve Drury | Watson, Inc. |
| Mike Ferko | DRILLGEAR |
| Tony Kraut | Bay Shore Systems |
| John Monroe | Watson, Inc. |
| Tom Myers | Davey Kent, Inc. |
| Rob Newsom | PDSCo, Inc. |
| Gil Peel | American Equipment & Fabricating |
| David Watson | Watson, Inc. |
| Ted Ledgard | ADSC's Liaison to the Associate Members Committee |



It's a Hard World

But EGT has built rigs to drill it vertically, horizontally, from on top and underground, from wide open to confined spaces. EGT offers the foundation drilling industry an extensive line of vertical and multi-purpose drills designed for installing anchors, tie-backs and micropiles, CFA drilling and jet grouting.

EGT's remote control capability provides more precise hydraulic response, improved visibility and greater operator safety, and even the smallest EGT unit is powerful enough to run a top hammer.

DTL is your North American source for the advanced technology of EGT.

EGT makes the drills -
DTL makes the difference

BORN



For complete details regarding Geo-Support visit our website:

www.geo-support2004.com



DTL
DRILLING TECHNIQUE

Pittsburgh, PA • Oakland, CA
800.525.0851 drillingtechnique.com

Safe Habits Can Mean Lower Insurance Rates

by George Kennedy

National Utility Contractors Association (NUCA)
Vice President of Safety

Companies are paying higher rates for all types of insurance. General liability, fire, fleet, medical, and workers' compensation coverage is much more expensive than it was a year or two ago. Managers are reporting 30 to 50 percent increases for some lines of insurance, and there is no relief in sight. When you start looking carefully, virtually every aspect of your company operations can affect your insurance rates.

Insurance companies are faced with huge losses from the attack on the World Trade Center, fires and floods, increased litigation, and risking medical costs. Just like contractors who must pay more for equipment, labor, and materials only to pass on the cost to the customers, insurers must pass

on increased losses to the companies they insure. And to top it all off, historically insurance companies made the bulk of their profits off investments, not necessarily underwriting profits. With the fall of the stock market there is more pressure on underwriters to do more than just break even.

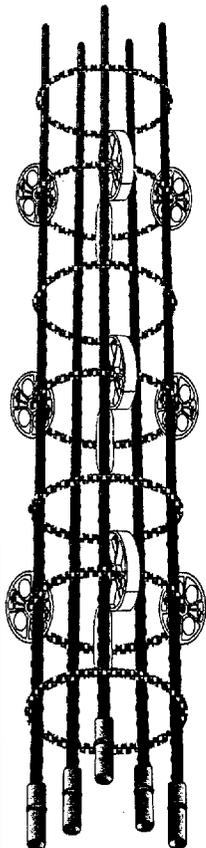
In reality, insurance is all about spreading the losses so that no one company has to pay expensive, sometimes catastrophic, claims that could put them out of business. Without insurance, what would your company do if it were hit with a multi-million dollar lawsuit? Could your company absorb a loss of that size? Most companies would go out of business or declare bankruptcy.

Solid insurance companies with strong underwriting, claims, and loss control departments, and a strong understanding of the construction industry, like CNA, are important to every company. "Recently CNA created a plan to re-underwrite the NUCA

insurance program, and it has been successful," said Bob Bush, from Broussard, Bush & Hurst, Inc. "Despite all the problems in the insurance industry, the CNA NUCA insurance program has continued to prosper. CNA is pleased to continue the program because it has been so successful. In fact, it is one of the most successful association insurance programs in the United States with approximately \$90 million in premiums." For more information about this CNA insurance program, visit www.nuca.com.

In defense of insurance companies, some of the rising costs are not their fault. Critics argue that some insurance companies are too quick to settle claims out of court, but we must understand that settlements are based on risk analysis, where the cost of defending a case may be far more expensive than settling the case. So if you are faced with litigation and the insurance carrier settles, don't take it

(continued on page 49)



SHAFTSPACER™ SYSTEMS

A guide and alignment system for bar reinforcement positioning within caissons, drilled shafts, shell piles, Auger-Cast piles, tiebacks, soil anchors, mini-pile foundations, and other geotechnical construction applications.

Foundation Technologies, Inc.®

3300 Montreal Ind. Way, Suite 8
Tucker, GA 30084
www.foundationtechnologies.com

Phone: (800) 773-2368
Fax: (770) 723-0844
Info@foundationtechnologies.com



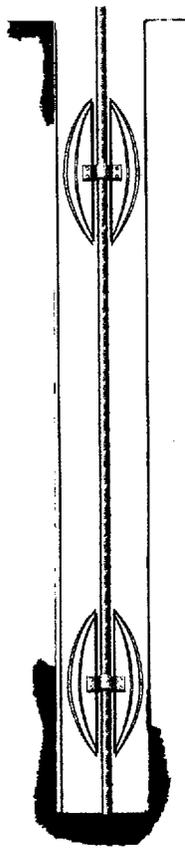
SHAFTSPACER™



BARBOOT™



UNISPACER™
CENTRALIZER



personally. A settlement does not mean your company was at fault. Juries can be unpredictable, and in many cases, insurance companies are betting that the jury would award a greater amount of money to the plaintiff. A simple case in point might be a tripping hazard from a pothole in a parking lot that the business owner knew about and did nothing to correct. If somebody falls in it and breaks an ankle, the company will be held liable and chances are the insurance carrier will try to settle the case, because they realize jurors will probably award the case in favor of the injured party.

The laws of the country may also be partly at fault, because more and more cases are being allowed to go to court. Even some cases that seem to have no merit are going before a jury, and juries often decide in favor of the injured person. Some people say awards should be capped, and others disagree. How do you feel? Make your opinions known to your legislature.

One option that some companies are choosing in lieu of insurance companies is self-insurance or insurance pools, and many of these pools are not solvent. Understand that when your company elects to self-insure or join an insurance pool, you are helping to underwrite the pool expenses and losses. By joining a pool, your company can be assessed for expenses and losses of the group. Your company may have an excellent claims history but other companies in the pool may not, which affects the contribution of all pool members.

Regulations Matter

I frequently write about compliance with OSHA regulations not only to help contractors avoid OSHA penalties, but also to prevent workers' injuries that may affect their future and their families. Compliance with the OSHA regulations is the law, and companies are obligated to provide their employees with a safe place to work. Morally speaking, is there anybody reading this article that really does not care if a fellow worker or

employee is injured?

If the moral and legal incentives of complying with OSHA regulations aren't enough, would a bottom line reason motivate you? Occupational health-related injuries, such as silica, asbestos, chemical, and noise exposures, are on the insurance companies' radar screens because many attorneys are focusing their attention on these types of cases. Ergonomics-related cases, such as carpal tunnel from repetitive motion, are also on the upswing. Mark my words, hearing loss due to job-related noise is next. Individual awards, class-action awards, and lawyer costs are very expensive.

Good insurance companies have loss control (LC) departments, and representatives usually visit their clients to review their safety programs and to inspect facilities and jobsites. James Bush, from Broussard, Bush & Hurst, suggests that company owners take the time to meet with the LC representatives to discuss their company's commitment to accident prevention. This is also a good time to discuss the LC rep's recommendations.

"Company owners should take the insurance carriers recommendations seriously, because the LC representative is the eyes and ears of the underwriter," Bush said.

Pay attention to what your carrier and agent/broker are telling you. It can make the difference between being dropped from coverage or can positively or negatively affect your premiums.

In my opinion, the best way to keep insurance costs low is to prevent accidents. Controlling or eliminating hazards is possible. If everybody in the utility construction industry would make the commitment insurance costs for the industry could be lowered or at least stabilized. This may, at times, include making an investment by training workers.

Workers' Comp Insurance

Every company has an experience modification rate (EMR), which will

(continued on page 50)



MÜLLER

Coming to a Jobsite Near You

Müller vibratory piling equipment will surprise you with advanced technology that has been proven in the field. The Müller HFV models feature not only variable frequency oscillation but also variable amplitude which makes them the only choice where the surrounding structures or environment must be protected from damage. This also means that these units will have reduced downtime. And the piles get into the ground faster.

Müller vibrators' superior features, performance and reliability are recognized throughout Europe and Asia, and they are now available for sale or rental in North America from DTL. Call on DTL and Müller to assist you in solving your next driving, extraction or compaction challenge.

Müller makes the vibrator —
DTL makes the difference



DTL
DRILLING TECHNIQUE

Pittsburgh, PA • Oakland, CA
800.525.0851 drillingtechnique.com

SAFETY RECORD Contd.

directly affect their workers' compensation insurance rate. EMR measures a company's workers' compensation loss experience. The EMR is simply an adjustment multiplier included in premium calculations.

Although a complicated calculation is used to determine the EMR, it is basically the ratio of actual losses to expected losses. Every company starts with a neutral rate of 1.0, which indicates that company has not been around very long or that it has not exceeded the average losses for the job classification. Over time, the company develops a claims history, which is compared to the average expected losses for the same type of companies. If the company's losses are above average, the EMR will be greater than 1.0, and if losses are below average, the EMR will be less than 1.0. Companies with poor loss ratios pay high premiums, and companies with good loss ratios pay less. Therefore, if a company wants to keep premiums low, it should do all that is reasonably possible to prevent worker injuries and avoid claims that

will increase the EMR.

In most states, the National Council on Compensation Insurance calculates rates for each insured company. The EMR is calculated by using each company's claims data for three consecutive years beginning four years before the current year. For example, your company's EMR for 2003 has been calculated based on loss data from 1999, 2000, and 2001. At the end of 2003, the 1999 data will be replaced with loss data from 2002. Whenever a high-loss year can be replaced with a low-loss year, the contractor should benefit from lower premiums. Therefore, investing in an effective safety program can literally pay for itself over time.

Accident frequency will generally increase a company's EMR more than accident severity. Employers who experience many small claims will be penalized more than the employers who experience fewer large claims. This is because the insurance industry recognizes that accident severity is unpredictable. Because any incident can result in

high losses, a company with a high accident frequency presents a greater loss potential and a greater risk to the insurance company. The greater the number of incidents, the greater the chance of one or more high loss claims.

The EMR calculation is adjusted to give primary consideration to the claims frequency and secondary consideration to the claims severity. This is accomplished by assessing in full all claims less than \$5,000 (known as the primary loss, which varies from state to state). Amounts greater than \$5,000 (known as the excess loss) are discounted up to a maximum amount, known as the state accident limit. For example, an employer with five claims of \$3,000 each would have \$15,000 in losses included in the EMR calculation. In comparison, if the same company had only one claim resulting in a \$15,000 loss, the company would have only \$5,000 in losses plus a discounted amount for the remaining \$10,000 included in the EMR calculation, which would

(continued on page 51)

Looking for a **FABRICATOR of CUSTOM Kelly Bars?**

Look No Further...

MARDEN INDUSTRIES is Your Answer!

We have a 30,000 square foot manufacturing facility, state of the art CNC equipment, in-house CAD/CAM design and over 60 years experience in heavy metal fabrication.

We can...

- custom fabricate Kelly Bars
- totally rebuild existing Kelly Bars
- fabricate custom replacement parts

We have...

- metric drill pipe in stock
- metric hard plate in stock
- drill stem parts in stock

Marden[®]
INDUSTRIES INC.

