

TRENCHLESS WORKS

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ISSUE 45

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INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH



U MOLE SPONSORING AND RECEIVING AWARDS

For more than 10 years now U Mole (a division of Vp plc) has actively shown its support for best practice and application in the UK trenchless market through its ongoing sponsorship of various aspects of the United Kingdom Society for Trenchless Technology (UKSTT) Annual Awards Dinner.

In recent years U Mole has proudly sponsored, in 2007, the Chairman's Reception; in 2008 the Award for New Installation - Small; and in 2009 U Mole was a Dinner sponsor.

For the 2010 celebration, U Mole sponsored the 'Renovation - Small' Award which highlights projects in the pipeline renovation sector for operations valued at less than £250,000. The winner of the Award for 2010 was Denholm Pipecare for its installation work on the 'Leamington Spa Swage project - A Record Pull?'

The project at Leamington Spa involved working closely with the main contractor Morgan Est which carried out the excavation and reinstatement work as well as the butt fusion operations for the new MDPE pipe. The end client was National Grid, with this pipeline rehabilitation project being part of the ongoing gas network replacement programme. The 2009 Swage lining work was the final section of a 4 year rehabilitation programme for this particular Leamington Spa pipeline. The project involved the Swage lining of some 1,772 m of existing 18 in cast iron 'parent pipe' with 469 mm diameter MDPE.

Commenting on U Mole's association with the UKSTT Awards, Russell Fairhurst, managing director of the U Mole division of Vp plc said: "We have had a long association with the UKSTT since its formation in the early 1990s. It has always been one of our aims to promote trenchless technology as a whole as well as market our product lines to the industry. Part of achieving this aim has been our ongoing commitment to sponsorship of the UKSTT's Annual Awards which highlight some of the best practice, application and excellence of trenchless technology across the whole of the UK."

Of the winner of this year's Renovation - Small Award, sponsored this year by U Mole, Russell continued: "We would like to congratulate Denholm Pipecare for its work on the Leamington Spa Swage project and its achievement in receiving this year's Renovation - Small project Award. The use of this particular form of trenchless technology helped to minimise the disruption to the general public and road users. This was achieved, according to Denholm, by stretching the 'normal' boundaries for carrying out Swage lining operations. By using careful planning and organisation the contractor's engineers succeeded in 'pulling' 930 m of 469 mm diameter PE pipe into place in one shift, over night (to further minimise any possible disruption), an achievement which is believed to be a UK Utility record 'pull' for this size of pipe and utilising a winch."

As well as sponsoring awards U Mole has also been on the receiving end of one recently. One of the company's major product lines is the Hammerhead range of impact moles, pipe rammers and the Hydroburst™ and Portaburst™ families of pipe bursting systems. From the cable-based PB15 through the Hydroburst 125 pipebursting system with rotational torque assist to the very powerful Hydroburst 175, this range offers the capacity to replace existing pipes from 40 mm up to 900 mm diameter. Other Hammerhead equipment includes twin capstan winches.

One of the driving factors that made U Mole so successful in its field, in addition to the quality of the products it offers, has been the recognised level of service and support the company provides to customers in after sale care and during hire periods. Russell Fairhurst, managing director of U Mole said: "It has always been part of the company strategy and our overall customer care policy that we put a great deal of effort into our support and back-up services. I do not think we would be in the position we are today, in such a competitive market, if we did not offer this kind of service to customers, who given their experience with our company continue to back to us regularly with more equipment requirements."

In recognition of the excellent level of service warranty support provided to customers by U Mole's fully factory trained team of engineers, Earth Tool, Inc, the US based manufacturer of the



Denholm Pipecare collecting its prize as the winner of the UKSTT 2010 Renovation Project (Small) Award, sponsored by U Mole (a division of Vp plc), presented the recent UKSTT Annual Awards Dinner.

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Hammerhead equipment range, recently awarded the company its Service Award for 2010. Not only was the company recognised by the Award but the individual team members were also each presented with commemorative jackets.

Commenting on the Earth Tool Award, Frank Gowdy marketing director for U Mole said: "It is extremely pleasing to see our efforts in the field of services and back- up recognised in this way, not just as a company but on an individual engineer basis. Not only does such recognition enhance our reputation with our clients but it also spurs our own people to maintain and improve on what is already a high quality service."



The Service Team that was recently rewarded with the Earth Tool Award for Service Excellence for its work with the Hammerhead range of equipment marketed by U Mole.

OTHER EQUIPMENT

U Mole as well as being the approved UK distributor for Earth Tool equipment also offers a full and extensive range of trenchless and limited dig equipment including: Suction/vacuum excavation systems and surface coring equipment for the 'Keyhole' excavation of utilities and services with minimum disruption to the local area and minimum damage to the buried service. Other trenchless related equipment available includes the market leading Robbins SBU equipment, Pipe to Site coiled pipe trailer range, pipe fusion systems, Reed Tools and a complete range of accessories such as Cobra flexible rodding, towing heads, cable socks, pipe pigs, swivels, breakaway connectors etc. Website: www.umole.co.uk

SAINT-GOBAIN PAM UK APPOINTS NEW REGIONAL SALES MANAGER

Iron technology solutions provider Saint-Gobain PAM UK has appointed a new regional sales manager for its access covers and gratings products in the South West and Wales.

James Smith comes into the role with six years' experience of global project management and customer contact roles.

"I'm delighted to join such a customer-focused company with a portfolio of market-leading innovative products," said James.

"The quality of Saint-Gobain PAM UK products speaks for itself and the long-term cost savings that can be made are a testament to the company's design and engineering efficiency. This job is really about helping the local authorities and water companies in the region to identify areas for improvement and realise the cost saving potential behind some of their projects.

We are already working on a number of exciting projects, using our full portfolio of products to overcome all kinds of challenges. My aim is to focus on the customer, making sure the superior quality products deliver added value at every opportunity." Website: www.saint-gobain-pam.co.uk/water-press



James Smith.

