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INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH



NEW INTERNATIONAL DISTRIBUTORS

McElroy Manufacturing, Inc., recently announced that three key international organisations have become authorised international distributors for McElroy's pipe fusion products. The three new distributors are Geomembranas Y Geosinteticos S.A. De C.V. of Mexico, Rho-Tech/SKW Industrial Supplies of South Africa and QSI Motor Group of Venezuela.



A McElroy TracStar618 pipe fusion system operating in the field.

"Adding these three organisations as our newest international distributors is an indicator of the growing appeal that McElroy Fusion Equipment garners across the globe, as well as the solid commitment that each of these companies has to our products," said Chip McElroy, president and chief executive officer of McElroy Manufacturing. "There is a real need for premium fusion equipment and solutions that address the needs for increased productivity in wide varieties of rugged field conditions. Infrastructure industries from gas distribution, mining, energy, water and wastewater are all looking for more cost effective solutions that reduce their cost of construction. This is where McElroy thrives."

Geomembranas Y Geosinteticos S.A. De C.V. has a long dealer relationship with McElroy Manufacturing, even hosting regular McElroy University training classes at their facilities in Mexico.

Rho-Tech is based in Durban, South Africa, and services McElroy equipment in Southern Africa, including Zambia, Madagascar, Kenya, Botswana, South Africa and the Democratic Republic of Congo. Dealing primarily in the water and mining industries, Rho-Tech has had a working relationship with McElroy for two years, with a goal of significantly increasing McElroy's fleet of fusion equipment in Africa.

Venezuelan company QSI Motor Group offers technical support and product solutions for construction, water, mining, telecommunications and other industries in South America. QSI Motor Group shares McElroy's passion for customer satisfaction and job productivity through consulting and training. A wide range of McElroy fusion machines are already available through QSI Motor Group. Website: www.mcelroy.com

EDUCATION IN INDIA

In Nagpur, India, according to local press sources, a city-based consultancy firm has joined hands with professionals to start an institute for providing quality education in building construction and cater to the needs of civil engineering and construction industry.

The institute will not only provide training to engineers but also to each and every individual associated with the industry from lawyers, chartered accountants, cost accountants and economics graduates to low-end workers like masons, carpenters, welders, electricians and plumbers.

"The Aryama Institute of Technology (AIT), recognised by the Construction Industry Development Council (CIDC) of the Government of India, will offer a vast range of courses for those in the construction industry and also provide them with a 100% job guarantee," said Rajesh Ghatpande, one of the promoters of the institute.

Initially, five postgraduate diploma courses each of one month's duration will be offered by the institute.

Candidates who have qualified SSC, ITI or CIDC certified courses can apply for admission to the three-year courses for which an entrance exam will be conducted.

A dual degree programme at the postgraduate level will also be offered for engineering graduates. It includes construction management & administration, trenchless technology, project exports, construction risk management & construction and industrial dispute resolution.

Students having graduate or postgraduate degree in Economics are eligible for admission. Website: www.indiaeducation.net/engineering

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INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH



INSITUFORM WINS ADDITIONAL CONTRACTS

Insituform Technologies, Inc. has announced that the company has won two new sewer rehabilitation contracts in Delhi, India, totalling US\$21.1 million.

The work will be performed by Insituform Pipeline Rehabilitation Private Limited, an Indian company and joint venture between Insituform Technologies and Subhash Projects & Marketing Limited (SPML). SPML is one of India's largest water, waste and power infrastructure companies. The joint venture company combines the technical expertise and globally acclaimed cured-in-place pipe (CIPP) technologies of Insituform with the execution and marketing capabilities of SPML.

As part of the plan to spend in excess of US\$1 billion to rehabilitate a sewer system that serves a population of approximately 14 million people, the Delhi Jal Board (DJB) issued letters of intent for the contracts to Insituform's Indian joint venture on 12 September, 2008. Insituform is currently working with DJB on two existing projects valued at US\$35.1 million that previously were awarded to Insituform.

"Insituform has and will continue to make significant operational investments in India to safely and profitably service both our US\$56 million in backlog as well as the many new projects to be released by the DJB and other major Indian municipalities," said Daniel E. Cowan, Vice President, Strategic Business Initiatives for Insituform. "Insituform is also actively working to expand its product offerings in India so that we can participate in a larger portion of each programme."

Combined, the new contracts involve rehabilitating 13,435 m (8.35 miles) of medium- and large-diameter sewer lines with Insituform's cured-in-place pipe (CIPP), along with other trenchless and non-trenchless work. CIPP is a jointless pipe-within-a-pipe used to rehabilitate sewers with virtually no digging. The work will begin in 2009 and is scheduled to be completed within 24 months.

"The recent addition of substantial backlog in New Delhi is part of Insituform's long-term growth strategy for the Asia-Pacific region," said J. Joseph Burgess, Insituform's President and CEO. "Insituform is committed to building a vertically integrated Asian operational platform ready to service the nearly US\$2 billion of funded trenchless projects over the next five years in India and meet the growing trenchless needs of other Asia-Pacific countries."

Insituform has completed its first large-diameter sewer rehabilitation project in India for the New Delhi Municipal Council and has begun work on two other DJB projects scheduled for completion in early 2010.



A typical Insituform CIPP inversion tower.

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AKKERMAN CELEBRATES 35 YEARS

Akkerman Inc. of Brownsdale, USA celebrated its 35 year anniversary and grand opening of its new manufacturing space on 25-26 September, 2008. The event titled 'Akktoberfest' hosted some 150 Akkerman customers and vendors.

Guests first saw the newly expanded facility lead by staff who highlighted significant and historical elements throughout the tour. Next, guests enjoyed food, beverages and music from a polka band in Akkerman's own beer garden. The next day, guests played golf at a local club.

Maynard Akkerman, CEO and Owner, during his address, gave kudos to his mother Marlys Akkerman for her long-time contributions to the business, and his wife, Robin Akkerman for making it possible for him to pursue his dreams. Maynard states "I couldn't be happier with the turnout at the event. I was humbled that so many customers took time out of their schedule to see what we're all about. We maintain that heart of our business comes from the continued faith and loyalty from our customers."

Today, Akkerman sells and leases reliable new and used microtunnelling, pipe jacking, guided boring and earth pressure balance equipment backed up by a responsive service through a team of experienced engineers, field technicians and a large parts department. Website: www.akkerman.com



Maynard Akkerman pays tribute to his mother and wife during the anniversary celebrations.



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CURVED PIPE JACKED DRIVES BRING FLOOD RELIEF TO SIDCUP

On Longlands Road in Sidcup, Kent, UK the basements of some 20 properties are at risk of foul water flooding given the right circumstances. Being in the area of responsibility covered by Thames Water, the properties were originally served by an existing foul sewer that needed to be reconstructed and the network expanded to alleviate this flooding risk. Thames Water decided to establish a project to complete an upgrade of the existing sewer network and to install a storage tank as well as additional manholes and realignment of certain collector flows. The new storage tank was designed with a capacity to handle flows generated by a 30-year return period storm. The project is known as Main Road, Sidcup FWFAS

Re-installation, construction and realignment of the majority of the network flows was to be undertaken by the main contractor appointed for the works, Dean & Dyball, with much of the works being completed in open cut. However, approximately 60 m of auger boring along was required along with the construction of the new storage tank facility to complete the new sewer network. The tank facility required the installation of a completely new 1,800 mm diameter pipeline over a length of some 197.5 m. It was decided that pipe jacking techniques were most suited to this part of the works. This part of the project was sub-contracted to A.E. Yates Trenchless Solutions Ltd (AE Yates TS), a contractor with specialist knowledge of and experience in the application of trenchless technology solutions.



A view along one of the curved Sidcup pipe jacked storage tank drives from the launch cofferdam looking through the shove ring and over the muck skip.

PIPE JACKING WORKS

The ground conditions that were expected to be encountered over the length of the storage tank drives comprised mainly clay with sand veins and some sands and gravels. Having experienced similar ground conditions on other drives over its years in the industry, A.E. Yates TS opted to utilise an open face backacter tunnelling unit for the excavation work. In this instance the company chose to use a 1,800 mm i.d., hydraulic drive Herrenknecht MH3 – Open faced backacter unit.