Call Toll Free 1-800-881-0388

863-682-7882 • Fax: 863-428-1395 • e-mail: mardenind@mindspring.com

www.mardenind.com • P.O. Box 796 • Mulberry, FL. 33860 • USA

SAFETY RECORD Contd.

result in a lower EMR. Assuming equal losses, companies with lower loss frequency generally pay lower premiums.

There are things companies can do to keep their EMR at a minimum. Check with the workers' compensation board in the states where you work to see if they permit employers to pay, and under what circumstances, minor medical expenses out of company funds without turning in a claim. Paying minor medical claims is similar to having a high deductible, and it keeps the company's frequency rate down. Simply increasing deductibles on most types of insurance policies lowers premiums. For example, paying a small bill for an emergency room visit for a cut hand would eliminate turning the expense into a claim, which adds to a company's frequency rate. Companies that pay minor medical claims and keep their frequency rate low, will see a reduction in the EMR within two to three years.

To guard against errors during EMR calculations and claims handling, make sure accurate payroll figures and claims information are reported to the insurance carrier. Under reporting payroll can seriously affect your EMR. When a claim is reported, it is assigned a reserve, which means the insurance carrier set aside (at least on paper) a set amount of money to pay future expenses associated with the claim. Reserves should be monitored because they are charged against the company's EMR until the claim is closed. When a worker returns to work and is no longer receiving medical treatment, the insurance company should be notified immediately so it can close the claim. Employers should obtain and review insurance loss reports to ensure that claims are closed accurately and promptly and that unnecessary reserves are not set aside.

To ensure there are no errors in the EMR calculation, companies should obtain and review a copy of the EMR worksheet. Discrepancies, such as duplication of claims or incorrect payroll, should be discussed with the insurance company or agent/broker.

If there is an error, seek to have the EMR changed.

Minimizing Insurance Rates

Implementing a good safety program can minimize your company's insurance rates. A good program should address worker, fleet, and environmental safety, equipment theft/vandalism, damage prevention, and public safety.

Safety and risk management are the keys to better insurance rates. Start by training employees to perform their job safely, establishing rules and safe procedures, and implementing the company's worker safety program. Risk management continues with fleet safety, which requires routine inspection of vehicles, good drivers, and periodic motor vehicle record checks for drivers. Defensive driver courses are also a worthwhile investment. Environmental protection depends on compliance with environmental regulations, employee training, and established procedures to ensure the environment is not contaminated by company operations. Preventing theft and vandalism may seem like an impossible task but there are ways to thwart thieves and vandals with minimal investment. Damage prevention is a matter of calling the local one-call system and marking the exact location of utilities before you dig. Protecting the public may take a little effort to insure that children are kept out of jobsites, and traffic is controlled in the vicinity of the jobsite.

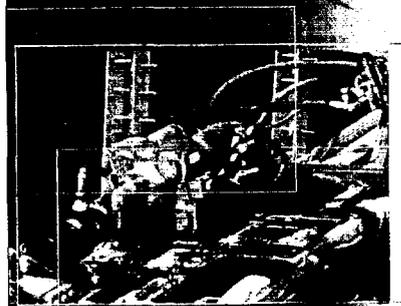
I will not sit here and tell you that these tasks are simple, but through insurance planning, due diligence, and pre-job planning, it is possible to reduce insurance claims. The time and dollars spent to prevent claims are worth the investment.

This information was reprinted with permission from the March 2003 issue of Utility Contractor magazine – the monthly publication of the National Utility Contractors Association.

NOTE: For information about the ADSC's new insurance program, call Joe Dan Roland at Summit Global Partners, Inc., 214/443-3138. ■



KRUPP



Power • Flexibility • Control

Drilling is about production, no matter what the conditions. You want a drill head that has the power of high torque to conquer high friction, the flexibility in operating pressure that allows it to easily be mounted on different rigs, and the control that allows torque, speed, percussion energy and impact rate configurations to be adapted to the drilling conditions at hand.

You want Krupp.

Krupp drill hammers and rotary drill heads feature modular design for minimum downtime and efficient maintenance.

When it comes to hydraulic, rotary or hammer drill heads Krupp is the recognized pioneer and innovator. Get the productivity you need on your next job with the power, flexibility and control of Krupp – buy or rent.

Drilling Technique is the only authorized full service Krupp distributor in North America.

Krupp makes the hammer —
DTL makes the difference

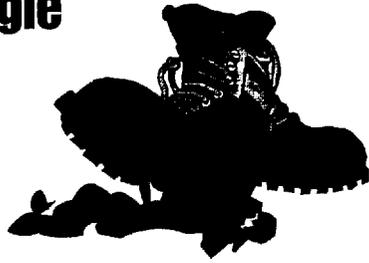


DTL
DRILLING TECHNIQUE

Pittsburgh, PA • Oakland, CA
800.525.0851 drillingtechnique.com

DRILL

Double Eagle Tackles Navy Project



by Johnny H. Bean, Vice President
Double Eagle Foundation
Drilling, Inc.
ADSC Category III
Contractor Member
Azle, Texas

On July 11, 2003, C.F. Jordan L.P. Construct-Construction Management contacted Double Eagle Foundation Drilling Inc. about a project, Naval Lodge at NAS - JRB, Fort Worth, Tarrant County, Texas. It was a rush project and they wanted to start drilling on July 23, 2003. Double Eagle started putting together pricing, drill rigs, crane and a crew to handle the project. The project consisted of 17-18" diameter shafts x 24', and (52) 24" diameter shafts x 24' with four foot penetration into very hard gray limestone. Overburden material was sand, gravel and water which meant temporary casing would have to be used.

After attending a pre-construction meeting with C.F. Jordan project manager, quality control, and the Navy's quality control personnel, Double Eagle learned there were some adverse conditions in the pro-

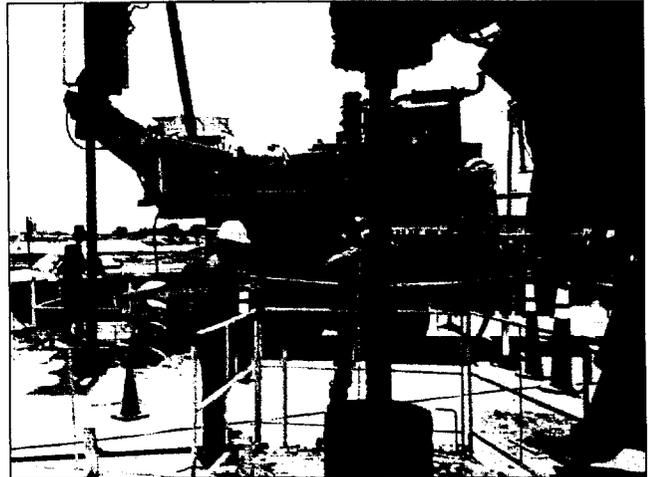
ject specs. One condition was that we could not drill a shaft within 15' of any shaft where concrete had not been in place for three days. This meant Double Eagle's field superintendent James (Rusty) Bean

had to plan out which shafts could be drilled each day. The specs also called for a 3" to 5" slump on concrete so a super plasticizer had to be used to increase the slump to 8". Concrete was to be placed in all shafts within three hours after completion, and could not be dropped over 3' into the shafts. So very close coordination was necessary with the batch plant, C.F. Jordan and Double Eagle to make sure time limits were accomplished. With over 100 degree temperatures and a thirty to forty minute delivery time on concrete, it had to be placed in a very timely manner.

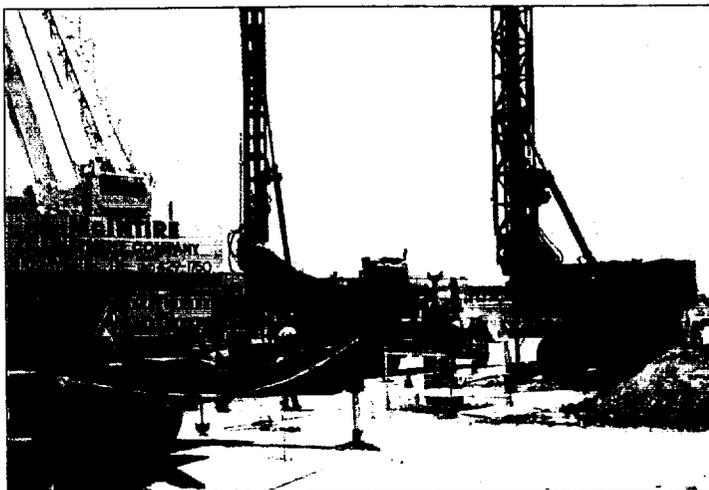
The project went very well and the Double Eagle

There was also some strict safety and security precautions taken on this project. Guard rails were placed around shafts at all times during drilling until after concrete was placed.

crew handled the job in a very professional manner. There was also some strict safety and security pre-



Strict tolerances had to be maintained.



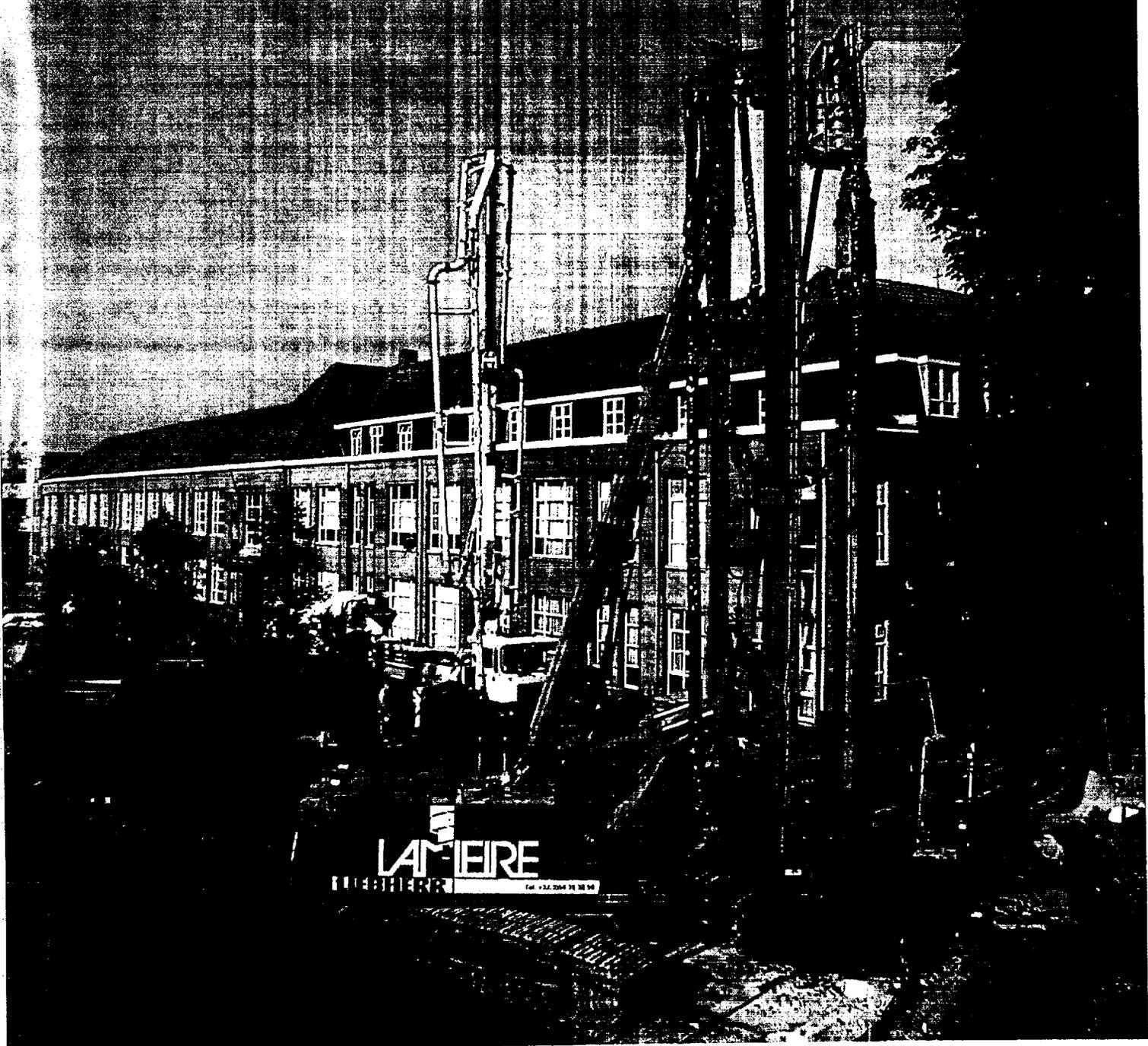
Several rigs working at the same time required coordination.

cautions taken on this project. Guard rails were placed around shafts at all times during drilling until after concrete was placed. Double Eagle's safety director, David B. Decker was on the project at all times overseeing all safety aspects of the job. Other key people on the job for Double Eagle were James E. Bean, superintendent; Eugene (Jack) R. Barnett, foreman over concrete crew; drill rig operators Bobby D. Brown and James T. Mosley.