PLANS BECOME REALITY FOR WALES & WEST UTILITIES

Following its three-plus two year supplier agreement with gas distribution company, Wales & West Utilities, signed in 2008, MAN has delivered two new MAN TGS 26.440 6x2-4 BL chassis with ground-breaking suction excavation equipment from TT-UK and German design partner RSP. These are the first two vehicles of their kind purchased by WWU and are used for below ground gas-pipe maintenance and replacement work. Surrounding ground, including broken concrete, is sucked up and deposited in a chassis mounted container.

Chassis equipment includes a manual ZF 16S252 OD gearbox, an NMV 221 engine-driven PTO to power the suction fans, an up-rated 9,000 kg front axle and a lifting/steered trailing axle. MAN worked closely with TT-UK to ensure that the chassis specification met the demanding requirements

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INDUSTRY, COMPANY AND INSTITUTION NEWS AND RESEARCH



of the unique suction equipment. The MAN engine drives the powerful fan units that generate an airflow of 22,000 cfm.

This creates a negative pressure to lift the excavated material from the ground without causing damage to underground services near to gas pipes.

“We were delighted to get on board with MAN back in 2008,” said WWU’s Transport Manager, Andrew Pettiford. “and, since then, we have formed a real partnership, particularly with Adam Marchant, who has worked tirelessly to ensure we get an exacting chassis specification. I really don’t think we could have done it with any other manufacturer”. He added, “The result is a truly bespoke vehicle, and one that brings both increased efficiency and safety on site.”

Wales & West Utilities, with its main offices based in Newport, South Wales, is a regulated gas distribution business with around 35,000 km of gas distribution pipelines located in Wales and the South West of England. Covering 1/6th of the UK, WWU serves a catchment area with a population of 7.4 million. Website: www.tt-uk.com



One of the two new MAN TGS 26.440 6x2-4 BL chassis with ground-breaking suction excavation equipment from TT-UK.

BRANDENBURGER AND SEKISUI SPR SIGN SALES AGREEMENT

Brandenburger and Sekisui SPR have entered into a sales cooperation agreement beginning in April 2010. The agreement sets out to mutually expand their product portfolio and further strengthen their market positions in international standards respectively.

“Sekisui SPR and Brandenburger have different product portfolios that complement each other excellently”, said Werner Reiner, Managing Director SEKISUI NordiTube, subsidiary of the Sekisui SPR Europe GmbH. Holger Zinn, Director at Brandenburger, added: “The sales cooperation opens possibilities for both corporations to mutually make use of resources worldwide and to offer the customer a comprehensive program for their specific rehabilitation tasks.”

Both companies were facing challenges to strengthening their position in the rehabilitation market. Sekisui SPR was lacking a light-curing glass fibre liner in its program, and since demand for this process of pipe lining is increasing, Sekisui SPR was confronted with the question of either developing its own product, or collaborating with a different manufacturer. Revealing his preference for a cooperation with Brandenburger, Werner Reiner commented that, “Brandenburger is a pioneer in this field and in my estimation is as before a technology leader.”

On the other hand, the diameter of Brandenburger’s liners are limited to DN 1000. “We debated whether it more realistic to manufacture larger tubes or if a more intelligent variant already existed that could then expand our service range,” stated Holger Zinn. With its subsidiary SEKISUI Norditube, Sekisui SPR has the means for the classic pipe-lining mode with needled felt and warm water curing and tube technologies for the pressure pipe range. Additionally, there are different wound pipe processes up to SPR technology, which is especially interesting for the rehabilitation of large profiles of different cross-section shapes. According to Werner Reiner: “With this cooperation, we cover a spectrum in the sewage area of DN 100 up to diameters of 5 metres or more and for pressure lines ranging from DN 100 to DN 1000 - unprecedented until now.”

Advantages for the customer are that they should have at their disposal a broader range of processes with the corresponding consultation by the provider. This will ultimately increase competitiveness. Website: www.brandenburger.de



Stefan Schikora, Werner Reiner, Holger Zinn and Jacqueline Gruettner at the signing of the new Brandenburger and Sekisui sales cooperation agreement.

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PIPE JACKING, MICROTUNNELLING, TUNNELLING & AUGER BORING

For General Information on Pipe Jacking, Microtunnelling & Auger Boring [click here](#)



HOBAS OPENS TOP-LEVEL RESEARCH CENTER

The international pipe producer HOBAS has announced that it has opened the world's most modern research centre for glass fibre reinforced plastics (GRP) pipe systems in Wietersdorf, Austria. After a year of construction works and an investment of €1.1 million the HOBAS TechCenter was inaugurated on 30 April, 2010.

Concerning quality, HOBAS has always been raising the bar. From raw material choice, ongoing technological enhancements through to looking out for product innovations with even better properties: delivering unexceptional, consistent high quality is the strict basic principle in pipe design and production.

"We cannot and will not allow stagnation. On the contrary, we want to set new standards in the marketplace. We are aware of the responsibility we bear with the delivery of our products and are wary of making promises we cannot keep", stated Doris Strohmaier, Managing Director of the HOBAS Group, defining the company's philosophy. The establishment of a new TechCentre is yet a further step in line with the group's ambitious mission.



HOBAS can now conduct in-house tests on pipes of up to 4 m diameter.

BETTER THAN PREDICTED

The laboratory is certified to international standards such as ISO/IEC 17025 (by TÜV SÜD) and is authorised to carry out product tests to prove various norm conformances for all HOBAS Organisations. Be it stiffness, ring stiffness, abrasion, burst, strain corrosion, creep, cyclic internal pressure loading or longitudinal tensile stress tests under temperatures up to 65° Celsius, the HOBAS TechCentre with its, currently, 115 long and short term testing units is now one of the world's most modern research centres for GRP and covers some 1,000 m². Since pipes alone are only a part of the HOBAS Product Range, couplings and fittings of all shapes and sizes are also put to the test, for example hydrostatic pressure tests on large diameter laminated bends.

Thomas Simoner, the group's Head of Quality Management, Raw Material and Product Development, is already proud of the first the results: "We are better even than we assumed! We tested some old pipes that had been in use for decades and they brought better results than predicted." he said.

It was worthwhile investing €1.1 million, because with the opening of the innovative TechCentre the group claims it has taken a quantum leap. "There is no certification centre that is able to test 4 m diameter pipes. We can now conduct these tests in-house and if necessary the certification authorities can monitor us via camera", explained Thomas Simoner.

