

TRENCHLESS WORKS

THE ON-LINE NEWS AND INFORMATION SERVICE
FOR THE TRENCHLESS INDUSTRY.

MEDIA PARTNER OF THE UNITED KINGDOM
SOCIETY FOR TRENCHLESS TECHNOLOGY



AND SUPPORTING THE AIMS AND OBJECTIVES
OF THE INTERNATIONAL SOCIETY FOR
TRENCHLESS TECHNOLOGY (ISTT)

ISSUE 163

MARCH 2020

SPONSORS LINKS

POTABLE WATER REHAB FOR AUSTRALIA

Click for [link to Story](#)



TRACTO-TECHNIK



SMART TECHNOLOGY TO
BRING THE ESSENTIALS FOR
LIFE TO EVERYONE

TORO and
American Augers Directional Drills
Auger Boring Equipment
Tooling & Drill Rods



Drilling Fluids
Recycling & Mixing Systems
Digital Location Equipment



We are RSP, the UK's leading
Suction Excavator manufacturer.
We strive for innovation and
safety when it comes to your
excavation needs. The use of
suction excavators is more than
16 times more effective than
traditional methods of excavation.



All Terrain 'ROCK' Directional
Drills, HDD Training, Mixing/
Recycling Systems, HDD Drilling
Fluids, Drill Pipe, Backreamers,
Tri-Hawk Tooling,
HDD Guidance Systems,
Utility Locators,
Vac Systems, Trenchers,
Vibratory Ploughs.

FOR INDIVIDUAL NEWS SECTIONS THIS ISSUE:

CONTENTS PAGE [click here](#)

INDUSTRY, COMPANY AND INSTITUTION [click here](#)

PIPE JACKING, MICROTUNNELLING etc. [click here](#)

HORIZONTAL DIRECTIONAL DRILLING [click here](#)

PIPELINE REHABILITATION [click here](#)

PIPELINE ONLINE REPLACEMENT [click here](#)

SUCTION/VACUUM EXCAVATION [click here](#)

SUPPORT EQUIPMENT AND ACCESSORIES [click here](#)

EVENTS AND MEETINGS [click here](#)

EVENTS DIARY [click here](#)

For the latest
NEWS [click here](#)

PIPELINE REHABILITATION

For General Information on Pipeline Rehabilitation [click here](#)



POTABLE WATER REHAB FOR AUSTRALIA

The question "Which is the best remedy when the supply of potable water into the city centre of Newcastle needs repairing?" was asked by utility services supplier, Hunter Water, as it needed to maintain an optimum water supply to the second-largest city of New South Wales.



Three Primus Line liner reels are aligned to complete the challenging water main rehabilitation in Newcastle, New South Wales, Australia installing multiple liners in a single pull.

The DN 900 PN12 mild steel cement-lined pipeline runs underneath a busy street and a highway access and has two opposing bends of 22½°. Works had to be conducted with only two access points. Rehabilitating the pipeline using a traditional dig-and-replace method would have caused road closures for several weeks, affected the environment and disrupted nearby residents.

To overcome the myriad of challenges associated with this project, Primus Line® was selected which is a trenchless technology which consists of a flexible Kevlar® reinforced liner and corresponding end fittings. Its flexibility allows the Primus Line system to be installed through consecutive bends of up to 45°. The robust liner can also handle bends of 90°, depending on the characteristics of the pipeline.

Upon investigation, Primus Line developed two options for rehabilitating the trunk main:

- Installing one DN 500 PN 16 Primus Liner with an inner diameter of 452 mm that would grant Hunter Water a utilisation of under 25%.
- Installing three DN 450 PN 16 Primus Liners with an inner diameter of 396 mm that would grant Hunter Water a utilisation of nearly 60%.

The section of the pipeline that required rehabilitation was only approximately 140 m long. Moreover, the friction coefficient of the Primus Liner is with a K-factor of 0.028 lower than the

SPONSORS LINKS

Click Logo for weblink



TRACTO-TECHNIK



SMART TECHNOLOGY TO BRING THE ESSENTIALS FOR LIFE TO EVERYONE



McElroy Manufacturing is the leading manufacturer of polyethylene pipe fusion equipment and provider of customer-driven solutions to PE engineers and contractors worldwide.