I personally would like to congratulate everyone from Double Eagle who worked on this project. They did a fantastic job. ■

Experience the progress.

Piling and Drilling Rigs.



LIEBHERR

Tel: +49 7141 33 33 33

LIEBHERR NENZING CRANE CO.
1400 East North Belt, Suite 160
Houston, TX 77032
Tel.: (281) 219 7129
Fax: (281) 219 7134
crawler.crane@lwn.liebherr.com

LIEBHERR

The Group

Ohio Valley Chapter Raises Scholarship Funds

ADSC's Ohio Valley Chapter recently conducted a benefit golf tournament to raise money for their *Thomas A. Buzek Scholarship Fund* that is awarded annually at the ADSC's January General Meeting. This year over 100 golfers were present as well as 56 sponsors that contributed to the success of the event. The Chapter's goal is to raise enough money to fully endow this scholarship for the future.

Nicholson and Hayward Baker Receive ENR Press

The August 18, 2003 issue of *Engineering News Record* carried an article *Digging Deep Into the World Below*. With the challenges of working on underground structures, myriad issues are bound to surface. One is

the ongoing debate over who should take the lion's share of risk. Both Seth Pearlman, Vice President with Nicholson Construction Company, and Eric Droof, Vice President of Hayward Baker are quoted in the text. This thought-provoking article is recommended to our readers.

Deep Foundations Contractors Featured in Construction News

The *York/Durham Construction News* featured ADSC Contractor Member, Deep Foundations Contractors, Inc., Toronto, Canada, in their May 2003 issue. The eight-page edition featured many of the company's major projects with descriptions of the work and excellent photography. Deep Foundations' Vice President, Bill Starke, is a past ADSC Director. Deep Foundations Contractors

recently celebrated their 30th Anniversary. They have been active in the ADSC since 1981.

Brayman Construction Announces New Subsidiary

ADSC Contractor Member, Brayman Construction Corporation, Sax-onburg, Pennsylvania, announced the addition of their new subsidiary Brayman Environmental effective August 18, 2003. This new firm will focus on providing various geo-environmental and general remediation services to both public and private clients across the country.

Kenneth Andromalos, PE., General Manager of Brayman Environmental, will head up this company whose staff consists of senior managers and field personnel who are recognized leaders in various areas of specialty containment and environment treatment

(continued on page 56)

TEI ROCK DRILLS

A Sample of Our Rental Fleet



TEI

Excavator Drill Available with Drifters or Rotary Heads

\$12,500/month



EURODRILL

Replace Your Worn-Out Drifter with a New Euro-drill Drifter.

All Models In Stock.

Price on Request.



BERETTA T43

Limited Access Drill with Separate Diesel Power Pack

\$9,000/month

800-777-3745 • tei@teirockdrills.com



THE THIRD ANNUAL ADSC ANCHOR AND MICROPILE INSTALLATION SCHOOL

November 2 - 8, 2003



In an effort to continually advance the industries in which we work, ADSC proudly presents our **Anchor and Micropile Installation School (AMPIS)** - again. This course will take place in Greensboro, North Carolina at **Gulford Technical Community College, November 2 - 8, 2003.**

WHO SHOULD ATTEND?

The AMPIS program is designed for the employee who shows promise and has some experience in the field working with earth and rock anchors, or other types of soil retention construction.

Why should your employee attend? Just listen to their comments . . .

"All classes were of value, who knows when you will need such information throughout your career."

"It was exciting learning new techniques not only from the speakers, but our peers. It was extremely positive."

"As I started to evaluate all of your speakers, it came to me that everyone involved did a great job. Everyone was willing to answer anything asked. It was a great experience and I hope to see this class offered again."



One (1) attendee per company!
Additional company attendees may be considered
for registration after Friday, October 3, 2003.

WHAT WILL THEY LEARN?

AMPIS attendees are instructed on the use of four to five different drills and tooling set-ups over a six day period. Daily quizzes will be given on each day's course curriculum.

POTENTIAL CLASS TOPICS:

On Site Safety ♦ History and Applications for Anchors ♦ Grout Plants, Set-up, Mixing, Cleaning ♦ Setting Up and Maintenance ♦ Drilling Systems - Single, Duplex, DHH, Augers ♦ Anchor and Micropile Drilling ♦ Hydraulic Systems and Troubleshooting ♦ Anchor and Micropile Set-up for Testing ♦ Anchors, Soil Nails, and Micropiles ♦ Using Air, Water, Foam, and Drill Fluids ♦ Reading and Recording Test Results ♦ Soils and Job Site Math ♦ Actual Testing of Installed Anchors to Failure ♦ Understanding the Driller's Role ♦ Project Planning and Drawing Review ♦ Drilling - Including Hands on Applications, Techniques, and Systems ♦ Job Planning

SCHEDULE:

Sunday, November 2, 2003 - 6:00 p.m. - 8:30 p.m., kick off. *Please plan on arriving at the hotel Sunday, November 2, 2003, registration will begin promptly at 5:00 p.m.*

Monday, November 3 - Friday, November 7, 2003 - Class time begins at 7:00 a.m. continuing through 5:30 p.m. *Breakfast will begin serving at 6:00 a.m.*

Saturday, November 8, 2003 - Class time begins at 7:00 a.m. and will conclude at 4:30 p.m.

Saturday evening Awards Dinner, 6:00 p.m. - 8:00 p.m.

Check out: Sunday morning, November 9, 2003.



A M P I S I I

**Registration is
Limited to Only
20 Attendees!**

Registrations will be accepted on a first come, first served basis (payment must be received with your registration). A brief resume, copy of Worker's Compensation, a certificate of insurance listing ADSC as additional insured, and a signed letter of subrogation will also be required for school registration. For your added convenience, a resume form, additional insured language, and letter of subrogation will be provided along with your confirmation of registration. All forms must be returned within twelve (12) days of confirmation for registration to be considered complete. The registration fee includes course materials, breakfasts, lunches, breaks, individual hotel room for seven (7) nights, van transportation to and from airport, shuttle service to and from school each day, and Awards dinner. For your convenience in securing your flight arrangements, the nearest airport is Piedmont Triad International Airport (Code: GSO), airfare is not included in your registration fee. For additional information contact Cindy Colao at ADSC (214) 343-2091 or ccolao@adsc-iafd.com.

technologies. Brayman Environmental's personnel have an average of over 17 years each of related environmental remediation experience.

Geo-environmental technologies offered by Brayman Environmental will include slurry cut-off walls, biopolymer collection trenches, permeably reactive barriers, and in-situ stabilization utilizing soil mixing and jet grouting. General remediation services will include earthwork, demolition and sediment removal. The focus will be on challenging projects where their services will provide value-added solutions, including design-build opportunities, and brownfield development.

According to Steve Muck, President and CEO of Brayman Construction, "The addition of Brayman Environmental compliments our existing services and capabilities in the general construction and specialty foundation work. These additional resources provide our existing and new clients the ability for Brayman Construction to effectively perform more work inhouse and reduce the

need for auxiliary subcontractors. Overall the end result will produce more cost-effective and timely completed projects.

Liebherr and Essex Team Up

ADSC Associate Member, Liebherr Nenzing Crane Co., Houston, Texas is proud to announce its latest development in serving the North American crane market. Liebherr Nenzing has entered into an agreement to sell multiple units of the model HS855SX to Essex Crane Rental Corp, Buffalo Grove, Illinois. The model HS855SX is a 115-ton capacity variant of the model HS855HD that was introduced to the world market in January 2002.

Liebherr-Nenzing Crane Company's VP of Sales, Scott Moreland commented on the sale saying: "Everyone at Liebherr looks forward to a long and beneficial relationship with Essex Crane Rental. Essex is a leader in crawler crane rentals

throughout North America. The Essex team has extensive crawler crane experience which combined with Liebherr's team and world renowned equipment, will make for a winning combination."

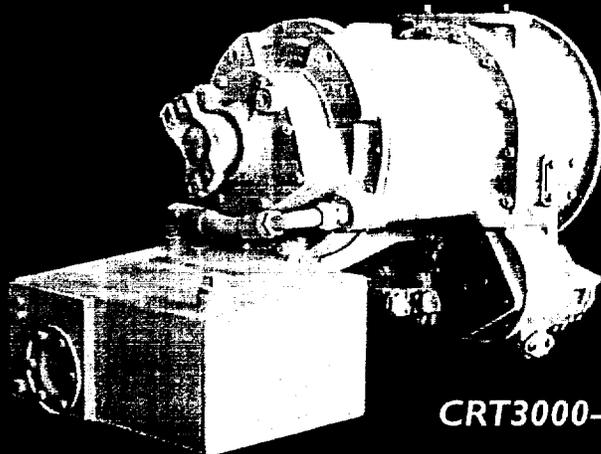
For more information regarding this sale or the Liebherr HS855SX, please contact **Wolfgang Herzog**, Liebherr Nenzing Crane Co., Houston (281-219-7129).

Quarter of Highway Bridges Are Deficient

According to a July 7, 2003 release from the Associated Press, more than a quarter of all U.S. highway bridges are considered deficient, a high number but a marked improvement after a decade of increased government spending.

The number of bridges considered deficient that need repairs, cannot adequately handle traffic loads or do

(continued on page 58)



CRT3000-3

**CRT 3000-MT653-4460
FOUNDATION DRILLING
ALLISON TRANSMISSIONS**

DEPENDABLE

**Houston, Texas
1-800-966-9860
1-713-466-9838**

www.copelandintl.com

e-mail: allison@copelandintl.com

Driving Innovation

Scenes from the Yangtze Estuary Waterway Construction Project featuring the World's Largest Vibratory Driver



American Piledriving Equipment, Inc.
7032 S 196th St - Kent, WA 98032
Phone: 800.248.8498 - Fax: 253.872.8710

Estimated Completion Cost: \$3.2 billion • Estimated Completion Date: 2008
No. of Piles: 530 over 6 km • Pile Length: 70-110 ft • Wall Thickness: 10 in • Diameter: 40 ft
Embedment: 40-75 ft • Pile Weight: 1.3 million lbs
Vibrator Weight: 200,000 lbs • Centrifugal Force: 1,440 tons • Eccentric Moment: 52,000 in-lbs • Power Supply: 4,000 HP

not meet safety standards declined 18 percent from 1992 to 2002, from 199,090 to 163,010, according to an Associated Press computer analysis of Federal Highway Administration data.