The centrifugal casting process of HOBAS GRP Pipes was borne by chance in 1957 in a dye-works in Basel, Switzerland. The wooden cylinders, that had been utilised in the dyeing process constantly splintered and deformed spoiling the expensive textiles that ran between them. A suitable alternative material for the cylinders was found in a combination of glass fibres and polyester resin. The visionary Swiss dye-works team had proven talent with the invention of their centrifugally cast cylinders and very soon recognised that the advantages the material and its special production method brought about were suitable also in a completely different field of application, that of piping. It was exactly 50 years ago that the cylinders were first utilised as pipeline to convey water. Step by step the pipes were improved, the production process automated, the product range extended

and complimented with tailor-made fittings. As a leading international CC-GRP pipe producer, HOBAS today looks back proudly on an exciting company history and can just as positively look into the future. The establishment of the HOBAS TechCentre provides fertile base for many innovations yet to come. Website: www.hobas.com



The new 1,000 m² HOBAS TechCentre.

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PIPELINE REHABILITATION

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BALLYOGAN LANDFILL CULVERT REHAB WINS UKSTT ACCLAIM

Insituform Technologies Ltd. (ITL), alongside specialist contractor Insituform Environmental Techniques (IET) in Ireland, is proud to announce that its culvert rehabilitation project, which formed part of the Ballyogan Landfill Stage 2 Capping Contract, won the prestigious Renovation - Large Project Award at the recent United Kingdom Society for Trenchless Technology (UKSTT) Annual Awards Dinner.

Awarded for excellence on pipeline, culvert or underground structure rehabilitation projects valued in excess of £250,000, the Award highlights the professionalism with which the work was carried out, the planning and application of the methodology and the minimal impact the project had on the environment and surrounding area.

The culvert rehabilitation project was designated as the Ballyogan Landfill Site Carrickmines Dublin 18 works. The client for the works was Dun Laoghaire Rathdown County Council with RPS Consulting Engineers (RPS) acting as its engineering consultant. The main contractor for the project was Priority Construction, and the lining works were subcontracted to Insituform Environmental Techniques.

The project entailed the rehabilitation of twin 1,350 mm diameter culverts, which extend through the body of the site to convey the Ballyogan Stream through the landfill. Investigations had shown that the culverts were at a risk of structural failure due to their location and age. ITL's CIPP lining system was chosen to complete the works.

For ITL, John Beech, Business Development Manager, commented: "To have a project such as this recognised and rewarded by our industry peers as outstanding makes us all at both ITL and IET immensely proud. These installations were not exactly 'run-of-the-mill' jobs. Access was tricky, particularly given the proximity of a major power substation adjacent to the site. The lining operations themselves went very well, even with the logistical challenges of getting materials and supplies to the relatively remote locations of the landfill site. It was a job well done."

ITL is a leader in the provision of rehabilitation systems for the repair of deteriorated pipelines and culverts across the globe. ITL has developed techniques and products over the years with a wide range of applications across the international water industry. Websites: www.insituform.co.uk



Shauna Herron Managing Director of IET collects the Renovation – Large Project Award at the recent UKSTT Annual Awards Dinner 2010.

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HORIZONTAL DIRECTIONAL DRILLING

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A HINT OF GIZEH IN LENNESTADT

Anyone travelling to Gizeh in Egypt will, not surprisingly, see pyramids. But when travelling to Lennestadt in the Sauerland region of Germany, nobody would expect to see such things and is therefore truly impressed when standing in front of the pyramids there. The energy concept is just as surprising.

The Sauerland pyramids in Lennestadt are situated on a mountain overlooking the town of Meggen and can be seen from afar. It is a place of wonder and amazement, which will be accessible to the public from 2010. The area has been named the Galileo Park and exhibitions and presentations are already taking place there. The RAYONEX company occupies in three of the 7 pyramids.



A Winter view of a Sauerland pyramid.

“It is not a place for simple, shallow minded entertainment. It is in fact a place full of sophisticated attractions, intended to awaken the interest in new topics and encourage the mind to reflect on certain aspects”, according to Wolfgang Schmidt, constructor of the pyramids and company owner of RAYONEX and the drilling rig manufacturer TRACTO-TECHNIK.

The pyramids are subject to an innovative energy concept. With this in mind, a decision was made to install and apply geothermal energy for heating and cooling in the first pyramid, which was built in 2005. One of the reasons for this was the fact that gas was not available in this region at the time and therefore the only alternative would have been oil, but this option was not one that was wished for under any circumstances.

Additionally, TRACTO-TECHNIK offers the necessary drilling know-how to achieve the installation, so the decision to go for geothermal energy was made very quickly.

To be able to heat the 1,300 m² offices and production areas of the Rayonex pyramids, a total of 15 inclined bores, each of 50 m length (totalling 900 m) were drilled into the mountain using HDD technology, which were later equipped with twin U-sondes. The heating load is 32.6 kW. The heating is direct, which means without the use of heat exchangers by circulating the whole volume from the pyramids into the mountain and vice-versa. As the area is situated on the filled ground of a disused mining site, a special focus during the bore process was set on boring through water leading horizons, as much as possible. This was intended to increase the high extracting and regeneration performance.

Another bore method was applied to heat and cool the other pyramids. A total of 9 vertical bores, each over 99 m (totalling 881 m in all) were carried out with the Geodrill 20 V vertical boring rig from TRACTO-TECHNIK. After completion these bores were also equipped with twin U-sondes of diameter 32 mm. A 25% monoethyleneglycole mixture was used as the heat transfer medium. To be able to dimension the earth sonde field, the distribution of the sondes was calculated in advance using ‘Earth energy designer’ software. The heating and cooling of the pyramids is controlled from the energy supply station, the so-called ‘Energy Temple’. The 63 kW heating pump installed here provides a pleasant climate in all the pyramids.

