



Pigging Industry News

the newsletter of the Pigging Products & Services Association

THE PRESIDENT'S LETTER

By Jessica Nichols, Inline Services, USA

It is an honor to be the first female President of the PPSA. My predecessors have left some incredibly big shoes to fill. A huge thank you to Michael Rapp for the hand off. I welcome our new Directors, Brett McNabb of Apache Pipeline Products, Canada and Dr. Mike Kirkwood of T. D. Williamson. I would also like to thank Chuck Harris and Mark Olson for their time as directors as they are stepping down this year. Two of PPSA's most esteemed advocates, John Tiratsoo and Peter Fretwell, received honorary PPSA memberships at the Annual General Meeting. Their contributions are an integral part of the associations' evolution and continued growth.

Thank you to the Golf Sponsors and players for taking part in the annual golf tournament held on Monday, February 18. The event was a huge success with 83 participants that made up 21 teams. Money raised goes towards supporting young people in the industry. To further PPSA's support of the next generation of

pipeliners, we are pleased to have sponsored the Oklahoma State University Institute of Technology Pipeline Integrity Course graduation.

2019 is certainly off to a busy start for PPSA. We kicked-off 2019 with the PPIM conference and Annual General Meeting in Houston, Texas this February, followed by exhibiting at the 2019 Pipeline Technology Conference in Berlin, Germany this March.

Following the jointly hosted PPSA and PRCI pipe test loop event in April 2018, PPSA is in the process of setting up a similar event at Petrofac's test loop in Montrose, Aberdeen for YPP members. This will be in conjunction with the PPSA seminar.

The annual PPSA seminar is scheduled for November 20, 2019 in Aberdeen, U.K. The theme for this year's seminar is 'Operational Pipeline Pigging' with emphasis on the latest developments within the industry. A Call for Papers

NEW Members

Individual

Marian Copilet, Malaysia

Monica Fernandez, Oman

announcement was emailed on May 14, 2019. The deadline for submissions is Friday, June 28, 2019. For more information, visit www.ppsa-online.com/seminar.

Pipeline and midstream asset construction remains strong with oil prices at current levels. Our industry remains committed to "zero incidents" and the PPSA remains focused on supporting the efforts necessary to achieve and sustain an incident free industry. Through communication and closer cooperation, progress continues. Be Safe.

It is an exciting time to be PPSA president! We are well into the second quarter of 2019 and the industry is holding strong. Thanks to everyone in the Association for your support leading up to my current position as President. I look forward to making contributions that will enhance all the great things PPSA is currently doing for the industry! ●

The PPSA golf tournament

The tournament took place on Monday 18th February at the BlackHorse golf Club in Houston, USA. Thanks to our golf sponsors and the players for making it a very enjoyable event.



Winners

1st Place – Team Speed
Gilbert Thomson
John Walker
Eric Pool
Jason Herrington

Longest drive—Tyler Hunt
Closest to the Pin—Trent Bertholet

Apache Pipeline Products introduces pigPRO™ Series 67

The Model 67 is a visual flag indicator with manual reset and comes standard with an isolation ball valve. It can be serviced on flowing, pressurized pipelines.

The Model 67 adds safety and servicing options to Apache Pipeline Product's existing line of intrusive pig passage indicators. Like other available models in the patented pigPRO™ series, it reliably detects the precise location of a cleaning pig as it travels within the pipeline network. When a pig passes the pigPRO™'s intruding plunger, it activates the plunger and triggers a visual flag indicator, signaling the pig's location.

Incorporating a customized BV with an extended lower housing into the design of their model 67 pigPRO™ allows for a safe and simple isolation of the pig passage indicator from pipeline pressure for inspection, maintenance or repair. Complete removal and re-installation on any pressurized line is easy using the included tool kit and does not require specialized hot tap professionals or equipment.

Features:

The integral isolation feature of the Model 67 means the cost, time and safety concerns of de-pressurizing and draining a line are eliminated. Now the pig passage indicator can be isolated, removed, repaired and reinstalled while the pipeline is flowing and pressurized. Preventative maintenance, inspection or repair are easily accomplished without specialized equipment or crews.

Includes a thread mounting nipple, isolation extended lower housing with fluorocarbon O-Rings, and hemispherical plunger with a flag assembly.