To utilise this machine A E Yates TS was required to sink an 8 m by 4 m cofferdam (designated as MRS5) from which two drives were to be installed. The first drive was approximately 97.5 m long and included a right hand curve of 375 m radius. The second drive, with a 395 m radius left hand curve was approximately 100 m in length. The pipeline, which was to be jacked into place behind the tunnelling unit, was to comprise Macrete-manufactured 1,800 mm i.d. concrete jacking pipe with 316 stainless steel bands at the joints. Both drives ran at a depth of around 3.5m below road level.

The jacking frame comprised four main hydraulic jacks each with 300 t jacking force capacity, which was manufactured by A E Yates TS using Herrenknecht Rams.



Whilst the installation was not expected to be the most difficult of drives, given the proximity to local residents, prevailing ground conditions and depth, and with both drives being curved, a sophisticated guidance system was required to ensure the drive alignment remained correct. This guidance system was hired for the project from specialist guidance system manufacturer, Germany-based VMT.

The gyro unit is situated behind the tunnelling machine operator position, with the control screen located above the driver.

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GUIDANCE SYSTEM

The VMT navigation system used for the storage tank drives was an SLS Microtunnelling G. The SLS-G is a gyro based navigation system which operates in combination with an electronic hose levelling system, which was developed for works in small diameter bores and situations where there was a complex-design tunnel axis.

The system works so that at any time the exact position of the TBM and the deviations from the designed tunnel axis, as well as the predicted movement tendency of the TBM are available to the machine operator. The gyro compass provides the horizontal position and direction of the TBM, whilst the hose level determines the precise height of TBM.

All components of the system are compact to install and there is no requirement to have a 'line of sight' connection between them. The influences of refraction which can affect some other types of guidance systems do not occur within the measurements taken using the SLS-G system.

The hardware comprising the SLS-G system is robust and tunnel-proven over many years of use in the industry. It is easy to handle and utilises user-friendly software with a permanent recording facility for all important drive data. This allows operators to quickly become familiar with the handling of the system.

The information high content of the displayed data ensures an optimum control of the machine position in order to keep deviations from the designed tunnel axis to a minimum. The system also provides the machine operator with a constant display of the position, orientation and tendencies of the machine. The precision of each of these factors means that vertical (if required) and horizontal curves can easily be achieved. Furthermore the system provides a complete and permanent recording of all geometric advance data for future documentation.

For the Sidcup operation, the SLS-G system was supplied together with a VMT specialist guidance engineer.

INSTALLATION

With the cofferdam sunk (amongst existing services), the pipe jacking rig in place and the tunnelling machine in position the first drive commenced.

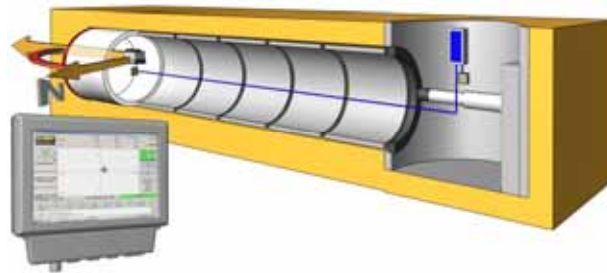
To ensure that the installation ran as smoothly as possible the pipe jacking operation utilised bentonite injection along the pipe chain to lubricate the pipe and minimise friction between the pipes and the surrounding ground. The bentonite materials were provided by Baroid IDP with the lubricating slurry being delivered to the pipe chain using a standard bentonite mixing and pumping system. The lubricating mix flows were manually adjusted injected into the pipe annulus at every fourth pipe.

A.E. Yates TS contacted BAROID IDP to design a lubrication slurry appropriate for the ground conditions for the project. Based on the information provided from borehole logs along the line of



the drive, the lubrication slurry mix formulated comprised BORE-GEL sodium Wyoming bentonite, with EZ-MUD GOLD, a unique beaded readily dispersible anionic polymer. Information from tests indicated that the ground water was slightly acidic having a pH around 6. To counteract the detrimental affects of low pH on the bentonite and polymer additives, Sodium Carbonate was added to the slurry mix water. As the first drive approached the exit shaft the ground conditions became less

The surface setup at the start shaft for the Sidcup curved drives.



A schematic of the VMT-supplied SLS-G navigation system used on the Sidcup works to ensure the curved drives followed the required tunnel axis.

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stable and more porous, therefore N-SEAL, a fibrous inert mineral additive was included in the slurry mix to minimise loss to the ground and promote stability around the pipe.

As the installation progressed and the face was excavated by the Herrenknecht MH3 unit, the spoil generated was removed from the face by the backacter. The spoil was then pulled up onto a conveyor which passed it into a 'roll over' skip. Winches were used to pull the track-mounted skip into and out of the pipe jack. At shaft bottom, the skip was lifted out of the cofferdam with a lifting beam and emptied into the back of a trailer pulled by a tractor. Access to the trailer was via a purpose made scaffold platform. The spoil was then taken to a designated loading point 500 m from the work site where it could be loaded onto 8 wheeled tipper trucks for final removal from site.



The Herrenknecht MH3 Open faced backacter unit completes holing on the first of the Sidcup drives.

In advance of the project and during the course of the works a number of public relations requirements and associated utility operations were required to be undertaken. Several meetings were held to keep local residents informed of the project progress and how it would impact on their day-to-day activities. There was also significant consultation undertaken with Bexley Council, the local water supply company (in respect of a water main diversion that was required) and the local gas company (in respect of existing pipes which lay within the pipe jacking pit).

Other aspects of the project required sensitive handling and planning to minimise local and wider disruption given that the works would take place on busy London streets with traffic re-routing, road closures and limited working space. Crane movements on the site were to be kept to a minimum to avoid slewing pipes for example.

To assist in minimising the effects of the work site itself on the local area both Day Time and Night Time compound set-ups were utilised. This was designed to ensure that during the evening whilst work continued underground, the surface area and therefore the impact of the site was smaller allowing as many residents as possible easy access into their properties.

The project, which has been completed in various phases between the main contractor and A.E. Yates TS started in February 2008. With the second drive completed on October 21, 2008 the expected completion date for all the works is December 2008.

Commenting on the project for A.E. Yates Andy Carnell, Project Manager said: "The relationship between all construction parties have been good throughout the project with a successful completion." Website: www.aeyates.co.uk (for A.E Yates TS Ltd) or www.vmt-gmbh.de (for VMT)

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PIPELINE DRILLERS EXPANDS BORING FLEET

Perforator[®] Ltd recently announced that Pipeline Drillers Ltd of Kilmarnock, Scotland recently took possession of a new Perforator[®] PBA85V Thrustboring Machine and HS80 Power Pack.

The new PBA85V system is no ordinary thrustboring unit. Whilst the new rig will at first sight comprise a normal pilot auger, guided installation rig with the capacity to install the Denlok clay jacking pipes, the new PBA85V rig design will also have the capacity to be equipped with a straight-line horizontal directional drilling system. This will also enable it to install PE pipe directly off a coil, in most diameters, on both line and level using the targeted, steerable pilot bore capacity of the basic rig which will be used to install the required initial bore.



Pipeline Drillers engineers preparing the Perforator[®] PBA85 V pilot bore/HDD system on site.

PBA 85V

The basic PBA85 pilot boring system is a compact, multi-purpose thrust boring machine designed for pipe line, house connection and steel pipe jacking installations of up to 610 mm o.d., as is the PBA85V. The machine is used in combination with re-usable or lost steel casings. The machine bed and additional extension frames allow the use of casings up to 6 m long. Soils are mechanically removed towards the working pit by a rotating string of augers and cutter heads can be replaced when soil conditions change. PBA 85 machines can be equipped with a navigation system and pilot rods in order to keep tolerances required for house and main sewer connections of between DN150 to DN500. Directional control and surveying is achieved using a monitor, an optic system with CCD camera and a diode target plate.

There is, however, one very specific difference between the standard PBA85 rig and the PBA85V system. The difference is that, on the 'V' version, a gearbox is fitted that is normally used in the Perforator[®] PBA150 rig. This allows the 'V' unit to boast double the torque capacity of the basic unit.