In the Galileo park not only the buildings are heated and cooled, but also the 200 m² pond. The innovative GRD technology was also applied in this case. A shaft was installed on the pond’s island,

from where ten 114 mm diameter bores of up to 50 m depth were installed radially. The compact bore rig only required a small set-up surface and hardly caused any surface damage. The rig has a great advantage when renewing heating systems in old buildings. Also, a study carried out at Siegen University has shown that radial bores are especially energy efficient and create only minimum running costs.

A schematic of the GRD-Slanted bore method.

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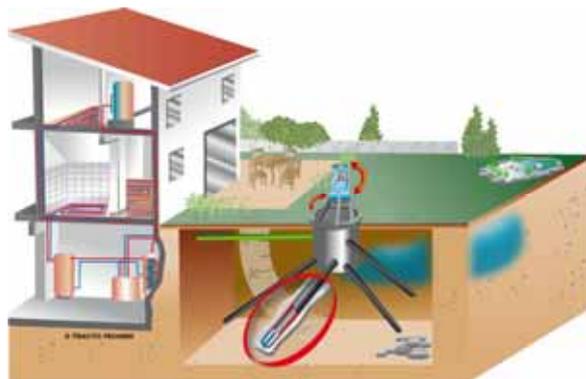
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Water was used as a heat transfer medium inside the coaxial sondes. This is called direct heating and cooling, without adding a heating pump to the whole circuit. The geothermal heating and cooling load is 15 kW.

Furthermore an animal enclosure, where currently 4 coatis are living as 'watchers' over the pyramids, was connected via an 8 kW air-water heating pump to the ground heater.

The Sauerland pyramids are therefore operated with horizontal, vertical and radially installed geothermal sondes, as well as with an air-water heating pump. Website: www.tracto-technik.de

The GRD bore rig, which accomplished the radial bores on the pond island in position for one of its radial bores.



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ONLINE PIPE REPLACEMENT

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INNOVATIVE DEVELOPMENT SAVES TIME AND COSTS

One of the major driving forces behind the development of most trenchless technologies has been the need to minimise the impact of construction projects on the general public and the environment whilst still enabling clients and their contractors the ability to complete works cost-effectively and efficiently. Whilst this has led to numerous individual technologies over the years, this 'develop and adapt' philosophy can also be applied to individual methods as well. This was clearly demonstrated in a recent project undertaken by Dyno-Rod with the aid of development engineers at U Mole (a division of Vp plc). In this instance an existing piece of equipment, a PB15 cable-based pipe bursting system, was adapted with the development of a new design of docking station to enable works on a sewer rehabilitation in Roakes Avenue, Chertsey, Surrey, UK to be completed with less excavation and therefore reduced cost and less environmental and social impact than was originally expected for the project in hand.



Typical Pitch Fibre Pipe deformation at the Roakes Avenue site.

PROJECT LOCATION AND SCOPE

Roakes Avenue consists of 7 houses which have shared responsibility for the drainage system (a Private Sewer) which was laid in the early 1970's. The sewer system comprises approximately 80 m of 100 mm (4 in) diameter pitch fibre pipes. The residents were experiencing repeat blockages of the system and, following a full CCTV inspection, the pitch fibre pipes were found to be blistered and deformed, with the deformation ranging between 5% and 40%.

The scope of works to rehabilitate the sewer system included re-rounding and lining the sections of the sewer where the deformation of the pitch fibre pipe was less than 20% using the Dyno-Form lining process operated by Dyno-Rod. Where deformation exceeded 20% it was originally decided to replace the sections of pitch fibre pipe using Dyno-Rod's unique WRc Approved 'in2' Pipe Replacement System using a PB30 pulling machine provided by U Mole. Due to the size of the PB30 machine, site engineers would also need to excavate access pits.

The initial works were specified to be undertaken over 15 days, however, during the time interval between submitting the project proposals and authorisation to commence work, Dyno-Rod had been trailing a new cable pulling machine from U Mole, a PB15 system newly introduced from the USA.

In total the original plan was to carry out 5 small excavations (each of 1 m² in area) to house the PB30 and replace 46 m with the in2 pipe replacement system.

In the event, and with the new PB15 available, Dyno-Rod and U Mole decided to work closely together to investigate whether it would be possible to develop a docking station which would allow the PB15 to be mounted vertically on top of the docking station. The idea behind this investigation was to enable the combined docking station and PB15 to sit within an existing small manhole or excavated chamber of just 600 mm x 450 mm. In the case of Roakes Avenue the majority of the drainage system was between 2 and 2.5 m deep and the PB15 and docking station would fit within the existing manholes, thereby, further eliminating the need to excavate deep pits to house the PB30 machine.

The cooperation proved very successful, with the engineers at U Mole and Dyno-Rod creating a docking station that totally met the client's needs whilst minimising project excavation requirements. This ultimately enabled Dyno-Rod to improve the site operations and efficiency significantly both in terms of access requirements, impact on the Avenue's residents and ultimately project out-turn costs.

The new PB15/Docking Station assembly.



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SITE PERFORMANCE

Works commenced with the site engineers completing the re-rounding and lining of the sections of pitch fibre pipes, where the deformation of the pitch fibre pipe was 20% or less, in just 5 days. This included the preparation, re-rounding of 4 individual lengths and the installation of 33 m of cured-in-place liners.

The installation of the in2 pipe replacement system was also undertaken in just 5 days using the PB15 hydraulic pulling machine, docking station and 107 mm diameter bursting head. This included breaking out the benching in the manholes, installing 46 m of 100 mm diameter in2 pipe using the PB15 machine over 5 individual lengths and the reinstatement of the manhole benching.

All of the works were carried out using trenchless technology systems by using either Dyno-Form or the unique in2 Pipe Replacement System. With the introduction of the PB15 and the newly designed docking station the job was completed in just 10 days instead of the 15 originally planned for. This was possible because the newly designed equipment fitted within the existing manholes. Ultimately a cost saving of 20% was achieved through not having to undertake 2 m+ deep excavations to house the larger PB30 machine.

The residents of Roakes Avenue were very happy with the works carried out as there was very little disruption to their gardens and property as well as the works being completed at lower cost, 5 days ahead of the schedule originally proposed.