That new total still amounts to 28 percent of bridges. The drop in deficient bridges coincided with passage of two federal transportation bills that earmarked \$36.5 billion for repairs beginning in 1992 more than double the \$15.3 billion allocated during the previous decade.

"There's no question that the previous two highway bills played a vital role in beginning to address the problem with obsolete and structurally deficient bridges, but the numbers still remain alarming," said Steve Hansen, a spokesman for House Transportation Committee Chairman Don Young, R-Alaska.

Congress is preparing to renew the legislation, which determines how much federal money flows to states to build and repair roads and bridges. The current six-year bill

expired September 30, 2003.

The Bush administration has proposed increasing highway and transit funding by 13 percent, to \$247 billion over the next six years. Young has said that's not enough and has discussed an increase in the gasoline tax to raise more money. Young wants to spend \$375 billion over six years.

"It seems like we have a tremendously long way to go," said Mantill Williams, a spokesman for the AAA motor clubs. "The longer we wait, the more expensive it's going to get."

Proceedings of 2004 Case Histories Conference Available

The Fifth International Conference on Case Histories in Geotechnical Engineering will be held in New York City, April 13-17, 2004. Dr. Shamsher Prakash, Emeritus Professor at the University of Missouri-Rolla, has announced that they

are offering an advance sale of the Proceedings of this Conference at a special price of \$240.00 plus a \$20.00 processing fee. This price is good until December 1, 2003.

The set will contain approximately 350 papers including the Keynote Lecture, eight state-of-the-art presentations and twelve special lectures, and all General Reports. To order, contact the Continuing Education Department at the University of Missouri-Rolla at 573/341-4200.

USA Expansion for DRILLGEAR with Pennsylvania Office

The John Lawrie Group has expanded its North American piling and construction division DRILLGEAR with the opening of an office in Pennsylvania. The new office in Punxsutawney is headed up by Piling and Construction Sales Manager

(continued on page 60)

SAFETY...the Focus and Dominant Concern of the 21st Century

NDT is the effective way to test and ensure the safety of our Nation's infrastructure.

the Freedom Solution...

powered by **NATIONAL INSTRUMENTS**



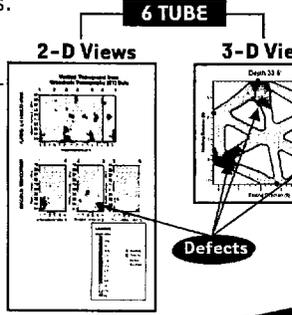
FREEDOM DATA PC AND CROSSHOLE SONIC LOGGING (CSL)

A robust, portable data collection system for testing the integrity of newly placed drilled shafts, foundations, slurry walls, and piers.

Optional – Single log or two simultaneous logs.

CROSSHOLE TOMOGRAPHY SYSTEM

For situations where simple CSL is not enough. TOMO-1 allows the user to create an actual image of the size, shape, and severity of defects. With 2-D and 3-D tomographic imaging of CSL identified defects, engineers can determine if an anomaly is a critical defect or not, and where to repair if necessary.



For complete details about the Freedom Data PC:

1-888-423-1214
equip.olsoninstruments.com

Our expert engineers in non-destructive evaluation and internal condition assessment of structures and infrastructures improve, use and stand behind the technology.

Olson Instruments/Olson Engineering www.olsonengineering.com

WIRTH... RELIABLE SUPPORT PRODUCTS EQUIPMENT

GROUNDING & CONTROL SOLUTIONS.

PBA 818
Brightman Street Bridge Project,
Fall River, Massachusetts
Contractor: Trevlicos

ECO Drill Foundation Rig Series

(Available for Rent, Purchase, or Long-Term Lease)

ECO 13

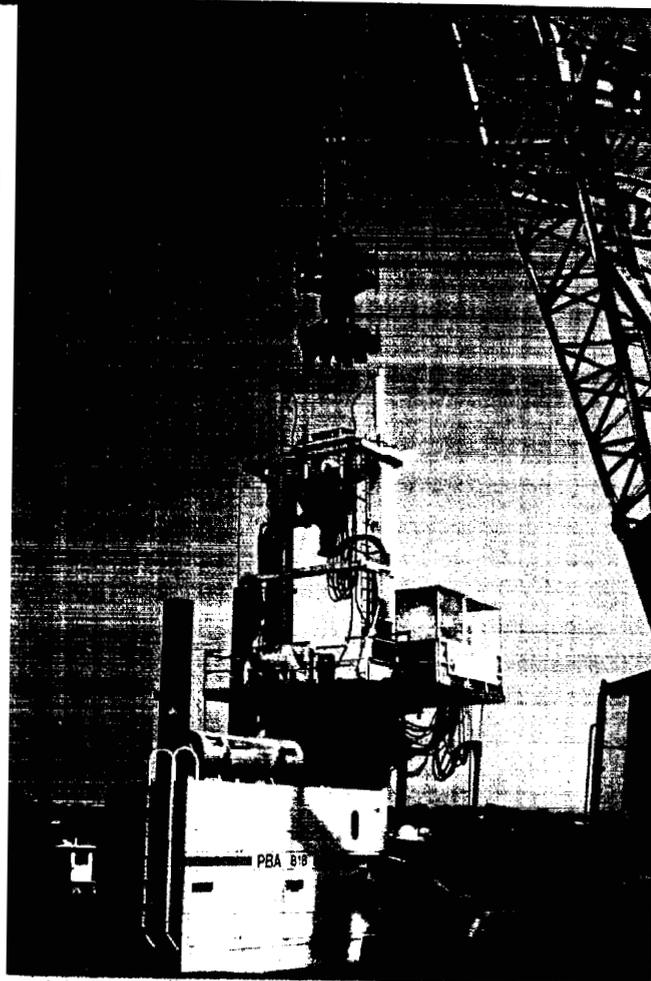
ECO 16

ECO 18

ECO 22

ECO 35

ECO 40



For over a century, WIRTH has been a reliable source for equipment, technical solutions, and engineering resources. WIRTH is also regarded as an expert in the technology of reverse circulation drilling.

American Commercial, Incorporated, the exclusive representative for WIRTH in North America, is proud to partner with WIRTH for foundation and civil projects. Parts and service are available from various locations in North America, and we have several Pile Top and ECO drill rigs currently operating in the United States.

We have what it takes to ensure your success.

**Call AGI to speak to one of our project specialists.
We are available to serve you 24 hours a day.**



**AMERICAN
COMMERCIAL**
INCORPORATED

Exclusive Representative for
WIRTH in North America

276.466.2743
www.americancommercial.com

Mike Ferko and Sales and Technical Co-ordinator Denise Campbell, both of whom have more than 16 years experience in the American piling industry. Both previously worked with Star Iron Works where Mike was manager of construction line products.

ADSC Associate Member, DRILLGEAR, was established in 1999 by Houston-based Business Development Manager Michael Meldrum. The company is a leading supplier of piling and micropiling products, and drill pipe, tubulars and equipment to non-oil horizontal directional drilling markets worldwide. DRILLGEAR's 70-acre manufacturing base in Houston, Texas, includes the latest computer numerically controlled threaders, saw lines, analytical and measuring equipment in climate-controlled buildings for optimum control and repeatability. It also provides full

inventory services for clients.

John Lawrie Group Managing Director Vic Sinclair said: "We are expanding our presence in the USA domestic construction market. The growth of the DRILLGEAR team in Pennsylvania is part of a long term commitment to expand and diversify our US business. The Northeast is a key market for piling and micropiling and both Mike and Denise bring years of relevant experience to our operations."

Mike Ferko said: "I am looking forward to the new challenge of growing DRILLGEAR's share in the important USA East Coast construction market. DRILLGEAR has made a big commitment to the USA market as well as expanding its exports internationally to construction projects in Europe, and the Middle and Far East.

Mike Ferko and Denise Campbell can be contacted at: DRILLGEAR

USA, 121 North Findley Street, Suite A, Punxsutawney, Pennsylvania 15767, phone 877/938-9832 (toll free).

New Design-Build Resource Library Catalog Now Available

The Foundation for Integrated Services (formerly Design Build Education and Research Foundation) and the Design-Build Institute of America recently published their 2003-2004 edition of the *Design-Build and Integrated Services Resource Library*. The catalog of publications is the complete listing of all materials, guides, contracts, and books for purchase from the Design-Build Institute of America (DBIA). To receive your copy of the Resource Library, contact

(continued on page 62)

PIRADRILL

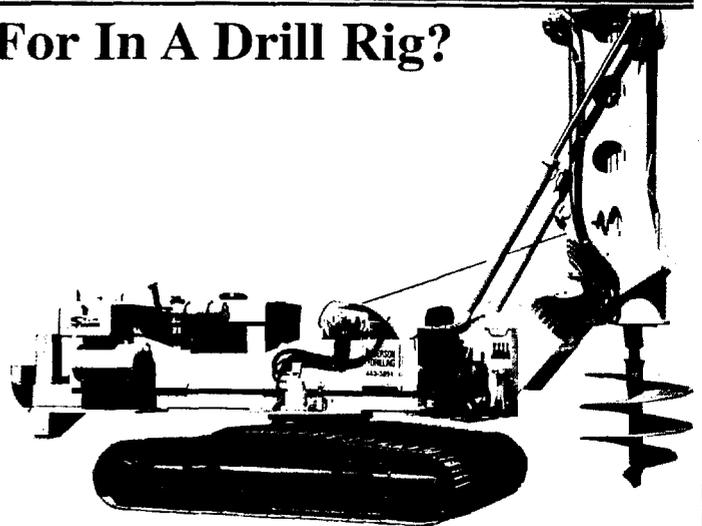
Celebrating our 21st year

What Are You Looking For In A Drill Rig?