The directional drilling system which can be fitted to the system utilises the twin wall pilot rods of the standard PBA 85 system, which are designed to accept high pressure HDD fluids, to create the initial bore. Subsequently, the high pressure drilling fluids are delivered to special rotary reamers using a purpose built pump tank and mixer unit with a 2,000 litre capacity.

Towing attachments and swivels have been specially designed to work within the PBA85V's 65 tonnes of pullback capacity to enable the pull-in of the product pipe.



HS80 POWER PACK

The HS80 power pack is one of a family of units ranging from the HS6D to the HS156 unit. The 81 kW unit diesel driven HS80 has a 200 l tank capacity and can deliver 234 l/min at a maximum 330 bar. Weighing 2,350 kg the whole unit fits in a 2.63 m by 1.46 m by 1.7 m housing. It is designed to power both PBA85 and PBA95 Perforator[®] boring systems.

A view of the four motor PBA150 gearbox used on the PBA85 V boring unit.

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IN THE FIELD

Since taking delivery of the PBA85 and HS80 units Pipeline Drillers has utilised the equipment on a number of significant projects including:



Taking delivery of the HS80 Power Pack.

- Daresbury, Wirral - Crossing a dual carriageway adjacent to a canal for installing 225 mm diameter Naylor Denlock pipe over 50 m length for client A E Yates.
- Northfleet - Installing 610 mm diameter steel sleeve pipes below a busy road from a 4.5 m deep shaft for client Terra Solutions.
- Bewdley - Installing 610 mm diameter pipe to take a surface water culvert below the Severn Valley railway for client George Law.

According to Graham Smedley, managing director of Perforator® Ltd: "This method is unique to Perforator's PBA guided boring systems. It enables the installation of PE pipes in straight-lines to grade in a wide variety of situations. Because of the

system's accuracy, installation of gas mains, water mains and drainage pipelines can be achieved in areas surrounded by other services and known obstacles. Supported by the new HS80 Power Pack this will enable the equipment to complete bores that would otherwise have required much larger, more expensive machines and greater access requirements."

Commenting on the new rig purchase Peter Taylor, managing director of Pipeline Drillers Ltd said: "The new unit has performed well and the extra torque generated by the four hydraulic motors probably made a significant difference in overcoming obstructions on the latest project at Bewdley."

Website: www.perforator.net

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PIPELINE REHABILITATION

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LINER SYSTEM KEEPS MAJOR BELFAST HOTEL OPERATIONAL

Contractor Dyno-Rod Belfast recently undertook what at first glance may seem to be a short length pipe rehabilitation project of little interest. The project however turned out to be much more than that.

The project was located at the prestigious Europa Hotel, in central Belfast, which claims to be one of the world's most famous hotels, located in the heart of Belfast close to the central business district and only 5 minutes' walk to the shopping district, the Grand Opera House and the City's Golden Mile.

The problem being encountered by the Hotel was that a main 150 mm diameter drainage pipe running beneath the main kitchen area and room service routes was suffering from exfiltration of wastewater over a length of about 20 m into the basement area of the hotel. Whilst under normal circumstances this might not be seen to be a significant problem and easily solvable using a liner repair, even using trenchless techniques for the job proved difficult as access was located only via small corridors with no headroom. No height or width meant there was no option to excavate to put in new drains and no room to use an inversion tower for lining.

On consulting with Dyno-Rod Belfast, which was brought on to the project by principal contractor Graham Construction, it was decided that it would be the correct solution to utilise a Trelleborg epros DrainLiner CIPP lining system with a special L30 e1 silicate resin to complete the repair. The special resin was chosen because it not only gave a good structural repair to the host pipe but also exhibited excellent heat resistance qualities once cured which suited the circumstances of this particular drain well as it is regularly flushed with high temp water (up to 60°C) and cleaning chemicals.

Another limitation on the project was that the Hotel management insisted that the work should be completed in a single 8 hour work window on 26 August 2008, with no out of hours working or shut down of the Hotel's operations during that period. This made for a very tight operation which had to include: set up of the wastewater bypass system, cleaning of the host pipe over the length to be lined, setting up for the lining run, inserting the lining, curing the CIPP liner, re-opening of one lateral connection serving the room service kitchen and inspecting the finished liner to ensure the lining was correctly installed.

The launch manhole for the lining operation was located within a main corridor. As a main operational route for staff through the Hotel access to establish the equipment necessary for the lining work was difficult.

Commenting on the project Steve Butterworth of Trelleborg epros International Ltd said: "From an equipment manufacturers perspective the job would have been pretty straight forward under normal circumstances. But, due to the problems with the temperature of the wastewater expected to be passing through the pipe in the future and the limited access for all aspects of the works, it was



The liner inversion launch equipment set up in the narrow walkway connecting operational areas within the Hotel which could not be put out of service during the lining works.

not at all easy for Dyno-Rod's crew. It was a remarkable achievement that the work was not only finished on time but that it was also completed without any particular problems. Although the Dyno-Rod operatives have undertaken many CIPP lining operations, they had limited experience of this particular Trelleborg epros resin system. However, we were pleased with the outcome."

Limited access was always going to be one of the main difficulties in completing the Europa Hotel lining project.

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Trelleborg epros supplies not only three types of Silicate resins for pipe lining works but also three different Epoxy resin types, all of which are backed up with testing data. The company also offers full technical backup both verbal, electronically and through onsite support.

For contractor Dyno-Rod, Stephen Kennedy, Director, said: "As a contractor we have been utilising pipeline rehabilitation techniques for many years and knew this project could be successfully completed using CIPP technology. It was obvious that the circumstances of this particular pipeline were such that we required the right sort of resin to do the job correctly. Working together with Trelleborg epros we were able to arrive at the required solution for these circumstances. The lining system supplier's support throughout was most valuable to us in enabling us to complete the lining project to the exacting standards required by the client." Website: www.trelleborg.com/epros



The inverted liner reaches the reception manhole and is ready for curing.

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CANDLE FACTORY FIRE CREATES MAJOR CLEAN-UP PROBLEMS

A major fire at a Candle factory on the Blandford Heights Industrial Estate, in Blandford, Dorset, UK gave rise to a serious sewer network problem for Wessex Water, the regional water company responsible for services to this part of the country.

The fire, at temperatures of up to 1000°C, caused stored candle wax and the containers in which it was contained, to melt and flow freely into the main drainage system serving the industrial estate. This network comprised largely 150 mm and 225 mm diameter clay and concrete pipes. Unfortunately once clear of the raging fire, the wax and melted plastics cooled and reverted to their usual solid form.

This caused serious blockages in the drainage network including the gravity section taking run-off from the factory area itself, a pumping station which transferred flows towards the local treatment works and the rising main out of the pump station.

The wax flow remained liquid long enough to flow through the gravity pipes into the pump station, to fill the pump station almost to capacity thereby activating the pumps which pushed melted wax into the rising main before it solidified sufficiently to almost totally block the system.

The job of removing the wax from the sewer network fell to engineers Julian Britton and Mark Harris of the Wessex Water Critical Sewers Team (WWCST), part of Wessex Engineering Construction (WEC).

Barleymans Recycler Super 1000 tanker/jetter unit used in cleaning the gravity sewer sections.



The Candle factory fire at its height. Picture courtesy of Dorset Fire & Rescue Service.



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After carefully considering the options available, WWCST called in main contractor Barleymans Environmental Services of Cubley Common, Derbyshire, to undertake the task of removing the wax and other detritus created by the fire out of the sewer system.

Barleymans is a long established family business with a staff that can boast a combined experience of over 100 years in the jetting and tanker business. As time has moved on so has Barleymans, keeping abreast of technology and equipment to ensure the company can handle the most demanding of jobs. This was just such a job.



The rising main opened for access shows just how restricted the pipes were by the wax.