There was a significant reduction in the health and safety risks as the site engineers did not have to undertake any deep excavation works again due to the PB15 and docking station fitting within the existing manholes. An added benefit from this change in operating plan was that there were no open excavations or piles of excavated material for the residents or passers-by to fall into or over.

Environmentally the deployment of the PB15 and docking station has resulted in the team not having to complete 4 deep excavations and the associated disposal of excavated materials, as well as eliminating the need to import clean backfill/reinstatement materials. Using the in2 Pipe Replacement System also resulted in not having to replace 46 m of deformed pitch fibre pipe by traditional trench excavation methods.

The close cooperation between Dyno-Rod and U Mole engineers for the development of the new docking station to meet the specific requirements of this, and potentially future similar projects, was an integral part of the success of the project not just in the speed of completion but also in minimising the environmental, social and cost impact of the project on Roakes Avenue residents. Since the works were completed, the residents have had no further problems with the drainage system.

EQUIPMENT RANGE

U Mole, a division of Vp plc are direct factory distributors for Earth Tool equipment offering the company's full range of products for trenchless installation and pipeline replacement. This range includes impact moles (earth piercing tools), pipe ramming hammers, twin capstan winches, static rod pipe bursting systems and the portable cable-based, hydraulic pipe burster range. U Mole also supplies a full and extensive range of trenchless and limited dig equipment including: Suction/vacuum excavation systems and surface coring equipment for the 'Keyhole' excavation of utilities



The PB15 and its Docking Station in a 2.5 m deep manhole.

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The location of a manhole in a garden.

ASSET MANAGEMENT, MAPPING & SURVEY

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PIPELINE MEASUREMENT SURVEY IN HÄMEENLINNA

Pipeline inspection systems such as CCTV are most commonly used to find defects and assess conditions in existing pipelines that have been in service sometimes for many decades.

However, in recent years increasingly detailed survey results have been sought by client companies to ensure that their budgets and planning systems are effectively and, possibly more importantly, efficiently utilised. Currently Oy DigiSewer Productions Ltd (DSP) is involved in a project for the Hämeenlinnan Seudun Vesi Oy (municipal authority) of the town of Hämeenlinna in Finland, located about 100 km north of Helsinki, to inspect parts of its sewer network. Finland is a country of around 5.4 million people with a public sewerage network totalling around 50,000 km.



A view over the town of Hämeenlinna, Finland.

The Hämeenlinnan Seudun Vesi Oy is responsible for sewerage networks totalling about 700 km, rain water sewers totalling about 300 km and drinking water pipes covering some 850 km, which serves a population of about 77,000. The Authority operates three main wastewater treatment plants. Currently the cost to Hämeenlinnan Seudun Vesi Oy for providing clean and wastewater services to this population is about €3.2/m³.

The main aim of the current project is to get detailed information about lengths of concrete sewer pipelines which were built between 1950 and 1975 in order to establish what the current conditions are and what maintenance and rehabilitation needs there are throughout these pipe lengths.

Known as the 'Sewer Cleaning and DigiSewer[®] Inspection Project in the City of Hämeenlinna, Finland', the main contractor for the works is Painehuuhtelu Oy PTV of Nurmijärvi, Finland. The pipe condition measurement works are being carried out using the with DigiSewer[®] System.

Ground conditions in the project area under inspection comprise an extensive gravel hogback (ridge) beneath which the pipeline runs. The schedule for the project runs from 26 April to June 15, 2010. The project value is around €30,000 and includes project management, pipeline cleaning, condition measurement, manhole inspection, analysis and reporting of the results and a summary of the results obtained.

The project to measure the condition of the sewer pipelines in questions first involves high pressure cleaning to ensure that full access to the pipeline is available to the inspection system. Cleaning is being achieved using twin tank high pressure jetting lorry which provides cleaning water at 150 bar pressure at 350 l/min. The capacity of the unit comprises two x 8m³ twin tanks. The cleaning unit is being provided by Eurmark of Finland.

Once any given length is clean and accessible to the DigiSewer[®] measurement/inspection unit, the survey can take place. The DigiSewer[®] unit comprises the DigiSewer measurement unit mounted on an iPEK Rovver tractor unit. Software for the analysis of the data recorded during the survey is the WinCan V8 system. On completion of the survey and to make handing over of the inspection materials simpler the client is provided with free WinCan Viewer software which makes interpretation of the results easily understood.



The DigiSewer[®] unit, mounted in a survey van, being placed into a pipeline prior to a measuring run.

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ASSET MANAGEMENT, MAPPING & SURVEY

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THE DIGISEWER® SYSTEM

The DigiSewer® system is designed to be a fast and reliable method of measuring the condition of a pipe and storing this information into a digital format. It provides automatic interpretation of condition data collected to a dimensional accuracy of 1 mm using specially designed data analysis software. This makes the actual survey, data collection and interpretation process operator free. This is achieved because the viewing head of the DigiSewer® system is designed to scan the whole of the inner pipe wall around its full 360°



The operator's survey control desk of the DigiSewer® system showing operational displays.

circumference in the one operation, unlike conventional CCTV which requires operator intervention to reposition the camera head to view defects, laterals and joints during a survey.

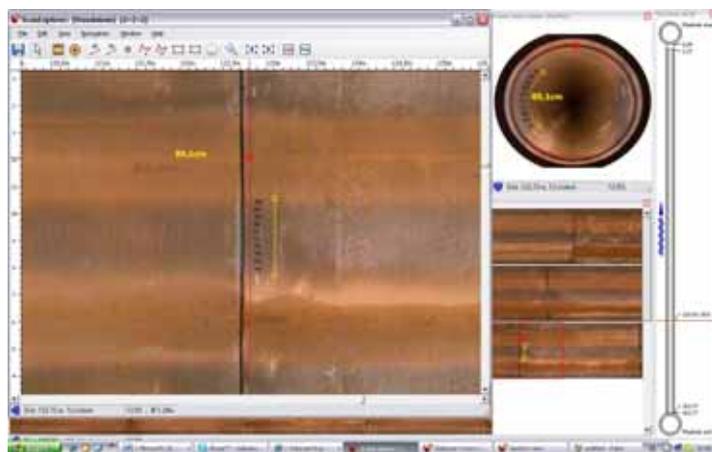
Unlike with conventional CCTV survey systems, DigiSewer® tends to be referred to as a condition 'measurement' of the pipeline as opposed to an 'inspection'. This is because the data collection achieved with the DigiSewer® system provides a level of accuracy not possible with conventional systems.