Extension Pole:

Aluminum extensions can be attached to enable detection of the pig's passage on buried pipelines. All pressure sealing components, including the isolation ball valve, remain below the extension module. Available in lengths of 2' to 8'.



Apache Pipeline Products' pigPRO™ Series 67

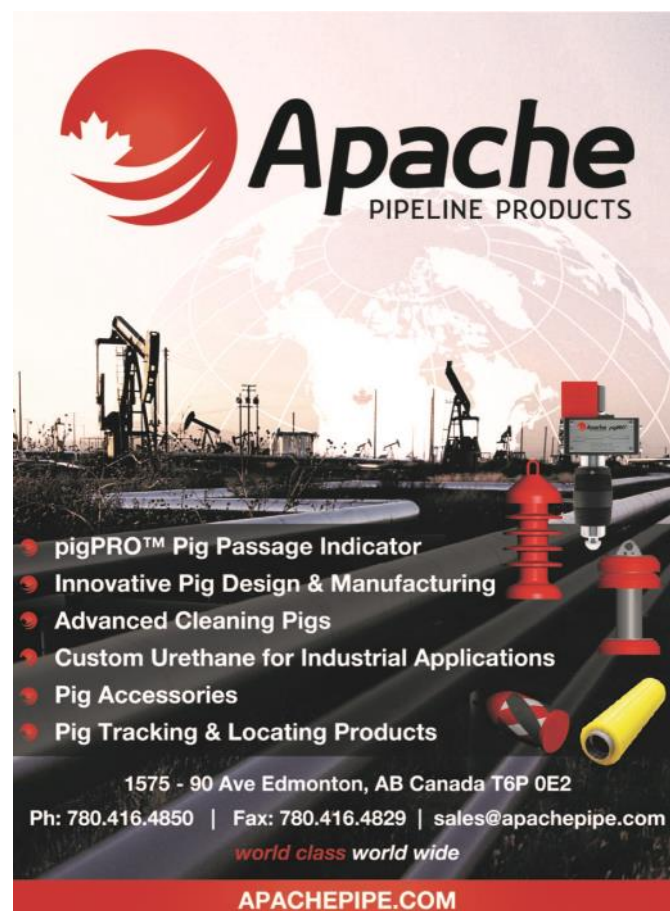
Dacon Inspection Technologies' largest Intelligent UT pig – 52-inch diameter!

Dacon Inspection Technologies are proud to have been awarded the contract from **Thai Oil Public Company Limited** to inspect Thailand's largest diameter Crude Oil Transfer Pipeline. At 52" diameter this posed some challenges. However, as a dedicated solutions provider, Dacon's Research, Development and Engineering team made sure these challenges were overcome and the tool was made ready for action.

The 52" UT R tool provides the highest possible resolution available, which in turn will provide the most accurate and complete inspection results. This will provide the customer with a complete assessment of their pipeline condition and allow accurate remaining life calculations.



Dacon's 52" UT-R Pig Inspection



- pigPRO™ Pig Passage Indicator
- Innovative Pig Design & Manufacturing
- Advanced Cleaning Pigs
- Custom Urethane for Industrial Applications
- Pig Accessories
- Pig Tracking & Locating Products

1575 - 90 Ave Edmonton, AB Canada T6P 0E2
Ph: 780.416.4850 | Fax: 780.416.4829 | sales@apachepipe.com
world class world wide
APACHEPIPE.COM

Avoiding third-party interference with efficient and accurate depth of cover calculations

*A key means of diminishing pipeline incidents due to third-party interference is the sufficient depth of cover. A **UK Onshore Pipeline Operators Association** report from 2015 states that 20% of all product loss incurred between 1962 and 2014 was caused by external interference (Haswell, McConnell 2015). However, precise measurements of these values can be hard to come by, especially for the entire length of a buried pipeline. In a research project in cooperation with **National Grid Gas Transmission**, the **ROSEN Group** has begun validating a two-element approach combining specialized in-line inspection tools and ground elevation data. These calculations can be made to an accuracy of ± 0.15 m root mean square error.*

Cause of the damage A major cause of damage to buried pipelines is third-party interference. Responsible for the damage is not material failure or equipment malfunction but human involvement, such as construction. Pipeline depth of cover can change due to shrinkage of soils or natural erosion, human activity, or failure of anti-buoyancy systems. Apart from routine surveillance, maintaining a minimum depth of cover is a solution of mitigation against third-party interference. Current techniques available for measuring depth of cover require significant effort to produce a detailed survey for an entire pipeline.