THE PROBLEM

Subsequent to the fire, some 500 m of drainage system, varying between 150 mm and 225 mm diameter was found to be between 50% and 75% restricted by solid wax. Being relatively small diameter drains this meant the available drainage capacity serving much of the industrial estate was severely limited. With the pumping station also effectively out of action, it too being filled with wax, Wessex required a speedy and effective clean up at the earliest possible time. In the meantime, the main issue was to keep the industrial estate's drainage flowing by use of over-pumping to ensure that disruption to the remaining businesses on the industrial estate was kept to a minimum.

THE SOLUTION

To this end, Barleymans brought in some heavy-weight equipment in the form of its Weirdermann Recycler Super 1000 tanker/jetter unit to clean out the effected pipelines.

In just five working days using the tanker/jetter unit Barleymans managed to completely clear some 300 m of the gravity sewer pipes.

Barleymans then turned to opening up the pumping station. For this part of the work the contractor utilised a hired compressor and small hand jack hammer to pick out the solid wax from the pumping well. In total, the wax removed almost filled an 8 yd3 skip set up on site to remove the waste material.

More recently, Barleymans went back to try to complete the cleaning of a further 60 m length and a 27 m section of the concrete pipe that had previously proved difficult to clean using the original jetting technology. This time the contractor brought in, from Holland, a 'hot box' which allowed the use of high temperature water (100oC) at flow rates of 86 gpm (390 l/min) at 140 bar pressure to be

used to remove the wax remaining in the pipe, by melting it out as much as jetting it. The new system was effective over the first 27 m length of the pipe, which took only 2½ hours to complete. A final solution to reopening the final +60 m section of this pipe was still under consideration at the time of writing. Attention was then turned to the rising main section leading off the pumping station. This part of the works was handed over to specialist high pressure jetting contractor.

THE RISING MAIN

The rising main comprised a 150 mm diameter PVCu pipe. Originally, when the jetting specialist attempted high pressure

The ENZ cutter used to clear wax from the rising main.

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jetting to complete this part of the work, attempts to clear the pipe using the jetting technology were not completely successful and there was concern that further attempts might cause significant material damage to the plastic pipe.

This was when WWCST approached ClearView Surveys Ltd to see if there was another solution to the problem.

Clearview Surveys is an experienced Dorset based Wessex Water Framework Contractor which runs a variety of mainline CCTV Survey vehicles and lorry-mounted jetting units and which has developed a reputation for problem solving in a variety of circumstances including those encountered at Blandford

After careful consideration of the project requirements, ClearView suggested that a high volume Fullers Combination Jetting Unit combined with an Enz Impact Drilling Cutter, supplied by Jetting Systems, could be used to mill a 100 mm diameter hole through the wax. This, in conjunction with a Warthog spinning nozzle, would then break up the remaining wax, which could then be easily removed from the pipelines using flushing. All works would be carried out in conjunction with ClearView's mainline Pearpoint CCTV Survey unit to enable complete viewing and monitoring of the cutter progress.

An initial CCTV survey of the pipeline was carried out to ascertain the scale of problem, although the full extent remained unknown due to the large quantity of wax present. The section of pipe in which ClearView had to work was some 80 m long with virtually 100% wax blockage. It was expected that the cleaning work using the cutter arrangement would be completed at a rate of up to 10 m/day. However, in the event, this target advance rate was exceeded by a very significant margin with the whole 80 m length being completely cleaned in just 3 days.

According to Paul Coombes, of ClearView Surveys Ltd: "We did not encounter any problems with the wax removal on this part of the project. This was because prior to arrival we researched all of the suitable products available to complete the work. This was done with the help of our equipment supplier, Jetting Systems. Between us we came up with the most effective method. High Pressure water jetting was tried by other contractors but had limited success."

Subsequent to the rising clean cleaning effort it was WECs' responsibility to establish whether there was any diminution of the bar rating of the PVCu rising main after the high pressure cleaning and use of the ENZ hammer. This was because it was WEC's main concern to put the network back to the operational position it had prior to the fire, whilst trying to keep the costs down for the loss adjuster for the candle factory. To this end Julian Britton commissioned testing of sections of the rising main with samples being sent to Bodycote and Dr David Lowe. Two tests were undertaken, Dichloromethane immersion and Notched C Ring Fracture toughness testing. These indicated that a reduction in the bar rating that the pipe could accommodate and subsequently showed that the original 12 bar pipe had reduced in efficiency by some 50% due to inadvertent damage during removal of the wax. Julian did state that: "This was not a criticism of the contractors as they tried very hard not to damage the pipe in any way." The rising main section was subsequently replaced using pipebursting techniques.

Commenting on the project for WWCST Julian Britton said: "Wessex Engineering Construction has been delighted by the fast mobilisation to site of both Barleymans and ClearView and their expertise has been instrumental in returning these sewers to service. The Weirdermann recycling machine from Barleymans was very efficient in removing the wax and ClearView brought innovation to the rehabilitation of the rising main through use of the Enz Technik 'down the hole hammer', removing the cadence mechanism to effectively use it as a miniature TBM."

Commenting on the project for Barleymans, Danny Godfrey, works director said: "All in all the works proved to be an interesting challenge at times, due to the use of such a large machine on such a small diameter sewer. Wessex Water handled the job extremely well and we enjoyed working on their behalf." Website: www.barleymans.com or Website: www.clearviewsurveys.co.uk



Blocks of solidified wax removed from both the gravity sewer and rising main sections.

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UNDERWATER BORE BENEATH THE BALTIC SEA

Kühlungsborn is a prosperous holiday resort on the Baltic sea, about 7 km to the west of Heiligendamm, which became famous when one of the International G8 conferences took place there. The name of the town translated means 'Cool Spring'. Now the health resort authorities in Kühlungsborn are planning a very special type of spring.

The Baltic sea supplies the mineral water for the public health spa at the Morada beach hotel, which is currently under construction. Inlet (suction) and Outlet pipes, comprising ND 160 PE pipes, provide water drawing and discharge facilities from and to the sea.

Contractor Paasch of Damendorf, Germany tendered for the installation project for these pipelines with a proposal to use its Grundodrill 15N HDD boring rig and was awarded the contract. The company is experienced in the construction of such pipes for sea water extraction for health spas, seawater aquariums and pipe installation measures in ecologically sensitive areas on coasts and mudflats.

Furthermore, Paasch has the necessary logistical and planning expertise for the construction of pipelines on holms and to the Frisian Islands. This background has established the company as a renowned bore specialist on the North and Baltic sea coast.

Paasch estimated a construction schedule of 2 to 3 weeks for the work. The first installation section of approximately 120 m length ran from the hotel building site below the coastal dunes to the beach.

The rest of the plan showed an intention to install the pipes at a depth of 3 to 4 m below sea-level from the beach and to enlarge the bore right up to the sand banks, as there would otherwise be a danger of the pipeline end being engulfed. The water depth at the site is relatively shallow right up to the target point on the sand bank, but then it deepens to about 5 m. This meant that a pontoon and a professional diving team had to be engaged to carry out the retrieval of the bore head after the pilot bore and then attach the reamer, as well as carry out the pipe pulling and connection work under water. Both connection bores were adjacent to the beach and up to 400 m out into the sea itself.

A test bore over an some 30 m length showed that the ground conditions were relatively easy to bore. This later proved to be a false conclusion.

SITE SET UP

The boring rig was set up in position in the early morning hours – before there was any activity on the beach. To keep the noise inconvenience to the resort guests down to a minimum, the beach chairs were removed from the area close to the rig.

The HDD machine was supplied with fresh water and the Bentonite drilling fluid was delivered through the two previously installed PE pipes. The supply pipes were pushed through these pipes up to the beach from the mixing system set-up area on the jobsite. These pipe lines were therefore not visible at all visible on surface. The beach guests were not meant to be bothered by the boring activities taking place, however lots of guests were attracted to the site and became interested in the works.

In the meantime several heavy transporters arrived in Kühlungsborn harbour with the four rented pontoons. These were assembled in the harbour basin to make up a large, 160 m² platform, equipped with a small excavator. On site two 9 m length anchoring poles secured the pontoon in place. However, the prevailing sea groundswell had been underestimated and heavy seas at the end of the installation lead to the 200 mm diameter steel anchoring poles simply breaking up and needing replacing, which meant a 2 day interruption of the work.