The DigiSewer® measurement equipment normally runs uninterrupted from one manhole to another, but in the case of the new raw water pipeline the survey runs through the most recently laid pipe section. Unlike conventional systems, there is no need for the camera operator to stop the survey equipment where defects are found, to record positional data and condition notes on screen to aid later analysis. This is because the data collected by DigiSewer® is automatically stored millimetre by millimetre onto a computer or storage device as the survey progresses without operator intervention, making surveys much quicker to complete.

Using the WinScan Viewer, it is also possible to see five different aspect pictures of one single defect at same time. These include the open view, the front view picture, the complete manhole to manhole section on a single screen, a graphic drawing of the manhole to manhole section showing the plan position of any defect and the inclination curve of the pipeline between the manholes.

Also, as compared to conventional CCTV surveys, the speed at which the collected data can be reviewed by analysts can be as much as five time faster. In its latest development DigiSewer® is also now compatible to the iPEK SUPERVISION SYSTEM.

Commenting on the works to date, Timo Heinonen managing director of Hämeenlinan Seudun Vesi Oy said: "The data from the sewer inspection and the condition results it presents us with is very important. Only with this data can we make decisions we can trust with respect to budgets and our planning of maintenance and rehabilitation actions for our sewage network. The age of these old



A typical screen output a pipeline survey viewed using WinScan Viewer.

concrete sewers is critical and we need to have an exact yet easy way to handle condition data to support our decisions for the future. This kind of inspection helps a lot in our annual budget planning process."

Jani Kuikka, managing director of Painehuuhtelu Oy PTV said: "The DigiSewer® system gives inspection contractors like ourselves a fast, reliable and at same time, very trustworthy method of providing easy-to-understand data to our clients; such as municipalities, cities and water

companies. Working and reporting with WinCanV8 is an effective and clever tool for our operators as well as being very useful and helpful to our clients as well." Website: www.painehuuhteluptv.fi

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SUPPORT EQUIPMENT, ACCESSORIES & SERVICES

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MC ELROY SOCKET FUSION TOOLING KITS AND CATALOGUE

McElroy's new Socket Tooling Kits are set to simplify the work lives of contractors. The kits offer contractors an opportunity to purchase a complete tooling set that includes a Multi-Mc™ heater, heater sling, heater adapters, ratchet shears, chamfer tools/depth gauges, spare chamfer blade and cold ring tools.

By offering a complete kit, McElroy was able to put the kits in a specially designed tool box with a custom tray to hold the components. The Socket Tooling Kits incorporate a price break over ordering each piece of tooling equipment a la carte.

Socket tooling is designed for socket fusion procedures. Socket fusion is a technique for fusing high density polyethylene (HDPE) pipe fittings in 1/2 inch copper tube size (CTS) to 4 inch iron pipe size (IPS) pipe sizes (16 mm to 125 mm).

"The new Socket Tooling Kits are a great opportunity for contractors that perform focused work, whether in the geothermal, irrigation, gas or other industries, to buy a kit that has tooling in the pipe sizes they deal with on a day-to-day basis," said Chip McElroy, president and chief executive officer of McElroy.

Eight kits are available that consist of equipment geared to specific ranges of fitting sizes and heater voltage requirements. The four size range options include a 3/4-inch to 2-inch IPS; 1/2-inch CTS to 2-inch IPS; 3- and 4-inch IPS; and 3/4-inch to 1 1/4-inch IPS. After choosing the appropriate size range, contractors can choose either a 120- or 240-volt Multi-Mc heater.



A Socket Fusion Tooling Kit at work.

McElroy also recently announced that the seventh edition of its polyethylene pipe fusion catalogue and reference guide will be available in June 2010. The guide is often regarded in the industry as one of the prominent sourcebooks for polyethylene pipe fusion equipment, accessories and information.

The McElroy Fusion Catalogue and Reference Guide includes information on the full range of McElroy fusion equipment and an expanded reference section. The latest catalogue also features the details and specifications of more than 30 new products.

Fusion Catalog and Reference Guide is possible through the McElroy website: www.mcelroy.com/catalog. The catalogue is also available for download in PDF file format from the website.



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The updated catalogue also introduces the DynaMc™ line of equipment. This new line represents the opportunity to offer smaller, rugged machines that still offer robust features. The DynaMc family consists of hand pump (HP), electric pump (EP) and automatic machines.

Consumers familiar with past McElroy catalogues will notice that the latest edition is broken into different sections that include fusion machines, productivity tools, accessories and reference. The new productivity tools section is packed with McElroy's growing line of productivity-enhancing equipment. The other sections are growing as well, with the company's focus of producing fusion equipment and accessories for every fusion application. Website: www.mcelroy.com

TWO FIRSTS FOR STEVE VICK PIPE HANDLER ON OXFORD STREET

The Steve Vick International Pipe Handler has recently been used on Oxford Street, central London, to slipline a large diameter cast iron water main.

This is the first time the new Pipe Handler has been used for inserting a water main, having previously been used on gas mains; and the 500 mm diameter PE used to slipline the main is the largest diameter pipe so far handled by the equipment.

Due to major redevelopment works being carried out at Tottenham Court Road Tube Station, a number of water, gas and other utility pipes underneath Oxford Road required strengthening or replacement before the excavation and tunnelling works could be carried out.



The Steve Vick Pipe Handler in operation.

The Pipe Handler is a device which attaches to the quick hitch or bucket pins of an excavator in order to pick up and manoeuvre PE pipe on site. The swivel head allows the excavator operator to grasp the pipe in its jaws and move it into position. The operator is then able to push the replacement PE into the host pipe using the hydraulic power of the excavator. There is just one-set up operation for the entire insertion procedure and all actions are safely handled from the cab without the need for operators to work in the trench.

As part of the utilities refurbishment project at Tottenham Court Road, Barhale Construction plc was contracted to replace a 600 mm diameter cast iron water main, possibly dating back to the 1820s, by inserting over 300 m of 500 mm diameter PE pipe.