Testing the ground The Network Innovation Allowance scheme, which is provided by the UK gas regulator **OFGEM**, funded the project. Conducted in partnership with National Grid Gas Transmission, it demonstrated a new methodology to identify reduced depth of cover over an entire pipeline that considers ground elevation data and high-resolution data from an inertial measurement unit (IMU).

Prior to the in-line inspection of the 36", 43 km natural gas pipeline, above-ground markers (AGM) were deployed at a nominal interval of 500 meters between markers. AGMs are devices placed directly over the buried pipeline ensuring that the in-line inspection tool provides accurate geographical data. The smaller the distance between each marker, the more accurate the results. At each AGM, the pipeline position was recorded using a high-accuracy GPS system and a pipe and cable locator. Following deployment of the AGMs, the in-line inspection was completed and inertial measurement unit (IMU) results were processed by the ROSEN data analysis team, resulting in an accurate pipe centerline. These units contain gyroscopes and accelerometers and are used to calculate the position of the inspection device. The IMU data is linked to known reference locations along a pipeline route to provide an accurate pipe centerline as a series of X, Y, and Z coordinates.

Two-element approach Ground-elevation data collected using light detection and ranging (LiDAR) techniques was combined with the accurate pipe centerline to calculate the depth of cover for the whole pipeline. The remote sensing method LiDAR uses laser light to measure distance to a target and is commonly utilized to map terrain and surface objects. This way, a great amount of highly accurate data can be collected, allowing large areas to be surveyed efficiently. To conclude the project and authenticate the results, ROSEN engineers undertook pipe depth and in-field GPS measurements, which demonstrated a depth of cover accuracy of ± 0.15 m root mean square error.

The research project has shown that the methodology can accurately conduct depth of cover measurement. This has enabled National Grid Gas Transmission to review the entire pipeline and identify locations not meeting the minimum requirements. These locations may have an increased likelihood of damage occurring from third parties; therefore, National Grid Gas Transmission can implement mitigation measures. Previously, pipeline technicians would have been performing time-consuming survey activities in the field. The new methodology allows accurate estimates of depth of cover to be delivered as an additional service alongside a traditional in-line inspection.

REFERENCES

Haswell, J. V., McConnell, R. A. *UKOPA Pipeline Product Loss Incidents and Faults Report (1962-2014)*. UKOPA/15/003, December 2015. ●



ON THE GO.

Round-the-clock availability is essential. Which is why ROSEN provides second-to-none service delivery. Get what you need, where and when you need it. Every time.

www.rosen-group.com

ROSEN
empowered by technology

Using the latest ILI technologies to identify pipeline pilferage

Ben Corlett, Baker Hughes, a GE company (BHGE)

The extent of, severity, and risk of pipeline product theft is a major concern to the oil and gas industry, and the worldwide community. The techniques being utilised are becoming more sophisticated as, in many cases, thieves use specialist equipment and industry knowledge to steal large quantities of refined products from pipelines. Pilferage activities, by tapping into pipelines, can cause significant environmental and commercial consequences, potentially leading to pipeline ruptures, potential human casualties, destruction of property, and damage to the environment.

As operators strive to find an effective early warning system that will provide alerts as pipelines are encroached upon, alternative approaches are required to assist in the location and identification of both existing and new illegal tap attempts. An existing pipeline inspection technology, with a proven track record of accurate location of illegal tap locations, is In-line Inspection (ILI) – specifically Magnetic Flux Leakage (MFL) tools. **BHGE** has developed and implemented various theft inspection solutions, with many ILI runs conducted in Europe using different MFL tools and techniques. See Figure 1 for an example of an illegal tap in ILI data.

The success of an inspection process relies on the enabling technology of the inspection tool, the capabilities and resolution of the sensors on the tool, and on validated and detailed interpretation processes of the resultant sensor data for the features of interest. From the perspective of being identified by an MFL inspection, illegal taps can be categorised in two ways: those that have a ferrous component, such as a steel full circular fitting, or welded attachment and; those that are non-ferrous, such as an attachment or component that is made from a non-magnetic material, for example, plastic.