The Grundodrill 15N being driven to the starting point on the beach.

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The GRUNDODRILL 15 N during pipe installation.

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BORES

The first pilot bore, completed with MDH drill head, was carried out smoothly and was completed within 3 days, with the guidance system detection work being carried out from a rubber dinghy. However, after about 30 m this activity became very time consuming due to the rough sea. Also the bore had to be interrupted for one day when the sea got too rough to work.

Using various additives, the drilling fluid design had a higher specific compactness than the sea water and this prevented the drilling fluid dissolving in the salty water.

The diving team, consisting of a diver, substitute diver and further team member taking care of the safety line and walky-talky contact, were ready for action on the pontoon. The team had carried out a practice exercise on dry ground and had been trained in how to loosen the bore head from the drill rod and how to connect the reamer and the pipes.

An expanded bore was not required as it was intended that the 160 mm diameter pipe would be pulled in directly into the bore behind a 250 mm diameter reamer. Pipe installation and expanding of the bore hole were therefore carried out simultaneously. The pipe length was welded in four places and pulled out to sea with a boat and flooded with water, to prevent any friction inside the bore hole. After the connection was made, an activity which took several hours below the water, the pipe installation could begin. Suddenly, after 60 m the rig came to a standstill. It was believed that the reamer had become blocked by hard sandstone. There was nothing else to do but pull the pipe back out with the excavator from the pontoon. Everyone was astonished to find that the hard metal bits of the reamer had worm off completely. The bore team decided to apply a 250 mm (10 in) diameter rock drilling hole opener. One day was required for this work and also for the re-installation of the drill rods and the push head. Afterwards the pipe installation ran smoothly with an average pulling force of only 4 t. However, the pipe had an over-length of 15 m, but after the disassembly of the reamer, this was pulled in further with the excavator, which indicated a highly stable bore hole. All four pipe entrance points were marked red with position boys (red for suction pipe, white for exit pipe).

After the experiences of the first bore, the drilling team wanted to apply the bore hole motor immediately during the second bore at distances of 5 m. However, the uneven amount of drilling fluid required and the discharge in connection with that forced the team to start anew after 40 m and then apply a special bore head, which consumed less drilling fluid. The pilot bore was then completed with this bore head. The auxiliary work was delayed, because the pontoon was out of use due to the broken anchor poles which had to be repaired.

A special approval was given to commence work at the weekend. The wind was expected to reach force 4 to 5. Therefore the pipe, which was welded the previous evening, was pulled into the sea at 5.30 in the morning. The holiday makers were completely unaware of this event. During the pipe installation two boats secured the pipe length out at sea. The pipe installation was started at 9.30 and completed late in the evening of the same day.

The rest was simply routine. A 300 mm diameter pipe was rammed approximately 5 to 6 m into the sea bed and protected with stone against loose seabed movement. The suction pipe with a filter was then clamped into place at a height of about 1.5 m. The pipe has to be scraped once a year and cleared of barnacles. The same has to be done with the exit pipe and the discharge funnel.

This difficult task was carried out to the full satisfaction of the contractor, which has already signalled intentions for a further project similar to this. Website:

www.tracto-technik.de

Pontoons with anchoring poles.



Divers ready for action on the pontoon.

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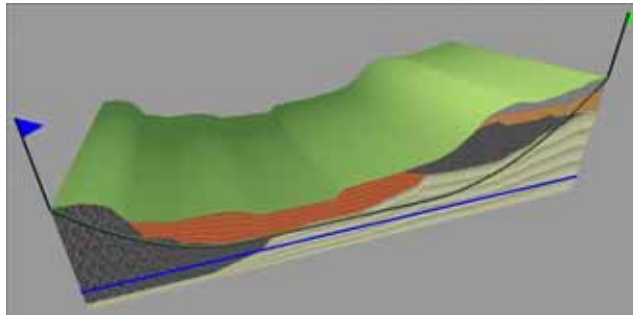
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BORE AID - A NEW BORE PLANNING AND DESIGN SYSTEM

BoreAid™ has been developed to assist industry professionals with the planning and design of horizontal directional drilling (HDD) pipeline installation. The difficulties associated with HDD design have been simplified via a framework of five interlinked sequential modules, each of which addresses a crucial aspect of the HDD pipeline design process: bore path design; product pipe load verifier; bore and pipeline construction planning; bore pressure estimator; and equipment/tooling selection. The chosen name, BoreAid, reflects the intention of the tool to aid the contractor, engineer, or project manager in the completion of simple and complex HDD projects using existing pipeline design and good practice guidelines (ASTM F1962, PPI, PRCI, NASTT and other industry best practice guidelines). BoreAid was also developed to fill an industry gap for a HDD design and planning tool that is user friendly, windows-based, manufacturer and supplier independent, and that can quickly produce project design or construction submission documents with the click of a button.



Modelling topography and soil conditions.

The chosen name, BoreAid, reflects the intention of the tool to aid the contractor, engineer, or project manager in the completion of simple and complex HDD projects using existing pipeline design and good practice guidelines (ASTM F1962, PPI, PRCI, NASTT and other industry best practice guidelines). BoreAid was also developed to fill an industry gap for a HDD design and planning tool that is user friendly, windows-based, manufacturer and supplier independent, and that can quickly produce project design or construction submission documents with the click of a button.

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Soil Summary Along Bore Path

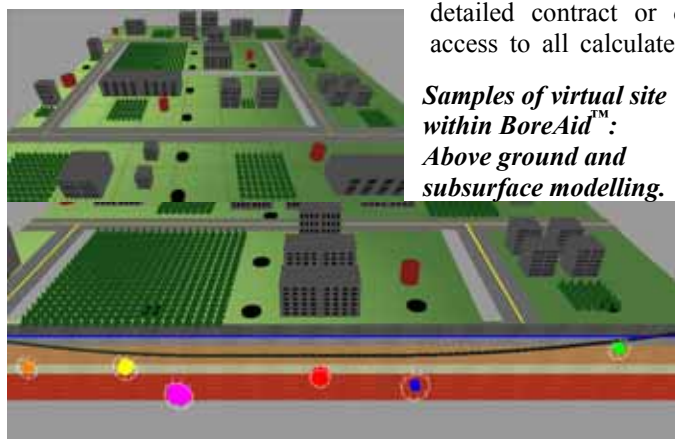
Cob...	#	Layer	Type	Bore Distance	Rod #s	Water Table	Suitability
<input type="checkbox"/>	1	1	SW	0.0-480.0	0-3	Above	Difficulties may occur.
<input type="checkbox"/>	2	2	GW	480.0-1320.0	3-10	Above	Substantial problems.
<input type="checkbox"/>	3	3	CL	1320.0-3120.0	10-25	Above/Below	Generally suitable.
<input type="checkbox"/>	4	4	ML	3120.0-14520.0	25-120	Below	Generally suitable.
<input type="checkbox"/>	5	3	CL	14520.0-17640.0	120-146	Above	Generally suitable.
<input type="checkbox"/>	6	2	GW	17640.0-19080.0	146-158	Above	Substantial problems.

Detailed soil conditions along the bore.

Pipeline and utility owners, contractors, and technicians/engineers are the targeted audience to use BoreAid. Although some other HDD software programs are available BoreAid is the only known comprehensive HDD software that takes the user through the complete design process in a sequential and user friendly manner. Thus, both novice and experienced HDD users can use the tool with ease. It can be used to check the feasibility of a project using the built-in database of typical and/or suggested properties (based on current standards and good practice guidelines), to prepare contract submission documents, to estimate time to complete a project, as a quality assurance and quality control tool, or to complete design for a complex project that has complex site conditions.

BoreAid can be used to assist with path planning to pipe load calculations, pipe selection to drill fluid requirements. The program also contains impressive graphical representations that make it easy for users to check input and design values, as well as, allows for the quick production of detailed contract or design submission documents. Full access to all calculated values (via spreadsheet exporting) and printing/exporting of results is also provided.

BoreAid is now being used in five countries as an effective HDD design tool (UK, Canada, USA, South Africa and Brazil), by contractors and HDD designers. Current projects utilising BoreAid involve complex topography and soil layering where unfavourable soils, large depths of cover, underground obstacles, and river



Samples of virtual site within BoreAid™: Above ground and subsurface modelling.

