

## Auger boring with a new machine

by Rowlands Stols (Jacked Pipelines, a division of WK Construction (Pty) Ltd)

### Introduction

From time to time the editor of *SASTT News* appeals to members to let him have short stories on interesting projects, together with plenty of pictures. He says one picture is worth a thousand words...

Here are two stories from Jacked Pipelines to set the ball rolling.

### Pipejacking for the 2100 mm internal diameter steel water pipeline from Zuikerbosch pumping station to Palmiet pumping station

#### The machine

WK Construction (Pty) Ltd is the proud owner of a new Barbc0 72/84-2.6MXHD auger boring machine imported from the USA. Currently, this is believed to be the largest and most powerful auger machine known in the trenchless technology field. It can install diameters up to 2140 mm OD (steel) casing and 2053 mm OD (concrete). Sleeves over lengths of 60 metres can be installed with an average production of 6 - 12 metres a day depending on ground conditions. The machine was used to install the above pipeline.

#### Pictures

Some illustrations appear below.



*The 3000 mm OD jacking shield*



*2500 mm ID 100D IWJ jacking pipes*

**Pipe jacking for the re-routing of a 1000 mm diameter steel h14 pipeline at Snake Valley  
(joint venture with Sakhile Projects cc)**



*Auger boring a 1840 mm ID steel casing*



*Installation of 1473 mm ID 100D jacking pipes while replacing the steel casing*

**ISTT trenchless technology photo competition and sponsorship**

by John Hemphill, executive director, ISTT

**Introduction**

The International Society for Trenchless Technology (ISTT) is sponsoring a trenchless photo competition to select approximately 100 photos for a *Trenchless Technology Photo Album* to be rolled out at the 2013 *International No-Dig* in Sydney. The album will be a hard-copy, high-quality publication of photographs with associated descriptions that illustrate the many activities of the industry.

**WHY DIG TRENCHES WHEN YOU CAN GO TRENCHLESS**

## **Photo submission**

The application process is simple and straightforward. ISTT members and members of national societies may submit as many photographs as they wish. Each photograph and associated description must be submitted on a separate electronic application-form post on the ISTT website at

<http://www.istt.com/istt-photo-competition>

Applicants will receive an e-mail confirmation that their application has been received.

Applications will be judged on five factors:

- image quality (above 300 dpi)
- aesthetics
- visual story
- written story
- broad appeal (non-commercial).

The selection of photographs for publishing in the *Album* will be further screened to ensure that the *Album* has a broad diversity of images; technologies; and geographical locations.

The closing date is 31 May 2013.

I am looking forward to receiving photos from SASTT's members.

## **Sponsorship**

The ISTT also seeks contributions from our corporate and individual members; and from other interested parties; to help support the cost of publishing the *Album*.

The ISTT has established two levels of sponsorship: corporate and individual. The corporate sponsor level is \$ 2 500; the individual sponsor level is \$ 250. The sponsorship form is posted on the ISTT website at

<http://www.istt.com/istt-photo-competition>

Corporate sponsors will have their organisation's name, logo and website listed in the *Album*; individual sponsors will have their name, title and organisation listed.

Sponsors will have no role in the selection of photographs.

## **Training course: *Horizontal directional drilling for managers: a review***

### **Introduction**

During the last part of 2012 Andre Wood of TRG International Pipeline Company (Pty) Ltd approached the board of SASTT regarding a set of programmes for training in horizontal directional drilling. These courses had been developed by the WTI Training Group in the United Kingdom. The examinations would be set by the City and Guilds of London Institute (City & Guilds), which is a vocational education organisation in the United Kingdom.

Wood asked the board to endorse the programme, which he wanted to introduce to South Africa. The board felt that there was no need whatsoever for endorsing a course which was moderated by City & Guilds.

However, the board requested two members of SASTT to prepare a review of the course after they had attended the initial events, which were held on 28 and 29 January; as well as 31 January and 1 February 2013. Below is an edited version of their comments.

SASTT thanks SMEC South Africa (Pty) Ltd and TT Innovations (Pty) Ltd for allowing their delegates to submit reviews to the board.

## **Venue and lecturer**

The course was hosted by ELB Equipment in Boksburg. It was enthusiastically presented by James Mansel of Clear Solutions. Mansel came across as being very knowledgeable regarding industry best practices – in particular with regards to health and safety aspects.

## **The course**

This training course provided a realistic and comprehensive overview of directional drilling. The course facilitator provided not only the course material but also numerous examples of both good and bad practice from his extensive experience in the field.

Although the course was aimed at managers (consultants, contractors, clients), it was mainly attended by HDD subcontractors. The subcontractors showed a great enthusiasm that this course was aimed at managers, as they indicated that there is a significant lack of understanding of the drilling process on the clients' side.

The course was presented in three parts, viz:

- lectures
- a case study
- examination.

The two-day lectures covered all aspects of directional drilling, including:

- the health and safety risks surrounding HDD operations both at the rig and at the remote location where the backreamer is attached
- appropriate drilling equipment – this gave an introduction to the drill rig; the different types of rigs that are available; and the type of drill bit required for clay, rock or sandy terrain
- site planning – this provided a layout for the site ensuring that there is adequate space; and gave an overview and examples of how to design the drill path profile
- drilling fluids – some of the different fluids were demonstrated in the course and the associated benefits for different applications were emphasised. Although the facilitator is affiliated with Clear Solutions (a drilling fluid supplier), he was not biased in his presentation. He often reiterated that not all fluids will work with all applications
- locating existing services – the facilitator gave the best practice of locating underground services and provided a number of case studies from his experience. He stressed the fact that all services have to be located before any drilling commences.

The case study split the attendees into two groups in order to debate whether the drilling contractor or the client was responsible for the consequences of poor drilling.

A real-life claim was distributed to all delegates. Two teams were formed, with one team representing the "client" and the other team the "contractor". A discussion and debate followed where each team had to defend its position or claim – which was a great learning experience.

Mansel then concluded the debate by briefing the attendees on the outcome of the historical claim. This provided a unique perspective to all delegates and served as a warning to what can go wrong. It also provided an opportunity for the attendees to share their experience of drilling in South Africa. Attendees gave examples of the dynamics between the drilling consultants and the clients.

An open-book examination was written on the course material in order to determine the attendees' understanding of the topic. The examination not only required a rote understanding of the coursework but also required the attendees to think about the drilling process and apply

their knowledge. The pass mark for the course was 70 %. It will serve as a great marketing tool for delegates who wish to authenticate their competence to clients and engineers.

### **Conclusion**

Overall, the course was thorough and provided a comprehensive understanding of horizontal directional drilling for those who are either new to this field or have many years of experience. The coursework was well presented and the facilitator made the lectures very interactive.

If, however, this course seeks to attract more delegates from client bodies and engineers - who might not be familiar with the technical aspects of HDD - the presentation will need to include site photos, video clips and animations. This would improve the learning experience significantly for those who have never been involved in HDD before.