When sliplining a main in the water industry it is customary to use a winch. This involves threading the existing main with a wire cable, which is then attached to the new PE pipe via a securely fitted towing head. The winch, placed at the finishing section of the main, then pulls the PE pipe through the length of host pipe.

When beginning the sliplining operation, Barhale Construction found a number of tight bends in the water main which meant that winching alone did not provide sufficient force to pull the PE through the host pipe. One solution would have been to use a much larger winch but given the extremely busy location on Oxford Street and the limited space available, this was not an option. The risk of a breaking winch cable under tension can present a serious potential safety hazard for operators and members of the public.

The Pipe Handler, recently introduced by Steve Vick International and developed in association with National Grid Gas, provided the solution for Barhale Construction. The company hired the equipment at the end of March 2010 and attached it to the 8 t excavator on site. "Attaching the Pipe Handler took only a few minutes", said Mike Faherty, Site Agent of Barhale Construction "so we were able to begin inserting the pipe immediately. The equipment was ideal for the job and we were able to push 220 m into the main from the launch excavation over three days. Due to the diameter of the pipe (500 mm) we needed to butt fuse sections before inserting which slowed down the process, otherwise we would have completed the job very quickly."

Prior to its introduction, the Pipe Handler underwent extensive trials across the gas distribution network and it is now in widespread use in the UK in gas mains replacement projects. Two models are currently available to handle pipe diameters up to 355 mm and up to 500 mm. Each model can be used to handle smaller diameter pipe by using shell inserts. Website: www.stevevick.com



UKSTT NEWSLETTER



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THE LAST OF THE SEASON

UKSTT councillors delivered the final University lecture of the season at Newcastle University on 28 April, 2010. Whilst offering a general industry overview on various trenchless systems and techniques the lecture had a clear directional drilling bias given the Marine Engineering background of many of the undergraduates.

Steve Kent, John Ritchie and Brian Syms were all there to ensure no questions went unanswered.

Attendance by nearly forty students was excellent and interesting discussions resulted from prepared and searching questions.

This lecture brings to a close the 2009/10 season, although preparations are already under way for next year's programme, including a possible coach trip from Brunel University bringing students to visit the biennial No Dig Live show at Stoneleigh on 7th October.

UKSTT wishes to thank all the council members who

gave their time and support throughout the programme and in addition to Dr Dec Downey, ISTT President, who was able to add his support, in helping to deliver one of the society's key aims in furthering knowledge, use, and awareness, of trenchless systems and techniques. Website: www.ukstt.org.uk



UKSTT lecturing at Newcastle University.

EVENTS AND MEETINGS



2011 NASTT NO-DIG SHOW CALL FOR ABSTRACTS

The North American Society for Trenchless Technology (NASTT) is now accepting abstracts for its 2011 No-Dig Show in Washington, D.C. located at the Gaylord National Resort & Convention Center, March 27 - 31.

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Prospective authors are invited to submit a 300 word abstract outlining the scope of their paper and the principal points of benefit to the trenchless industry. Abstracts may be submitted electronically via www.nodigshow.com by July 2, 2010.

The No-Dig Program Committee will review abstracts in late July, and notify the primary authors of acceptance immediately afterward. To ensure meaningful technical content, all papers and presentations will be peer-reviewed. Final papers will be published in the conference proceedings.

The theme of the Washington D.C. 2011 No-Dig Show is Trenchless: The Sustainable Solution. The following are suggested topics to match the conference theme:

- Asset Management
- Advances in Pipeline and Manhole Rehabilitation (CIPP, Slip-Lining, Bursting, Lining Materials and Application Methods, etc.)
- New Installations
- Trenchless Research and Development
- Infrastructure Advancement
- Environmental Incentives - Challenges and Sustainability
- Project Planning and Delivery
- Construction Project Management
- Industry Issues

NO-DIG LIVE 2010 - SPECTACULAR DISPLAYS AND DEMONSTRATIONS

Trenchless technology will once again come alive at the 10th biennial NO-DIG LIVE event to be held at Stoneleigh Park, near Coventry, UK between 5 and 7 October 2010.

The outdoor demonstration area is already sold out and visitors can look forward to an exciting range of equipment in action, demonstrated by many of Europe's leading suppliers.

As the UK's leading industry event, it is the only one dedicated to trenchless technology where you can see machinery in action.

NO-DIG LIVE offers visitors the opportunity to get close to the exhibits, touch, feel, get their hands dirty and discuss the capabilities of a wide range of products, including the unveiling of many new products which will be launched at the event.

There is also a series of FREE breakfast briefing seminars which will be held each morning before the show opens.



A view of the outside stand area from the previous 2008 event.

EVENTS AND MEETINGS



AROUND THE STANDS

The following are some early highlights of exhibitors' latest technology which will be demonstrated and displayed at this year's show.

Ant Hire - The Troglotech push rod camera system has been further improved in two key areas, lighting and video performance. Working with a leading LED manufacturer the new devices produce 300% more light than the leading competitor's products and combined with the latest in CMOS sensor technology to improve picture clarity, the camera will produce high-resolution pictures in all conditions. The combination of increased illumination and CMOS technology strengthens Troglotech's position as the leader in camera technology. Come along to Ant Hire stand 104 to see the improvements for yourself.

On Outside Stand 1, TT-UK will display its new GRUNDODRILL XP range, which offers numerous high-tech-components. The boring operation has not become more complicated – quite the opposite. Increased rotation performance and advanced technical improvements, speak volumes for the 15XP, which works more quietly compared to other bore systems. New features include 400 mm wide rubber undercarriage; bore-data storage system; installed pipe tensile strength measuring system and remote data transfer to LCD display, which controls bore mode and auto-bore. A 'black box' stores the bore process, making data always available. The dynamic percussive hammer (1,500 strokes/min increases application possibilities in stony soils and weathered rocks.



TT-UK's new Grundodrill XP.