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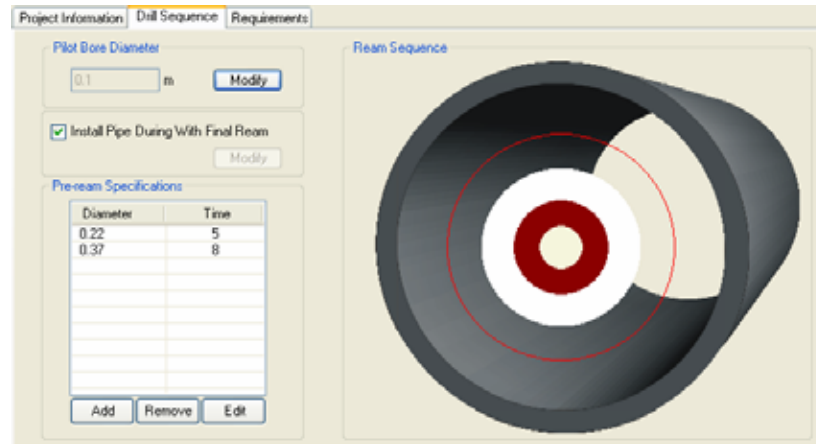


crossings are a concern. Existing users generally comment on the user friendly platform, the advanced visual graphics, and just the pure power of the tool in performing safe HDD designs.

DESCRIPTION OF THE TOOL

BoreAid input tools allow the construction of very simple to complex site conditions. Multiple soil layers, above and below ground obstacles, buildings, utilities, etc. are all integrated into the framework. The 3D visualization capabilities provide the user with the option to change scale/zoom and the flexibility to

view the output in a variety of formats – essentially creating a virtual site and project location which the user may navigate through upon desire. The bore planning tool implements current design standards for steel and plastic pipe with minimal inputs. A rod-by-rod steering plan may be exported which



Utility to Enter Pilot Bore and Reaming Sequence.

unlike other tools implements a gradual descent and rise from the depth of cover so that the pipe remains intact during installation – as-built details may also be entered post-construction.

Using multiple calculation methodologies, pipe design operation and installation loads are determined quickly and easily for steel and polyethylene pipes. With a click of a mouse the influence of using rollers or adding ballast to the pipe can be determined. Automated warnings and design checks are implemented in all BoreAid modules to appear when the input is outside good practice or recommended design values according to the industry standards.

Drill fluid requirements and bore pressure estimations can be calculated with BoreAid based upon the path already constructed. Slurry and drill fluid volumes per rod and per pass are used to ensure a safe drill project using equipment dependent properties. Drill equipment, tooling, and fluids are recommended based on information gathered from other modules and current HDD practices. The user may estimate maximum bore pressure per reamer pass and view a detailed list of all soil types encountered for each a rod.

KEY FEATURES OF BOREAID

- Easily complete simple or complex HDD pipeline designs.
- Easily determine an acceptable bore path location in sites with complex site conditions and buried utilities.
- Reduce the risk of utility hits.
- No need to build complex spreadsheets that have limited graph capabilities and design/as built construction submission documents.
- Ensure that all good practices are followed.
- Quickly determine pipeline installation loads/stress and required pull back force using a variety of industry accepted methods.
- Quickly estimate the drill time and quantity of drill fluid required to complete a HDD pipeline installation.
- Reduce the risk of HDD project cost overruns and construction problems.
- Faster and better HDD pipeline designs.
- Quickly develop high quality design or as constructed submission documents.
- Lower project design and tender submission costs

BoreAid is equipped with full export and print controls which allow the user to export graphics, project summaries, and design calculations that may be used for construction and/or project approvals.

The use of BoreAid during the design phase of the projects can greatly reduce overall project costs, increase the probability of a successful project, and ensure the use of HDD good practice guidelines. Website: www.boreaid.com

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ONLINE PIPE REPLACEMENT

For General Information on Bursting, Reaming, Cracking, Eating and Pulling [click here](#)



EXPANDIT LICENSEE LIST CONTINUES TO GROW

The Perco Expandit pipe bursting system continues to gain new licensees around the world and the first half of 2008 has seen three new licensees adopt the system, whilst enquiries have come in from several other countries. Expandit installs new pipes, including much larger pipes if required inside old sewers that are in disrepair.

Trenchless sewer renovation is gaining popularity in developing countries, allowing engineers to tackle problem sewers in urban areas. Where excavation is problematic, or too costly, pipe bursting is being used to install new sewers.. Even in a size-for-size renewal, Expandit succeeds where

pipe lining would fail because of excessive structural deterioration of the existing pipe. Expandit is a hydraulic bursting mole that is designed to work from existing manholes or small excavations. It replaces damaged pipe with minimal environmental impact and disruption. Its hydraulic bursting action breaks up the pipe and forces the fragments into the surrounding earth, dealing with a range of pipe materials, including clayware, pitch fibre, concrete, asbestos cement, cast iron and uPVC.

The mole is kept on course by a chain winch, while a hydraulic ram pushes the device forward. Short pipe lengths, whether in clay, concrete, or polyethylene, are lowered into the manhole and jointed as they follow the bursting head along the course of the original sewer pipe. Typically lengths of up to 100 m of pipe are installed in this way, although 300 m sections have been achieved in favourable conditions.

The fact that the system works by hydraulics is significant. Conventionally, pipe bursting moles are operated by pneumatic pulses that produce vibration, noise and ground heave. In contrast, hydraulic operation is non-aggressive. It is ideal in congested areas where other buried services could be damaged by pneumatic bursting.

In terms of new licensees, in March 2008 a new Romanian licensee, MNS Cleaning Services took delivery of its new Expandit pipe bursting system. The Expandit team flew out to the port city of Constanta to train MNS personnel and assist with their first project. MNS's roots are in sewer cleaning and jetting but with many of the city's old, vitrified clay sewers needing rehabilitation, the company expanded into CIPP lining in 2007. MNS wanted the Expandit system for sewers which are in too bad a condition to reline. The Expandit system fits well alongside MNS's CIPP system, allowing it to offer a completely trenchless rehabilitation solution. Since March, MNS has successfully completed three more Expandit projects.

Furthermore, shortly after their return from Romania, the Expandit team flew to Egypt; where a new Egyptian licensee Robou Construction, a directional drilling specialist which has diversified into sewer renovation, was due to start its first Expandit project. A number of critical sewers in Cairo's heavily congested city centre are due to be replaced. Many of the city's sewers are in excess of 8 m deep. The vitrified clay pipes, which range from 200 mm (8 in) to 610 mm (24 in) i.d. are in



The Expandit system working on a project in Romania.

poor condition with partial collapses and deformations in many places. Robou chose Expandit because of its efficient operation and its ability to be used in areas of restricted access. The first project was to replace a 1 km section of 200 mm (8 in) diameter pipe in Cairo city centre.

Over the past few years Expandit technology has been licensed in Japan and Korea, as both countries have embarked on renewal programmes for ageing concrete sewers. Website: www.perco.co.uk



An Expandit pipebursting head.

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ASSET MANAGEMENT, MAPPING & SURVEY

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TRACKING AND INSPECTION SYSTEMS FROM ATMS

ATMS recently introduced a range of pipe location and inspection products to the UK utility industry.

GAS TRACKER is a system for tracking and identifying gas pipes made of polyethylene or other plastics. The technique employed is based on the propagation of a complex acoustic wave through the gas in the pipe. Due to the elasticity of the pipe wall, some of the vibration energy escapes from the pipe and is detected at the surface by a locator using an application specific sensor, coupled to a hand-held unit which employs tailored algorithms to isolate the transmitted signal from the environmental noise.

The pipe can be followed up to 300 m from the transmitter, even in noisy urban environments, and can normally be located laterally to within the width of a spade. Although only plastic pipes can be located from the surface, the transmitter can be connected to a metal pipe section leading to a plastic section that can be tracked from the surface. The system will also identify a gas pipe of any material if the detector can be placed directly in contact with the pipe. Since it is simple to set up and to use, GAS TRACKER can be operated by one person.