Steve Vick International designs and manufactures products for the trenchless renovation and decommission of pipes worldwide. Products include Pipe Coil Trailers, Pipe Handlers and Pipe Cutting Equipment.



In-house developer and manufacturer of lateral cutters, high-speed drain cleaning equipment, pipe coating systems, collapsed liner removal, root and scale removal tools.



C J KELLY INTERNATIONAL LTD
Specialists in Trenchless Technologies

Official partner offering sales, Support, training and consultancy Services across the UK and Eire for Brawoliner, MC Building Chemicals, Picote, Härke, Osscad, Spray liner and Patch Box.

PRIMUS LINE
The prime solution for pipes.

More than 650 km installed

Trenchless rehabilitation of water mains and sewer rising mains

Rädlinger primus line GmbH
Kammerdorfer Straße 26
93413 Cham, Germany

Phone: +49 9971 8088-0
info@primusline.com

Outer Layer:
Abrasion-resistant PE sheath

Kevlar® Fabric:
Seamless, woven aramid fibres

Inner Layer:
Media-specific based on PE or TPU

www.primusline.com

PIPELINE REHABILITATION

For General Information on Pipeline Rehabilitation [click here](#)



SPONSORS LINKS

Click Logo for weblink



RSM Lining Supplies offers CIPP lining systems, materials and ancillary equipment as well as expert lining consultancy services worldwide.



Flexible sliplining solution for the trenchless rehabilitation of pressure pipes.

friction coefficient of the existing main. The results of Hunter Water's calculations finally showed that a reduction in diameter would be acceptable. In the end, the utility service supplier decided to rehabilitate the pipeline with the Primus Line 3-in-1 solution to obtain a higher utilisation.

Installing three Primus Liners DN 500 was not an option, as the liners could not fully inflate inside a DN 900 host pipe. A minimum inner diameter of 1,000 mm or greater would be necessary.

Hunter Water assigned the installation of the project to Interflow, a business that is renowned for pioneering the trenchless technology space and is the most experienced Primus Line installer in Australia to date.

The existing pipeline was extended at both ends with a customised reduction piece DN 900 to DN 1600, which created space for the three Primus Line flanges. The reduction, as well as the manifold, were designed by Primus Line and produced locally by Hunter Water.

INSTALLATION

The Primus Liner was transported on three reels to the construction site. These were placed sequentially behind the start pit in line with the run of the pipeline. Each liner was marked with tape of a different colour to ensure that after insertion, the hoses were at the correct positions at both ends of the pipe. During insertion, the liners were combined and stacked, then fixed with tape to keep their shape.

After insertion by means of a pulling winch, Primus Line's installation partner, Interflow, threaded the liners through the manifold and brought them into shape one-by-one with compressed air.

Following the inflation process, the six Primus Line connectors could then be installed. The entire installation of the Primus Line® system was completed within one week. A separate pressure test to 15 bar was conducted for each liner. This trenchless method enabled the region's busy traffic flow to continue smoothly, and residents could go about their day-to-day activities with minimal disruption.

This 3-in-1 Primus Line solution was the first to be implemented outside Europe. The Germany-based manufacturer has already proven its excellence for multi-liner installations in several projects. Inter Alia in Sicily, Italy, where a comparable solution has been in operation since 2017 and garnered worldwide attention at the time of putting it into service.

PRIMUS LINE

The Primus Line® system is referenced in EN ISO 11295:2017 – classification and information on design and applications of plastics piping systems used for renovation and replacement. The Primus Line system also complies with the technical standard DVGW VP 643 – flexible textile-reinforced plastic inliner for pipe-relining of gas high pressure pipes.

The system consists of a Kevlar-reinforced liner and specifically developed end fittings. The liner accommodates the operating pressure of the pipe, due to the reinforcement layer and does not bond to the host pipe. An annulus space remains. The liner is seamlessly manufactured at an ISO 9001 certified production plant in Germany and transported to the site on reels. Due to the flexibility of the material, the liner can traverse angles of up to 45°, can be installed in lengths of more than 1,000 m in one pull, and has an installation speed of up to 600 m per hour.

Website: www.interflow.com.au



To ensure the liners were positioned correctly for final installation after the pull-through they were pulled out of the reducer with each marked with a different coloured tape.



The manifold was specifically designed for this project.