- Torque to 108,000 ft lbs
- Depths to 120'
- Diameters to 8'
- Joy Stick Controlled
- Operator Friendly



Truck Mounted

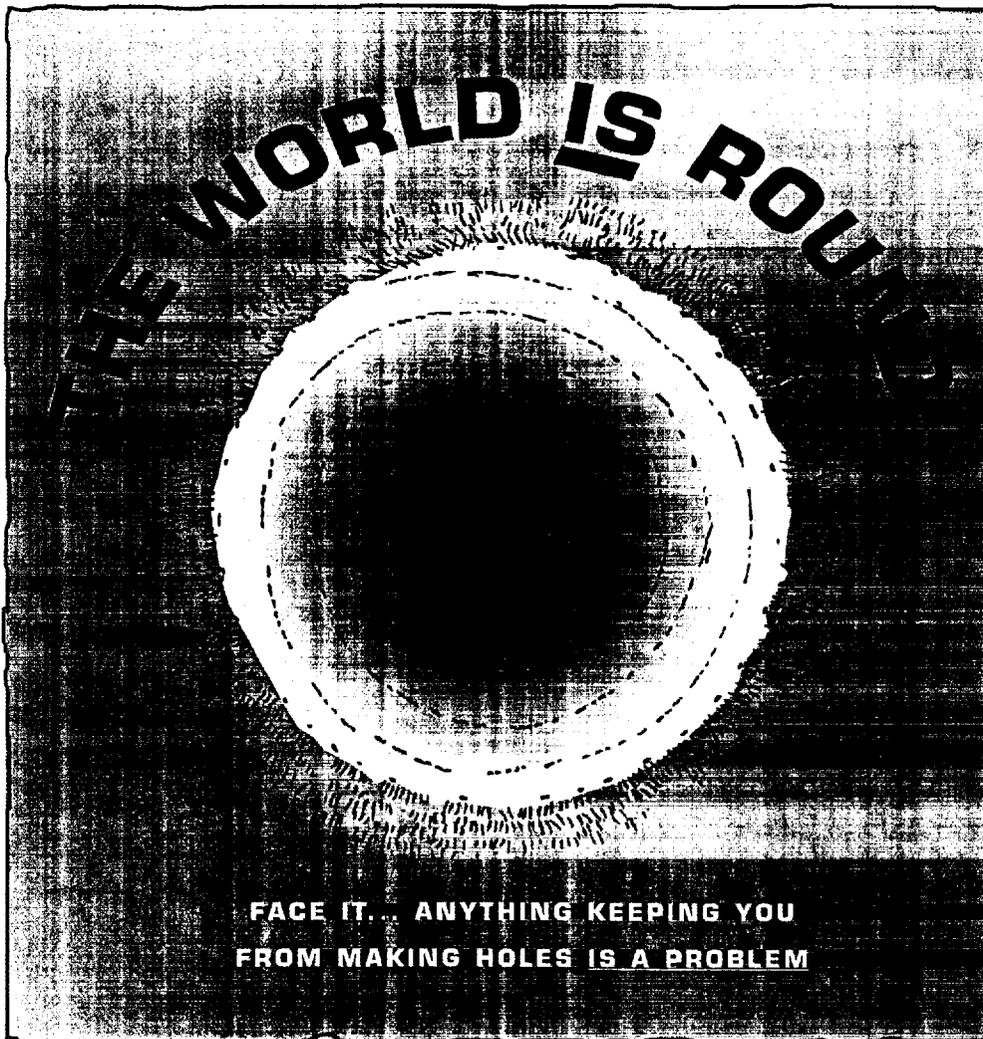


Crawler Mounted

Spiradrill Builds It!

800-380-0133

View additional units & specifications online @ Spiradrill.net



To provide you with the best drilling tools in the "whole round world", Champion has the team:

Experienced Engineers and Geologists who understand your problems.

Technical Expertise to design the tools to suit your particular needs.

Manufacturing resources and know-how to produce the right tools quickly and at a competitive price.

Extensive worldwide experience.

Continuous innovation since 1965.

CHAMPION

Champion Equipment Co.

8140 Rosecrans Ave.

Paramount, CA 90723

Tel: 562-634-8180

Fax: 562-634-1350

www.champion-equipment.com

DBIA at 202/682-0110.

Hammer & Steel Purchases Delmag Drilling Fleet

A major supplier of piling and pile driving equipment throughout the Midwest, ADSC National Associate Member, Hammer & Steel, Inc. recently purchased a new fleet of DELMAG drilling rigs at its St. Louis, Missouri site. The first purchase for Hammer & Steel's newly formed Drilling Division, the DELMAG line-up includes track-mounted machines ranging from 90,000 ft-lb to 190,000 ft-lb of torque.

Hammer & Steel expands its equipment offering with the addition of DELMAG drilling rigs. These new-model rigs are built with high-performance features. These drilling rigs employ smooth-action hydraulic controls, hydraulic mast-mounted winches (crowd/extraction, Kelly and Auxiliary) and a hydraulic Rotary head, which provides low-maintenance operation.

The rigs are mounted on Caterpillar carriers with enhanced undercarriage design and slide-bar track extension. The smart cab layout maximizes the operator's line of sight for added safety on the job, while offering many push-button functions such as fold down/set up for transport.

Available for rental and/or sale, Hammer & Steel offers these dependable drilling rigs, as well as the available tooling and accessories, for shipment to customers throughout North America. For more information contact Hammer & Steel, Inc., 11916 Missouri Bottom Rd., Hazelton, Missouri 63402-2312, 1-800-325-7453.

ADSC



ADSC Presents the Mid Atlantic Chapter Drilled Shaft Seminar

Turf Valley Resort,
Ellicott City, Maryland
November 19, 2003

Drilled Shaft – Design Considerations

Dr. Dan Brown, Auburn University

- LRFD and its Impact on Drilled Shaft Design
- Seismic Considerations
- Load Testing

Local Design Practice

Henry Lucas, ECS Ltd., Chantilly, Virginia

- Skin Friction and Bearing Capacity
- Test Boring/Geotechnical Evaluation
- Geotechnical Engineer/Structural (design) Engineer Interface
- Inspection

Self Compacting Concrete and Concrete Placing Issues

Dr. Dan Brown, Auburn University

FHWA Updates and Concerns

Silas Nichols, FHWA, Baltimore, Maryland

Panel Discussion

Moderator Ted Ledgard, ADSC

- Specifications – *Rick Windham, Dominion Caisson*
- Claims Avoidance – *Jim Cabill, Case Foundation*
- Payment for Rock and Obstructions – *Mike Kollar, Atlantic Caisson*
- Inspection – *Bill Maher, McKinnon Drilling Company*

For registration contact Cindy Colao at
ADSC at 214/343-2091

Drilled Shaft

A Solution You Didn't Know Existed...

Drain Great. Your permanent weep drain solution.

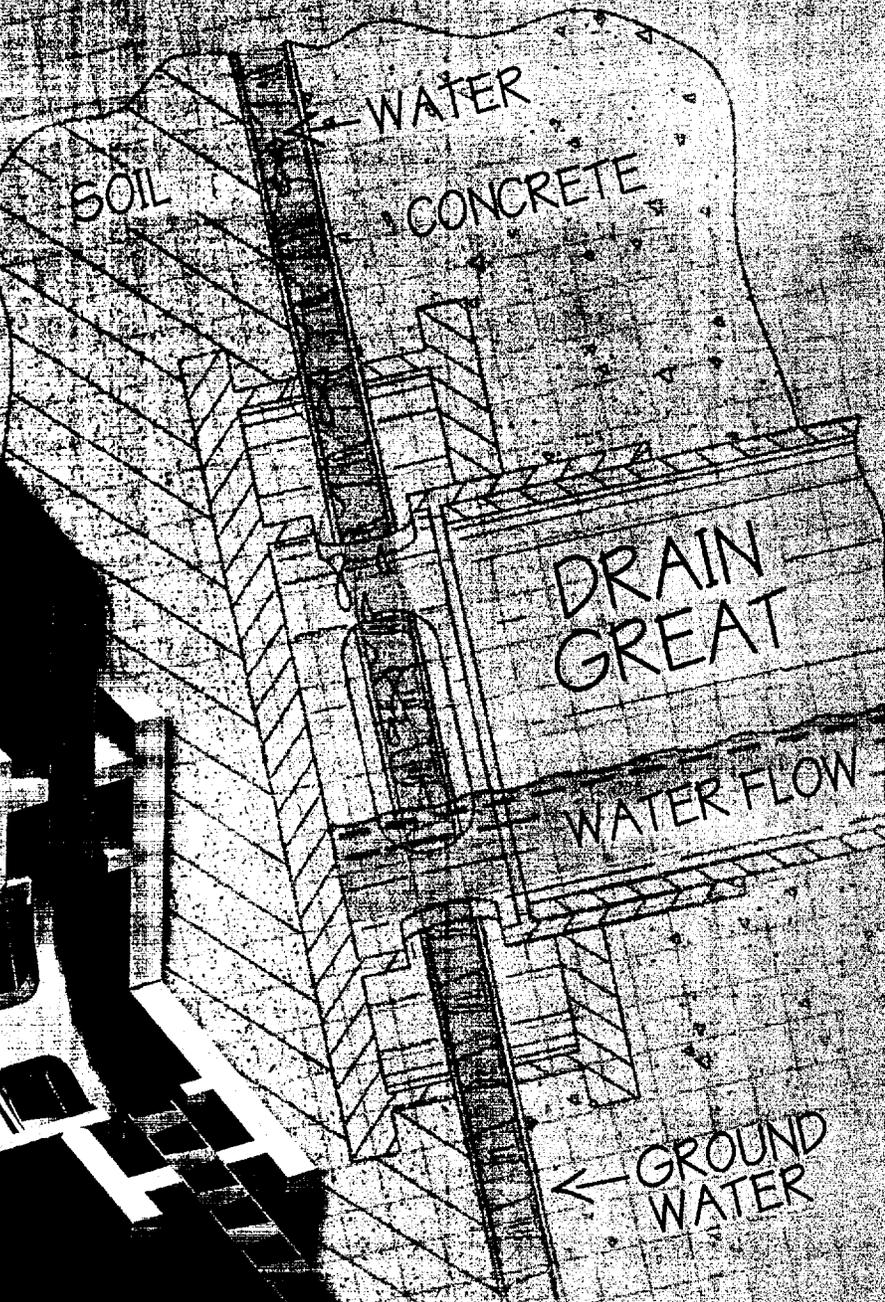
Easily installed in minutes, Drain Great can be firmly attached to drain board providing a permanent, reliable weep drain system – **no slippage, no duct tape, and no guesswork.** And it works with any type of drain board.

Drain Great meets the requirements for "drain grates" as specified in the "Manual for Design & Construction Monitoring of Soil Nail Walls", Publication No. FHWA-SA-96-069, November 1996.

Lightweight and strong, Drain Great is made of PVC. Its unique design increases the perimeter drainage area, allowing it to discharge water at a much greater rate than a simple pipe connected to the drain board. Drain Great attaches to a standard, 75mm diameter PVC drain pipe to extend through the face.

Drain Great.
Your permanent weep
drain system solution.

Drain Great meets all specifications for weep drains for use in highway construction as specified by the Federal Highway Works Administration.



DrainGreat™

For more information on the Drain Great system and to download specs on the product please visit www.DrainGreat.com or e-mail questions to Info@DrainGreat.com.

864-627-7751

Patent Pending

Reader Service #0750

**Brian C. Dorwart Joins
Haley & Aldrich
as Vice President**

ADSC Technical Affiliate Member, Haley & Aldrich, a national underground engineering and environmental consulting firm, is pleased to announce that Brian C. Dorwart, P.E., P.G., has joined the firm's Manchester, New Hampshire office.

Dorwart brings more than 23 years of professional experience specializing in instrumentation, directional drilling, soil and rock anchors, drilled piles, and construction support services. His work includes site developments, industrial building foundations, tunnels, dams, and highways. He is responsible for subsurface explorations, foundation design and construction recommendations, cost evaluations, and construction monitoring. Dorwart has worked on over 30 directional bores to mitigate damage to environmentally sensitive areas including outfalls under sensitive coral reefs and crossing the Intracoastal Waterway in

southern Florida, water intake pipes under landslides and sensitive sea coast environments in Washington State, and a crossing under Boston Harbor.