Whirlwind Harrier will show its system for the cleaning and lining of pipes from 12 mm to 75 mm. From December 2013 The Water Supply Regulations will reduce to 10 microgram's per litre ($\mu\text{g/l}$), the standard for lead in water supplies. It is well documented by the DWI and others that they believe this can only be achieved by replacement or relining. Whirlwind has developed a system for cleaning and PU lining 12 mm to 50 mm pipes using the tried and tested Whirlwind system. In the UK there are 7 million homes with Lead Pipes. To replace all the pipes will cost £8 billion and this is well beyond the capacity of the water industry. To clean and line the 7 million homes using the Whirlwind System will it is estimated cost £1.2 billion



Pipe Equipment's Window Cutter.

New on the Pipe Equipment Specialist Ltd stand this year will be the recently developed Window Cutter. This product, which is designed to cut 'windows' in previously lined metallic pipes to allow access to the inserted plastic pipe, supersedes the previous hand held model. It is suitable for both Slip Lined and Close Fit Lined pipes and it is able to make both longitudinal and circumferential cuts. It attaches to the existing pipe using adjustable chains. It joins the already extensive range of products available from this company for the trenchless industry which will be on display at the exhibition.

From locations nationwide, A-Plant offers a vast range of Trenchless Technology equipment,

including cobra rodding systems, electro fusion equipment, butt fusion equipment, pipe coil trailers, pipe pushing machines, cable detection equipment and diesel powered trailer winches. A-Plant has Trenchless Technology locations which are operated by specialists in the field. A-Plant's Trenchless Technology products help customers avoid the many hazards of excavation, as they allow the ground support to be installed without the need to enter the excavation. By using Trenchless Technology, associated costs are far lower than traditional open cut/trenching. Reinstatement costs and long-term environmental liabilities are also greatly reduced.

C-Scope's eagerly anticipated NEW MXL and MXT Precision Pipe and Cable Locating equipment will be on display at NO-DIG LIVE

C-Scope's new MXL locator.



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EVENTS AND MEETINGS



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2010. The MXL and MXT Locator kit features four, easy-to-use locating modes, multi-frequency signal output plus fast and accurate depth measurement and signal current measurement. It is designed to detect, identify and trace specific buried pipes and cables, reliably and accurately, even in the most congested areas.

Per Aarsleff UK's Pipe Technology Division had to contend with the tide when successfully relining a 450mm discharge pipe at Bawdsey, East Suffolk. In consultation with tide tables, plans were laid. The resin impregnated liner, designed and manufactured in-house, was installed by the Aarsleff team in between high tides. The actual installation was over in a few seconds and allowed curing to take place. After curing and cooling the ends of the liner were cut off. Using this No-Dig, CIPP method the client spent a fraction of the cost it would have taken using conventional pipe replacement. See the technology on display at NO-DIG LIVE 2010.



Lining operations with Per Aarsleff.



An inversion lining drum from Trelleborg.

equipment at the show including the new Hydroburst HG2.5/HG5 twin capstan winches, the latest models of MTS suction excavators as well as new developments in the Hydroburst pipe bursting range and Pipe to Site Coil Trailer Range. As always U Mole will be completing live demonstrations including moling, pipe-bursting, winching and suction excavation with MTS equipment so come and join us to discuss the equipment and enjoy a bowl of U Mole's famous No-Dig Live Chilli.

Breakfast Briefings will be organised by UKSTT. Visitors to NO-DIG LIVE can sign up to the early

One of the worlds leading specialists, Trelleborg pipe Seals Gateshead, offers materials and systems for waste water, water and sewer rehabilitation, including patch repairs, CIPP mainline and lateral rehabilitation, hat profiles, and pressure testing. The company will be introducing a new range of portable steam generators for fast curing of laterals and mainline as well as the new range of liners including the inversion glass fibre liner. New epoxy resins offering fast impregnation, long pot lives (up to 44 hours) and fast cures. Full certified training, onsite support and marketing support is also offered.

U Mole, a division of Vp plc, will be exhibiting its latest range of trenchless



An MTS Vacuum Excavation System from U Mole.

STOP PRESS

International No-Dig Singapore 2010 sells out!

ISTT's first showing of its annual INTERNATIONAL NO-DIG Conference & Exhibition in Singapore is receiving resounding support from the industry. The exhibition hall originally booked for the show is already sold out and is to re-locate to a bigger hall.

Website: www.nodigsingapore.com

morning programme of breakfast seminars held each day. Discussion topics will include:

- Day 1 - Street works and their impact on the travelling public
- Day 2 - Private Sewer Transfer - Where are we now?
- Day 3 - 'Carbon - the environment - accounting for and reducing the site footprint

Website: www.nodiglive.co.uk

EVENTS AND MEETINGS



2010

June 1-4

International Trade Fair and Conference for Trenchless Technologies - Moscow, Russia

Details from: www.nodig-moscow.ru

July 1

SBWWI Wastewater Seminar 'Squeezing the last drop' - NAC, Stoneleigh, UK.

Details from: www.sbwvi.co.uk

July 21-22

IV Brazilian Congress for Trenchless Technology 2010 - No Dig Latin American - São Paulo, Brazil

Details from: www.abratt.org.br/nodig2010

September 13-17

IFAT - Munich, Germany

Details from: www.ifat.de/en/facts

September 27-28

4th European Water & Wastewater Management Conference - Leeds, UK

Details from: www.ewwmconference.com

October 5-7

No-Dig Live 2010 - Coventry, UK

Details from: www.nodiglive.co.uk

October 17-20

Trenchless Live 2010 - Coffs Harbour, NSW, Australia

Details from: www.trenchless2010.com

November 8-10

International No-Dig 2010 - Singapore

Details from: www.nodigsingapore.com

November 23-26

Bauma China 2010 - Shanghai, China

Details from: www.bauma-china.com

2011

March 27-31

NASTT No-Dig Show - Washington, USA.

Details from: www.nastt.org

May 2-5

International No-Dig 2011 - Berlin, Germany

Details from: www.nodigberlin2011.com

2012

May 14-16

International No Dig Show 2012 - São Paulo, Brazil

Details from: www.nodigshow2012.com (available soon)

If you have an event, course or meeting scheduled for 2009 or 2010 and would like to add it to this listing please forward details to: ian@nodigmedia.co.uk