GAS TRACKER has two subsystems: A transmitter with a resonant volume which is connected to a customer terminal or other suitable point. A detection sensor that is placed on the ground and connected to a hand-held computation and display unit showing the level of signal detected.

The transmitter drives a resonant volume which is connected to a customer terminal or other suitable point. It injects an acoustic signal into the gas, and this signal is propagated along the pipe. The detection sensor is placed on the ground in successive positions for measurements to be made. The highest signal indicates the vertical position over the pipe, so that the lay of the pipe can be found. The display shows the information necessary to configure the unit for measurement, and the level of signal then detected.

There are two tracking modes, one for a 'quick look' which is usable in a quiet environment, and one which makes a filtered measurement to eliminate all background noise and give a more accurate indication.

The detector is moved between each measurement to find the strongest signal, indicating the position vertically above the pipe. Previous measured values in the sequence are shown to assist in quickly locating this position. There are two gain settings for the amplifier, so as to maintain performance whilst moving away from the transmitter.

The system is, of course, sensitive to the type of surface and the level of compaction of the soil, and works best on a tarmac road or pavement. In identification mode, the system gain is reduced and the detector placed directly on the metal pipe.

Further to this ATMS is also offering TCR pipe inspection systems that can be used in drains, sewers, water, oil and gas pipes, and factory and nuclear installations. Their rugged construction and simplicity in use, coupled with the possibility of making minor repairs on site, make them well-suited for intensive-use operators.

ATMS offers three high-definition digital cameras, pivoting or axial, which can be used either with camera guides in a 'push' mode, or mounted on a choice of two tractors to match all pipe sizes



The Gas Tracker system - The signal generator attached to the meter box (above) and tracking the pipeline route (below).

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up to over 1 m. There is a manual cable reel with 100 m of 'push' rod, and a motorised reel in a cabinet with up to 200 m of cable. Both reels have distance measurement capability. The standard control console has a large 17 in TFT sunlight-readable screen, and there is a portable console with an 8 in screen which folds into the case. Comments and annotations can be entered from a keyboard. A DVD video recorder greatly facilitates report preparation. The considerable experience of TCR in using this equipment is at your service to help select the best system for your needs.



The TRC 150T+ pipeline inspection system.

The TCR 80 is a pan & tilt, high-definition digital camera which has a definition of 480 lines and a sensitivity of 0.1 lux. It has integrated controllable lighting with 16 LEDs and can be used in pipes from 80 mm (3.15 in) diameter. The video head can rotate 360° around the axis and swing through 160°, covering all the forward hemisphere. Waterproof and pressurised with CO₂ to 5 bars, it is normally fitted on either of the tractors, although it can be connected directly to the cable for 'push' use with camera guides.

The TCR 150T+ is a pan & tilt, high-definition, fully-digital camera which has a definition of 560 lines, a sensitivity of 0.01 lux and a 45 times zoom capability. It can be used in pipes from 150 mm (5.9 in) diameter. The lighting, with 48 LEDs, is mounted on the video head which can rotate 360° around the axis and swing through 160°, covering all the forward hemisphere.

Waterproof and pressurised with CO₂ to 5 bars, it is normally mounted on either tractor, but can be fitted on a skid and connected to the cable for 'push' use.

The TCR50 is a 'Push' CCTV system with a new camera having a pendulum system which maintains the camera head upright in the pipe. In a clean pipe, with no indication of top or bottom, this feature is a great user aid. The new camera is intended for use in all pipes from 50 mm to 300 mm (2 to 12 in) internal diameter.

Camera guides are included for this size range. The new 48 mm diameter camera assembly has a camera head which rotates on an axial pivot to keep the image 'top up'. The imaging module has a resolution of 430 x 430 lines giving good detail over the full range of pipe sizes. The fixed focus allows inspection from 10 mm in front of the camera out to 15 m, and there is compensation for lighting level and white balance. The camera body is machined from stainless steel to avoid striking sparks, and is pressurised with inert gas so as to be flameproof. The 'cold' illumination is provided by 18 HL LEDs of 6,500 candela each. A flameproof version is available for use in gas Pipes under pressure. Website: www.advantechms.com

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SUPPORT EQUIPMENT, ACCESSORIES & SERVICES

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SMALLER FOOTPRINT VACUUM EXCAVATION SYSTEMS FOR UTILITY MARKETS

Vacuum Excavation by John Mee Construction Ltd has for several years worked with a wide variety of utilities and undertaken many utility and other buried service operations using vacuum excavation equipment. Using this experience the company decided to establish its own design and manufacturing arm, Vac-Ex Ltd.

According to John Patrick, Director of Vac-Ex Ltd: "This operational background has given the company's engineers a thorough knowledge of using and operating vacuum excavation systems across a broad spectrum of ground conditions in various and differing circumstances using all the makes of vacuum excavators currently available in the UK. This is why we now feel that we are in a position to design and manufacture a new breed of vacuum excavation machine that, we think, fills some of the voids currently left unfulfilled by other units."

To this end, Doncaster-based Vac-Ex Ltd recently launched the new range of Mod-Ex vacuum excavation systems onto the UK market.



The new Mod Ex 5000C vacuum excavation unit (5000 cfm/chassis mounted) on show at the recent No-Dig Live exhibition, in this instance as a 7.5 tonne Iveco truck-mounted unit with a 4.3 m wheelbase and a 1.2 m³ spoil tank.

MOD-EX RANGE

The Mod-Ex range is designed in a modular format enabling any configuration required by the client to be made to order. The two Lombardini, 4-Cylinder, 38 kW (51.5 hp) Diesel engines are designed to make the units very fuel efficient whilst driving the reliable 'Comp-Air' 180 cfm, 100 psi (8 bar) compressor and a 2,500 to 5,000 cfm, 15 in Hg vacuum, quad turbine vacuum system. The unit also has a high pressure water system and the capacity to utilise spoil tipping tanks in a variety of sizes from 1 m³ to 8 m³. The side tipping spoil tanks also make it possible to deposit materials into bulk bags as well as standard site tipping.

The compressed air system is served by a 30 m long hose reel which can be either lubricated or non-lubricated whilst the vacuum system utilises a 180 mm (7 in) diameter vacuum recovery hose. The vacuum system itself utilises twelve (12 No.) self cleaning filter cartridges.

In terms of mounting and transportation, the Mod-Ex system can be mounted on any vehicle from a simple trailer up to a 32 tonne truck chassis, as well as the availability of skid mounting or placement on rail stock units. The bigger the available chassis the larger spoil tank availability becomes. Normally the unit is also provided with three 110 V power supply points.

The modular design has also been designed to enable manufacture of machines that are ideally suited to operation in built-up areas and work sites with limited space.

OPERATION

The Mod-Ex system is operated by remote control and/or a computer-based touch screen interface. All cylinders on the system are pneumatic for ease of maintenance and safety and an on-board weighing system avoid the potential danger of overloading the vehicle as excavation progresses.

As with most vacuum excavation systems, the usual excavation process involves the utilisation of a compressed air driven air knife to break up the ground/material to be removed. If, however, the material is fairly granular this step may be avoided with the vacuum tube being used to directly extract the material in situ. Once the material is loosened the vacuum system removes the spoil to the spoil tank for storage, recycling or removal as necessary given the specific site requirements. The unit can be used to excavate both wet and dry materials.

TRAINING

As part of its customer support service, Vac-Ex Ltd also offers full operators training for vacuum excavation systems.

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The training available is to NVQ Level 2 standard, leading the City & Guilds Certification and the widely recognised NPORS card. Utilising both classroom and practical site training, trainees will be overseen by assessors who will establish the level of competence reached whilst actual work is being undertaken.

Commenting on the company's approach to the new system Technical Director, William Bell (previously of Birco Ltd) said: "Whilst based on standard units, the modular design means that the new Mod-Ex system can be configured precisely to the requirements of the client. In this way the client gets exactly the power, reach and accessibility it requires of its unit, so enabling it to fit precisely into the work programmes, utility and buried service operations the unit is required to undertake. Also, having spent many hours using such systems in the field ourselves, we have the background and know-how to understand what will be required by our clients both in terms of the new units themselves and the service and support that will be required of our back-up field staff."