Haley & Aldrich has a 450-person staff of geotechnical engineers, environmental scientists, geologists, and support personnel. Headquartered in Boston, Massachusetts, the firm serves private and public clients throughout the United States and internationally, and is currently ranked #115 in the *Engineering News Record* Top 500 U.S. Design Firms.

**Tor Truck Announces
Cusenza's Retirement**

ADSC National Associate Member, Tor Truck, headquartered in Mississauga, Ontario, Canada announced in July 2003 that Frank Cusenza had retired and Pierre Bernard had been appointed the new President. We welcome Mr. Bernard to the ADSC, but we are very sad that Frank and his lovely wife, Inez, will not be

attending our meetings any longer. Frank had been involved in ADSC activities since 1986 when they joined the association. Frank was Tor's representative for ADSC and took his job very seriously. He and Inez attended almost all Annual and Summer Meetings and supported the ADSC in all its endeavors.

We'll miss you, Frank and Inez. Have fun in your retirement.



Frank & Inez Cusenza.

**Schnabel Engineering, Inc.
Promotes Jeffrey Sewell**

Jeffrey Sewell has more than eight years of experience in geotechnical engineering, and materials testing and inspection services. He has a Bachelors degree from Virginia Tech (1995) and a Masters degree in Geotechnical Engineering from University of Maryland (2003). Jeff manages the Geotechnical Department of Schnabel's Baltimore, Maryland office.

Mr. Sewell has design and construction experience in shallow and deep foundation design, slope stability analysis, anchored sheet wall design, ground anchors, pavement design, construction materials, and stormwater management.

Jeff Sewell can be reached in the Baltimore, Maryland office at (410) 944-6170 to discuss how Schnabel Engineering can serve your needs.

ADSC Technical Affiliate Member, Schnabel Engineering Inc., offers specialty Geotechnical, Environmental, Water Resource, Geoscience and Construction Monitoring Services. Find them at: www.schnabel-eng.com.

(continued on page 66)

WANTED

Rock Drilling Bits

\$ BUY • SELL • RENT \$

We buy bits

Carbide Buttons Replaced

**Fax Your Surplus List
of Bits & Hammers
to 908 996-7211**

ERRICKSON EQUIPMENT, INC.

Phone 908 996-2200

REEDRILL TEXOMA® BRAND AUGER DRILLS

"We attribute our success to skilled people and quality equipment."

Pat Patureau
President, Auger Services Inc.
Prairieville, LA



www.reeddrill.com/auger

"After 12 years as a satisfied Reedrill customer, we particularly like the new 650 and its dry bar-design. With the 650, there's less concern for oil leakage, which lets us work in chemical and petroleum plants much easier.

"In Louisiana we often encounter ground water while drilling, so we use the slurry method to stabilize the shaft. The Texoma 650 is excellent for slurry drilling. The outrigger design makes it stable. Drilling operations are quick, and that equates to money.

"For a drilling contractor uptime is the key to profitability, so durable equipment like Reedrill's is mandatory with us. Quality service is also critical. Reedrill provides the highest level of service and support, and has consistently met our requirements for custom auger tool designs that have reduced our production time and added to our bottom line.

"Our company has grown tremendously in 12 short years, and that's due to skilled employees ... and to Reedrill products and service."

Says Auger Services Superintendent Terry Ramey:

"Reedrill equipment is a favorite of mine. They are very versatile drills. Our new Texoma 650, with the dry-bar telescopic kelly system, is by far the best design, because it results in more drilling depth with a shorter overhead working height. The joystick controls are easier and simpler to operate. Basically, the 650 is an all-around great machine."

 **REEDRILL**
The equipment—and the people—you trust



a Metso Minerals company
P.O. Box 998 Sherman, Texas 75091-0998
Phone: 903-786-2981 • Fax: 903-786-6405
www.reedrill.com/auger

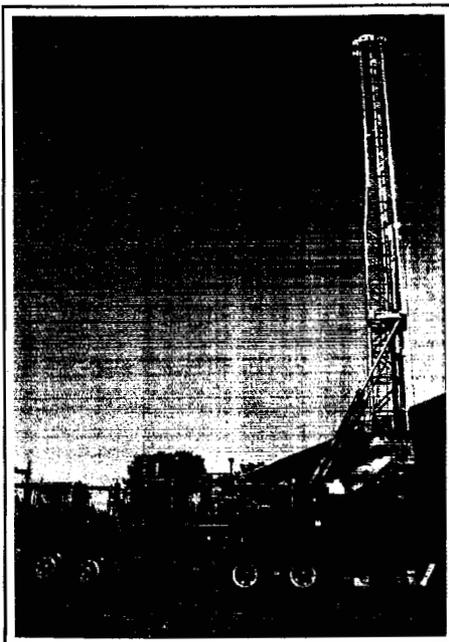
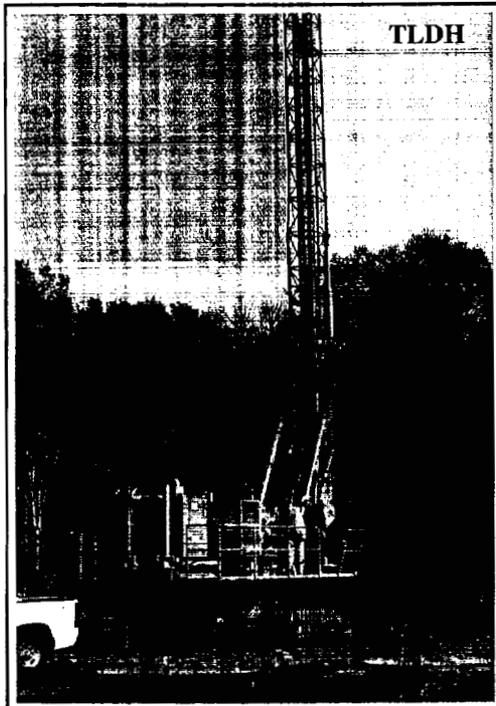
atlantic equipment company inc.

Manufacturer of a full line of crawler and truck mounted foundation drilling machines

DIGGER MODELS:

- Hydra-Digger
- Drill Sergeant - Track or Truck
- LDH - Track or Truck
- LLDH - Track or Truck

We also produce and stock a large inventory of parts for early Hugh B. Williams and Hughes Diggers.



We offer a complete line of drilled shaft tools:

Core Barrels
Muck Buckets
Rock Augers
Earth Augers
Under Reamers
Drilling Buckets

Every Tool Built
To
YOUR
Specifications



273 Lakeview Drive
P.O. Box 488
Woodstock Virginia 22664
Phone: 540/459-5309 • Fax: 540/459-3071
Email: accdrill@shentel.net



PEOPLE WATCH Contd.

Anderson's Wayne Connolly Passes

Wayne Connolly, Anderson Drilling's Southwest Area Manager in Las Vegas, died in a tragic accident that took his life and those of three of his grandchildren. The plane that Wayne was piloting crashed shortly after takeoff after refueling in Blanding, Utah on his way to their home in Denver, Colorado. The accident occurred on Saturday, July 26, 2003.

Wayne joined Anderson Drilling in January 1997 as their Las Vegas area manager. With over 30 years of industry experience, including estimating, project management and administration, Wayne was the ideal person to man the "one person" office in Las Vegas. He was directly responsible for developing Anderson's expanded presence in that market, and recently assumed the responsibility of covering the Arizona market as well.

Wayne was a loyal and dedicated employee who could always be counted on to do whatever was needed to complete the project at hand. His flexibility made it possible for him to wear many hats, never miss a beat and tackle any project with a "can do" attitude. He was an important contributor to Strategic Planning efforts, and was able to draw from his vast experience to offer meaningful insights.

In addition to being an experienced pilot, Wayne was also an avid motorcycle rider, even teaching motorcycle safety classes.

ADSC wishes to express its condolences to the Connolly Family as well as the Anderson Drilling Company family.



BREAKING GROUND WITH YOU.

At Boulderscape we're here to advance you into the future with the latest technology of retaining wall solutions. For over 15 years we've provided a complete range of hand sculpted rock finishes over shale, granite and sandstone shotcrete finishes.

If you are considering a fresh approach for your next project, consider us to be your perfect partner. We're here to lead your organization to the highest level in retaining wall systems.

Offering worldwide solutions and support.

To receive an information packet please call:

1 (866) 441-2323



BOULDERSCAPE™
A Professional Rockscape Corporation

(949) 661-5087
www.boulderscape.com

Our sculpted finishes can be applied over most retaining wall systems:
SOIL NAIL WALLS, TIEBACK WALLS, SOLDIER PILE WALLS, SHEET PILE WALLS, LAGGING WALLS, CAST-IN-PLACE WALLS.

Do You Like What You Hear?

ADSC has received rave reviews about its new telephone marketing system. Your company can benefit from getting your message out to your clients through this interesting and entertaining concept. (for a sample, call ADSC at 214-343-2091 and ask to be put on-hold.)

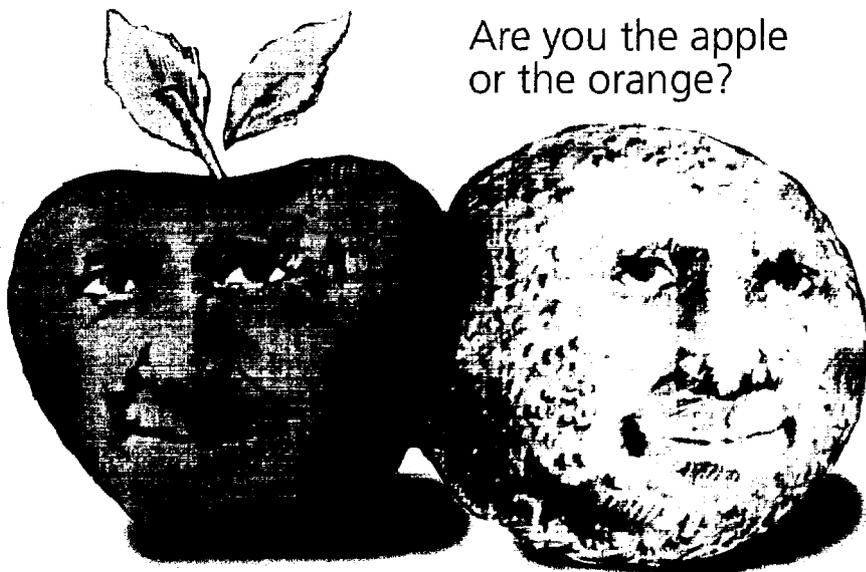
Call Bruce or Jan at 214-752-7754

Call-Hold Marketing!

It was about 15 years ago, we were just getting started. You know how it is. We do stuff, layouts, concepts for everyone but ourselves! Anyway, our art director at the time said, "You want what? Apples and oranges? We're not in the fruit business!" I answered, "Just do it, please, and add personality because apples and oranges relates to people. It's us versus them, it's our client versus the competition...it'll work!"

And you know what? It did. 15 years later, it's still a good idea, the concept and the characters. Find out how Call-Hold Marketing! can help YOUR CLIENTS in a special image oriented way.

Think about it and then let's talk at 214-752-7754.