Vac-Ex Ltd can also arrange for potential clients to see the new rig in action or arrange a demonstration at site. Website: www.vac-ex.co.uk



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NO-DIG LIVE DOES IT AGAIN *By Peter Crouch, UKSTT Technical Secretary*

Was it bigger and better? – I certainly thought so, and there certainly was no denying the top quality and range of the exhibitors stands throughout the extensive indoor and outdoor arenas at the No-Dig Live 2008 trenchless technology exhibition in September.

Famous for its outstanding quality, combined with live demonstrations of equipment and several trenchless systems, it was a real pleasure to take some time out from manning the UKSTT stand, promoting the membership benefits of the society to anyone who came within range, to take a look round some of the stands and equipment.

I am sure Westrade, the event organisers, as well as exhibitors will prepare detailed post event press releases but I thought a short article on things I spotted and a brief review of the breakfast seminar might be pertinent.

I was interested to spot the continued trend at the starting end of equipment ranges to produce ‘cut-down’ basic but quality units to keep costs down for the small or entry level contractor whilst trying to ensure



The UKSTT stand at the No-Dig Live 2008 event.

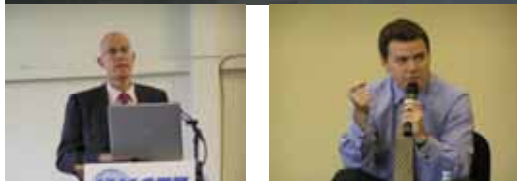
that full functionality is maintained. I spotted and discussed pipe bursting and HDD basic rigs and spotted mini tunnelling systems of various exhibitors.

Additional, new to the show, manufacturers and contractors from Europe and the United States were there as well. So it is getting worldwide recognition with exhibitors just as it already has with visitors who again attended from many countries including Japan, Nigeria, Canada and the US.

I spotted an articulated robot for climbing internal waste stacks for reopening lateral connections after lining. I make no claims as to its robustness or operational practicality but the fact that someone has developed a robotic cutter that can traverse through a 90° bend and be pushed up a waste stack then remotely held in place whilst the cutter, several meters up the stack, reopened the laterals seemed very interesting and useful.

Visitor numbers were substantially up from 2006 and whilst occasional rain was not appreciated, the Breakfast Seminar on Day 2 certainly released a rush of visitors mid morning. Even with visitors spread out over the larger numbers of stands and more extensive outdoor exhibitor and demonstration areas, this was the period it felt most crowded and hectic.

The topic of the seminar was the transfer of sewers from private to public ownership and with Phil Mills from Water UK speaking for the Water & Sewerage companies; Toby Sidall (of Dyno Rod) and Martyn Hopkinson (of Future Environmental) speaking for the contractors and Pam Brockway and Roy Barnes from the Woodlands Residents Association speaking for the customers, all ably chaired by David Sanky from South Staffordshire Water,



*Top: The audience at the Breakfast Briefing.
Bottom: Speakers address the meeting - Phil Mills (left) and Toby Sidall (right).*

we got a real treat. (Note: All Breakfast Briefing presentations are available from the UKSTT Website: www.ukstt.org.uk)

‘Informative’, ‘interesting’, ‘helpful’ and ‘useful’ were just some of the feedback comments received. With the event overrunning only because 90% of the audience wanted to stay for an extended Q&A session following the presentations, David finally called a halt after an additional 30 minutes.

A really huge thank you to all the speakers, the chairman and the visitors for the quality of presentations, balance of control and mutual professional respect from everyone and sensible informed questions that encouraged careful answers and views.

The key concern overriding the process was a plea to government to announce a clear step by step strategy with deliverable milestone dates and keep to it. Don’t dither, make the political decision and then support the industry and its necessary adjustments to accommodate the changes with training, skills and business system developments to enable small business to deal successfully with the WASCs.

I always want to see more people there. Everyone I spoke to, and I got to loads of them if they came anywhere near the UKSTT stand, enjoyed a ‘Hero’ chocolate and praised the quality of the exhibition without any arm twisting. So despite the credit crunch UKSTT, Westrade and all the exhibitors still seem to have put on another top class show – next time bring a friend or colleague as well – after all it’s not a day out rather an opportunity to get up to date on your TT CPD! See you next time in 2010.



Indoor stands at No-Dig Live 2008

EVENTS AND MEETINGS



RECORD ATTENDANCE FOR NO-DIG LIVE 2008

According to the organisers, the NO-DIG LIVE 2008 event, held at Stoneleigh Park, near Coventry between 23 and 25 September, was the biggest and most highly attended in its 16 year history. In comparison with the show held two years ago, the visitor attendance increased by 25% and the exhibitor participation was significantly greater, with more than 100 companies represented.

The three day show attracted a strong following of industry visitors from around the UK as well as those from overseas, with engineers attending from a further 20 countries. These visitors were rewarded with a great opportunity to see a huge variety of equipment – both static and live under working site conditions. The outdoor exhibition area was a constant scene of activity, with many demonstrations taking place including pipe cutting, pipe lining, vacuum excavation, directional drilling, moling and CCTV surveys, to name but a few.

A new feature for 2008 was the 'Breakfast Briefing' on the second day. More than 300 visitors signed up to attend a debate on the highly topical issue of the proposed transfer of private sewers to the UK water companies.

Chaired by David Sankey, Executive Chairman of South Staffordshire plc, the panel of speakers featured Phill Mills of Water UK, Toby Siddall, Dyno Group and Martyn Hopkinson, Future Environmental Services. In addition, representatives of a local Residents Association attended to defend the consumer points of view. A lively question time followed the presentations and some regional follow up seminars are likely to be staged in response to enthusiastic feedback from the audience.

"NO-DIG LIVE's popularity with the Industry would appear to be safe and well." commented show director, Caroline Prescot. "With the support of the UKSTT and other influential organisations, it is this team effort that brings together an unrivalled shop window for the industry. This bodes well for the future as we strive to influence an increase in awareness and public expenditure on trenchless technology, that can only lead to a significant decrease in traffic chaos on our roads."

The next NO-DIG LIVE event will be held in Autumn 2010 with dates being announced soon. Keep up to date with all NO-DIG and TRENCHLESS events at www.westtrade.co.uk.



Both outdoor and indoor stands were busy across the three day No-Dig Live 2008 event.

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2008

November/December - Various dates

ASTT Trenchless Roadshow 2008 - Perth, Adelaide, Melbourne, Launceston, Sydney, Brisbane, Auckland and Christchurch

Details (of dates/locations): www.trenchlessaustralasia.com/roadshow

November 5-6

WWEM 2008 - Telford, UK

Details from: www.wwem.uk.com

November 25-28

Bauma China - Shanghai, China.

Details from: www.bauma-china.com

December 4-7

CONEXPO Asia 2008 - Guangzhou, China.

Details from: www.conexpoasia.com

2009

January 20-22

UCT 2009 - San Antonio, USA

Details from: www.uctonline.com

February 9-12

Microtunneling Short Course - Colorado, USA

Details from: www.microtunneling.com

February 16-17

Trenchless Middle East - Dubai, UAE

Details from: www.westrade.co.uk

February 17-19

CGA Excavation Safety 2009 - Orlando, USA

Details from: www.excavationsafetyonline.com

April 20-25

Intermat 2009 - Paris, France

Details from: www.intermat.fr

March 3-5

CGA Excavation Safety Conference and Exhibition - Orlando, USA

Details from: www.CGAConference.com

March 30 - April 3

International No-Dig 2009 - Toronto, Canada

Details from: www.nodigshow.com

May 26-29

4th International CityPipe Exhibition - Moscow, Russia

Details from: www.citypipe.ru

June 14-17

RETC - Las Vegas, USA

Details from: www.retc.org

September 20-22

Trenchless Australasia 2009 - Melbourne, Australia

Details from: www.trenchless2009.com

September 23-25

Tunneling Short Course - Colorado, USA

Details from: www.tunneling.com

October 6-8

ICUEE 2009 - Louisville, USA.

Details from: www.icuee.com

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