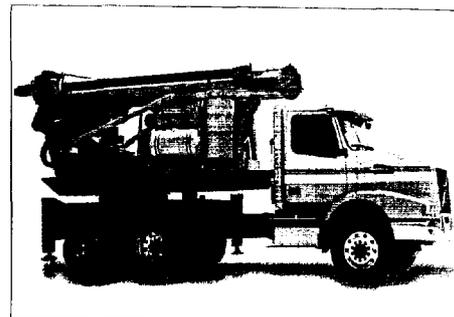


Are you the apple
or the orange?

www.colliercom.com

NEW PRODUCT

Watson Introduces Short Mast Configuration on Model 1100



ADSC Associate Member, Watson, Inc., based in Fort Worth, Texas, has introduced the Model 1100 with a short mast configuration. This drill rig (pressure digger) was developed with the help of utility contractors to meet their unique needs in the field. The working mast height is 25' enabling it to work under energized lines with a drilling depth to 30' and drilling diameters to 66". The Model 1100 also incorporates a "dry bar" design so it helps eliminate the environmental concerns of a "leaky bar." This model is available both truck mounted and crawler mounted.

Watson, Inc. has designed and built foundation drilling equipment for more than 50 years that is ruggedly constructed to provide years of field duty and maintain a high resale value. The product range includes self-erecting crawler based units, truck/carrier mounted drill units, excavator-based drill attachments and crane attachments for drilling depths in excess of 120 feet. For additional information contact John Monroe at:

Watson, Inc.
4015 South Freeway
Fort Worth, Texas 76110
817-927-8486
Fax 817-927-8716

www.watsonusa.com
sales@watsonusa.com

CALENDAR

GEO-Industry Events

October 20-24, 2003 The Southeastern Transportation Geotechnical Engineering Conference (STGEC) will be held at the Embassy Suites Hotel Airport Convention Center in North Charleston, South Carolina. ADSC's Southeast Chapter will support the meeting by providing an exhibit booth and hospitality.

October 22-24, 2003 The Deep Foundations Institute will hold its 2003 Annual Conference on Deep Foundations with the title "Deep Foundations in Compressible Soil and Soft Rock." It will be held at the Eden Roc Resort & Spa in Miami Beach, Florida. Contact DFI at 201/567-4232 or via email at dfihq@dfi.org.

October 29-31, 2003 The Central Pennsylvania Section of ASCE and PennDOT are sponsoring their 20th Geotechnical Conference at the Hershey Lodge and Convention Center in Hershey, Pennsylvania. For information, contact Cari Beenega at 717/763-7211 or visit the website at <http://www.TowerEng.com.ASCEPA2003.htm>.

November 12-15, 2003 ASCE's Civil Engineering Conference & Exposition *Keys to Your Future* will be held at the Gaylord Opryland Resort in Nashville, Tennessee. The program will focus on current issues in Professional Qualifications, Leadership & Management, Application of New Technology, and Infrastructure, and in selected technical topics. To register, contact ASCE at 800/548-2723.

November 13-14, 2003 ASCE's Continuing Education Department is offering a *Deep Foundations: Design, Construction & Quality Control* course in Houston, Texas at the Doubletree Allen Center Hotel. The course will be repeated in Honolulu, Hawaii on March 18-19, 2004 at the Ohau East Hotel. For information on either course, contact ASCE at 800/548-2723.

November 19-20, 2003 The University of Wisconsin-Madison, Department of Engineering Professional Development will offer a new short course, *Geosynthetics for Beginners* in Las Vegas, Nevada. Contact Professor Wortley at 608/262-0577 for details.

December 3-5, 2003 A technical short course, *Effective Bridge Rehabilitation* will be offered by the University of Wisconsin-Madison, Department of Engineering Professional Development. It will be conducted in Madison, Wisconsin. For more information call Professor Wortley at 608/262-0577.

April 11-17, 2003 The Fifth International Conference on Case Histories in Geotechnical Engineering will be sponsored by the Civil Engineering Department at the University of Missouri-Rolla and the Natural Hazard Mitigation Institute. It will be held in New York City's Hotel Pennsylvania. For more information, call Dr. Prakash at 800/223-8585.

July 7-9, 2004 The Geo-Institute of ASCE will host *Geo-Trans 2004*, the Geo-Institute Conference on Geotechnical Engineering for Transportation Projects, on the campus of UCLA, Los Angeles, California. For more information, contact ASCE's Conference Department at 703/295-6350.

November 14-17, 2004 The Second International Conference on Scour and Erosion will be held in Singapore. This conference follows the successful First International Conference on Scour and Foundation held in November 2002 in College Station, Texas. For complete details about the Call for Papers and registration, go to: <http://www.ICSE2004.org>.

Future ADSC Meetings, Seminars and Conferences

November 2-8, 2003 ADSC's *Anchor and Micropile Installation School (AMPIS)* will be held at the Guilford Technological Community College in Greensboro, North Carolina. Call Cindy Colao at the ADSC office for registration details or visit our website at www.adsc-iafd.com

November 19, 2003 ADSC will conduct a one-day *Drilled Shaft Design for Constructibility Seminar* in the Baltimore, Maryland area. Dr. Dan Brown, Auburn University, will be lead presenter. For more information, visit the ADSC website at adsc@adsc-iafd.com, or call Cindy Colao at 214/343-2091.

The ADSC and the Geo-Institute of ASCE will present *Geo-Support 2004: The International Conference and Exposition on Cooperation and Innovation in the Geo-Industries*. For more information, contact the ADSC office or visit the web site at www.geo-support2004.com.

April 28-May 1, 2004 ADSC's *Spring Board of Directors Meeting* at the Harvey DFW Hotel, Dallas, Texas. Contact Lori-Schirpke-Jordan or Susan King at the ADSC office, 214/343-2091.

May 6-7, 2004 The next *ADSC Geo-Support Seminar* is scheduled for Denver, Colorado. Contact Cindy Colao at 214/343-2091 for details.

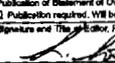
July 28-31, 2004 ADSC's *Summer Meeting* is scheduled for the Coeur d'Alene Resort in Idaho. Contact Lori Schirpke-Jordan at the ADSC office for more information.

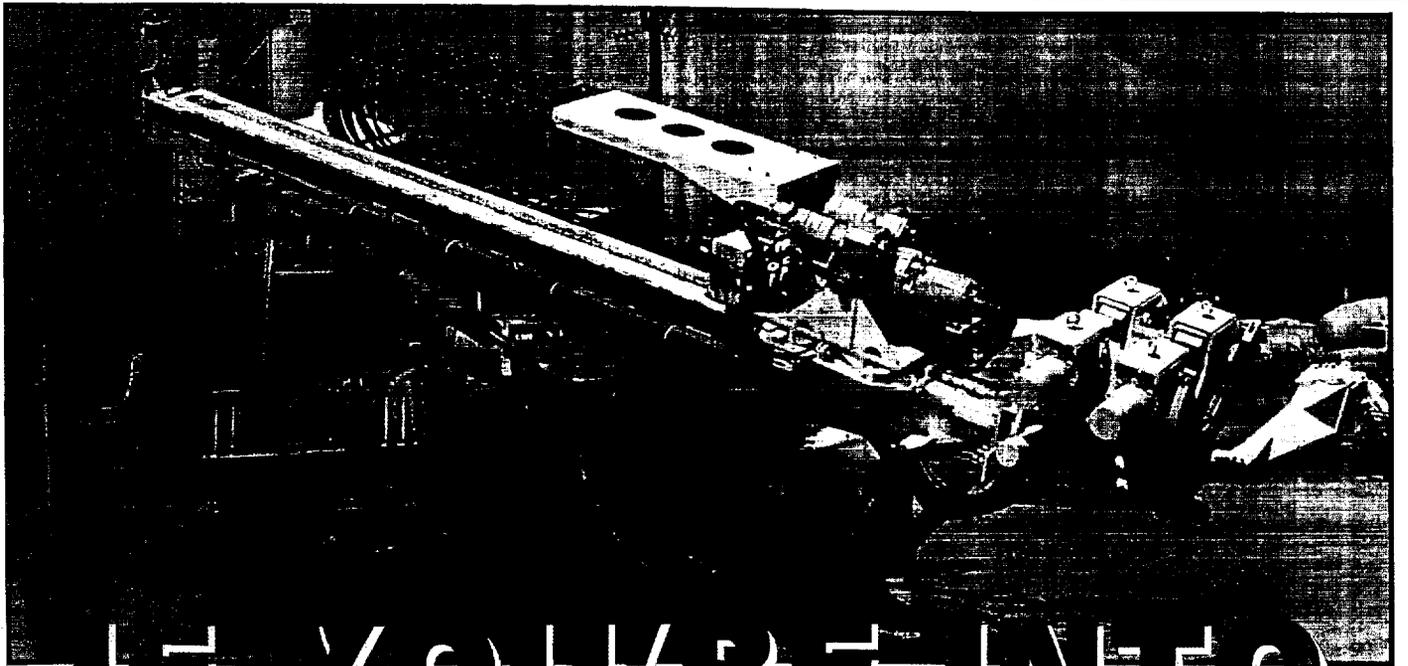
February 2-5, 2005 ADSC's *Annual Meeting* will be held in San Diego, California at the Paradise Point Resort & Spa. Lori Schirpke-Jordan can provide additional information by contacting her at the ADSC office.

ADVERTISERS INDEX

Advertiser	Page Number	Reader Service Number	Advertiser	Page Number	Reader Service Number
ABI, Inc.-Delmag	41	0701	Ischebeck	11	0726
American Commercial/Wirth	59	0702	Kelly/Peterson	33	0727
American Equipment	2	0703	Keystone Drill Services	5	0728
APE, Inc.	57	0704	Lang Tendons	40	0729
Atlantic Equipment	66	0705	Liebherr Crane	53	0730
Bauer-Klemm	43	0706	Marden Industries, Inc.	50	0731
Bay Shore Systems	21	0707	MAIT	9	0732
Boulderscape	67	0708	MIRK	36	0733
Center Rock	30	0709	NUMA	39	0734
CETCO	29	0710	Olson Engineering	58	0735
Champion Equipment	61	0711	Pengo	32	0736
Con-Tech Systems	35	0712	Pile Dynamics	42	0737
Copeland International	56	0713	Pullmaster Winch	45	0738
DSI	27	0714	Raughley Pipe	38	0739
Davey Drill	34	0715	Reeddrill	65	0740
Drilling Technique Ltd.	47,49,51	0716	Sinclair Well Products	46	0741
Equipment Corp of America	26	0717	Spiradrill	60	0742
Errickson Equipment	64	0718	Star Iron Works	37	0743
Foundation Technologies	48	0719	TEI Rock Drills	54	0744
Frichtl Steel	10	0720	TREVIICOS	16	0745
Richard Goettle, Inc.	20	0721	WFJ Drilling Tools	7	0746
Hayward/Baker	19	0722	Watson, Inc.	18/72	0747/0748
Hennessy	28	0723	Williams Form Engr.	6	0749
I.C.E.	71	0724	Wurster Eng. (Drain Great)	63	0750
Illini Drilled Foundations	44	0725			

United States Postal Service Statement of Ownership, Management, and Circulation		
1. Publication Title FOUNDATION DRILLING	2. Publication Number 0 2 7 4 - 5 1 8 6	3. Filing Date September 23, 2003
4. Issue Frequency Eight times per year: Dec/Jan; Feb; Mar/Apr; May; June/July; Aug; Sept/Oct; Nov Issues	5. Number of Issues Published Annually Right (8)	6. Annual Subscription Price \$75.00
7. Complete Mailing Address of Known Office of Publication (Not printer) (Street, city, county, state, and ZIP+4) 9696 Skillman, Suite 280 Dallas, TX 75243-8254		Contact Person Teri Drees Telephone 214/343-2091
8. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not printer) P.O. Box 550339 Dallas, TX 75355-0339		
9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (Do not leave blank) Publisher (Name and complete mailing address) Association of Drilled Shaft Contractors, Inc. (ADSC) P.O. Box 550339-0339 Dallas, TX 75355-0339 Editor (Name and complete mailing address) S. Scot Litke, Editor P.O. Box 550339 Dallas, TX 75355-0339 Managing Editor (Name and complete mailing address) Teri Drees, Managing Editor P.O. Box 550339 Dallas, TX 75355-0339		
10. Owner (Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give its name and address as well as those of each individual owner. If the publication is published by a nonprofit organization, give its name and address.) Full Name Association of Drilled Shaft Contractors, Inc. (ADSC) Complete Mailing Address P.O. Box 550339 Dallas, TX 75355-0339		
11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box <input checked="" type="checkbox"/> None Full Name Complete Mailing Address		
12. Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rates) (Check one) The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes: <input checked="" type="checkbox"/> Has Not Changed During Preceding 12 Months <input type="checkbox"/> Has Changed During Preceding 12 Months (Publisher must submit explanation of change with this statement)		

13. Publication Title FOUNDATION DRILLING	14. Issue Date for Circulation Data Below AUGUST 2003	
15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies (Net press run)	2215	2200
b. Paid and/or Requested Circulation		
(1) Paid (Requested Outside-County Mail Subscriptions Stated on Form 3541, include advertiser's proof and exchange copies)	1722	1694
(2) Paid In-County Subscriptions Stated on Form 3541 (include advertiser's proof and exchange copies)	21	22
(3) Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Non-USPS Paid Distribution	0	0
(4) Other Classes Mailed Through the USPS	160	159
c. Total Paid and/or Requested Circulation (Sum of 15b (1), (2), (3), and (4))	1903	1875
d. Free Distribution by Mail (Carriers or other means)		
(1) Outside-County as Stated on Form 3541	0	0
(2) In-County as Stated on Form 3541	0	0
(3) Other Classes Mailed Through the USPS	60	52
e. Free Distribution Outside the Mail (Carriers or other means)	200	240
f. Total Free Distribution (Sum of 15d (1), (2), (3), and (4))	260	292
g. Total Distribution (Sum of 15c and 15f)	2163	2167
h. Copies not Distributed	52	33
i. Total (Sum of 15g and 15h)	2215	2200
j. Percent Paid and/or Requested Circulation (15c divided by 15g times 100)	87.97	86.52
16. Publication of Statement of Ownership <input checked="" type="checkbox"/> Publication required. Will be printed in the Sept/Oct 2003 issue of this publication. <input type="checkbox"/> Publication not required.		
17. Signature and Title of Editor, Publisher, Business Manager, or Owner  S. Scot Litke, Editor Date September 23, 2003		
I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).		
Instructions to Publishers		
1. Complete and file one copy of this form with your postmaster annually on or before October 1. Keep a copy of the completed form for your records.		
2. In cases where the stockholder or security holder is a trustee, include in items 10 and 11 the name of the person or corporation for whom the trustee is acting. Also include the names and addresses of individuals who are stockholders who own or hold 1 percent or more of the total amount of bonds, mortgages, or other securities of the publishing corporation. In item 11, if none, check the box. Use blank sheets if more space is required.		
3. Be sure to furnish all circulation information called for in item 15. Free circulation must be shown in item 15d, e, and f.		
4. Item 15h. Copies not Distributed, must include (1) newspaper copies originally stated on Form 3541, and returned to the publisher, (2) unsold returns from news agents, and (3) copies for office use, leftovers, spoiled, and all other copies not distributed.		
5. If the publication had Periodicals authorization as a general or requester publication, this Statement of Ownership, Management, and Circulation must be published; it must be printed in any issue in October or, if the publication is not published during October, the first issue printed after October.		
6. In item 16, indicate the date of the issue in which this Statement of Ownership will be published. Item 17 must be signed. Failure to file or publish a statement of ownership may lead to suspension of Periodicals authorization.		
PS Form 3526, October 1999 (Reverse)		



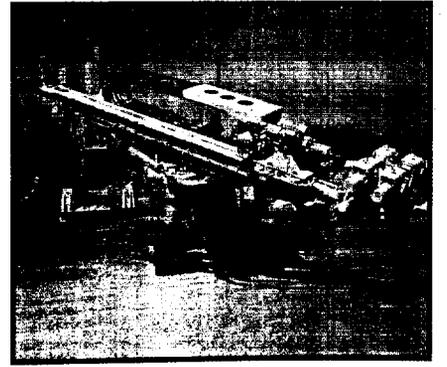
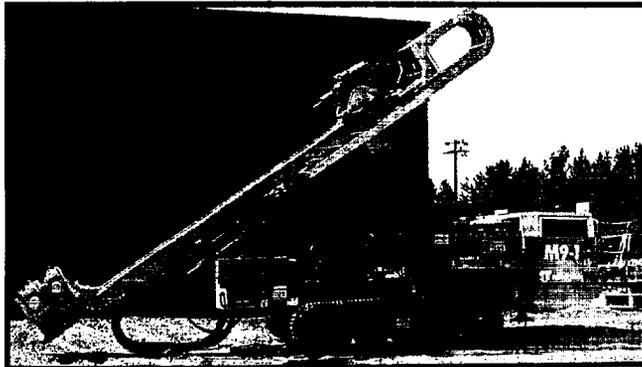
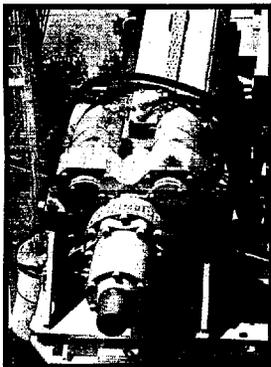
IF YOU'RE INTO PERCUSSION . . .

If top percussion is your technique of choice, consider a specially equipped Casagrande M9-1. Add the KRUPP HB60 Rotary Percussion head to a brand new M9-1 and you've got a hydraulic crawler drill that cuts through.

B125, B250, C800, and the Rotary Percussion Head is just one of many different attachments and accessories the Casagrande/ICE team can provide to meet your job requirements.

Of course, the M9-1 is just one of the many Casagrande hydraulic drilling and piling rigs ICE distributes and supports throughout North America, including the M6A-1, C8, C6,

ICE also has the largest fleet of rental units in the industry. Call us for availability.



**INTERNATIONAL
CONSTRUCTION
EQUIPMENT, INC.**

www.iceusa.com

301 Warehouse Drive
Mathews, NC 28104
Phones: 888 ICEUSA1
& 704 821-8200
Fax: 704 821-8201
e-mail: info@iceusa.com

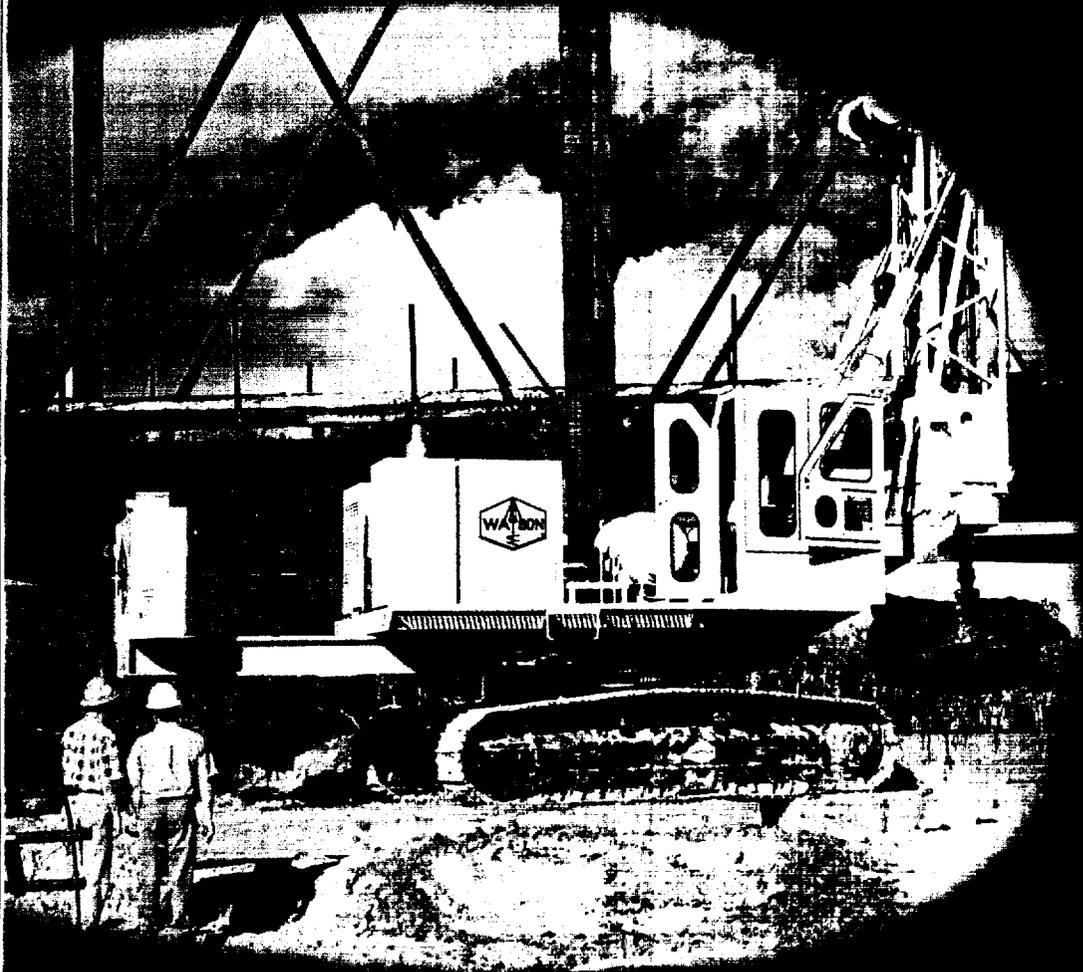


casagrande

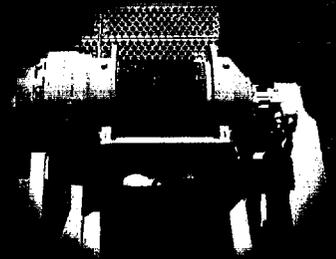
Mathews NC • Lakeland FL • Metairie LA • Seattle WA • New Town Square PA • Sayreville NJ • Houston TX
Ft. Wayne IN • Virginia Beach VA • Boston MA • Montreal Quebec • Singapore • Kuala Lumpur • Hong Kong • Holland

RELIABLE, VERSATILE AND ONE-LOAD TRANSPORT!

The Model 3110 Eagle, available truck or crawler mounted, is designed for production drilling of large diameter shafts in all types of materials. This rig comes ready to work with power in reserve for the most demanding conditions.



Watson 3110 Eagle



Hydraulic Winches



Pilot and Joystick Controls
Load-Sensing Hydraulics



Transports in One Load

Made in America...
Best in the World



Watson, Inc.
4015 S. Freeway
Fort Worth, Texas 76110
817-927-8486
FAX 817-927-8716
sales@watsonusa.com



watsonusa.com