By categorising illegal taps in these two ways, BHGE has employed the principal detection capabilities of MFL technology to accurately identify and locate illegal taps, and has had the application of this technology verified in practice throughout Europe, quickly producing useful information for locating and reporting them.

In 2016 BHGE carried out a pilferage inspection on a European pipeline using the MagneScan vehicle. This particular pipeline had been targeted multiple times by thieves in the past, and the operator decided to carry out regular ILI inspections to identify changes and new features between consecutive inspections. A number of new features were detected and reported during the analysis, but one location exemplifies the extreme lengths thieves will go to, to avoid visual detection. Two attachments were identified under a

pipeline casing, near to a river crossing. These attachments were new compared to the previous inspection, carried out in 2015.

Investigation by the pipeline operator confirmed these features were illegal taps, and the excavation highlighted the elaborate attempts of the thieves to disguise their illegal activity from visual discovery by the pipeline operator or members of the public. Despite the thieves' elaborate attempts to avoid detection, the obvious indications between the two inspection data sets allowed the pipeline operator to find these illegal taps, which may have gone undetected through visual pipeline examination. This is an example which highlights the need for technical pipeline inspections, such as ILI, to identify hidden pipeline threats.



Figure 1

This is an extract from the paper 'Using the latest ILI technologies to identify Pipeline Pilferage' presented at the Pipeline Technology Conference in March 2019.

Need Wireless Pig Tracking for Your Pipeline?

Enduro Developed a GeoPhone for That.

This system is sensitive to ground vibration, which amplifies the sound of the pig cups striking the weld joints in a pipeline. For best results, use two or more units along the pipeline. Leap one unit in front of the next as the pig passes for full time surveillance of pig movement.

ENDURO
PIPELINE SERVICES, INC.

800-752-1628 • 918-446-1934 • www.enduropis.com • info@enduropis.com

Inline Services successfully launches redesigned 1.5D capable Speed Control Cleaning Tool

High velocity natural gas pipelines pose a unique challenge in terms of effective cleaning for corrosion mitigation purposes or pre ILI runs. Studies show that the best cleaning occurs when the tool runs at approximately 8 mph allowing brushes and discs to do their job, where at speeds over 10mph they can bypass the debris and liquids, proving ineffective.

To meet this challenge, **Inline Services** has designed and manufactured a new series of Speed Control Cleaning tools ranging from 30" to 48". The tools onboard technology maintains optimal cleaning speeds of 6 to 10 mph within a gas flow velocity of up to 33mph. In addition, the tools IMU collects performance data that can be exported onsite.

Inline's new Speed Control Cleaning Tool recently exceeded expectations during a run in 30" and 36" pipelines containing numerous 1.5D short radius bends. While the normal gas flow velocity was maintained, the tool averaged an ideal control speed of 7mph, allowing for both efficient cleaning and no interruption of gas delivery. In addition, the tool played an integral part in the effective use of chemicals and inhibitors, determining quantities spread, recovery and liquids balance within the pipeline.

Following each run, the IMU data was downloaded and analyzed onsite. In addition, the tools were reconfigured on location with cups, discs, brushes, magnets and tracking transmitters to prepare for the next run.



Inline Services's new Speed Control Cleaning Tool

The project was an overwhelming success and Inline looks forward to additional projects for the Speed Control Cleaning Tool through 2019. ●

HIGH FLOW RATES.
1.5D BENDS.
NO PROBLEM!

SPEED CONTROL CLEANING TOOL

inline
InlineServices.com

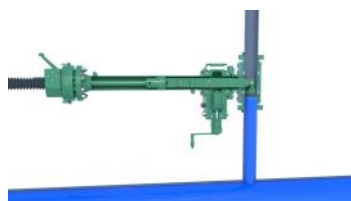
STATS' UAE Emergency Response

STATS Group were required to provide a double block and bleed isolation as an emergency response for a major gas processing plant in Abu Dhabi, UAE. The quick response isolation was required to remove a short section of a 4" live cooling water line to allow access to replace a critical pump, without shutting down the refinery. From initial call with the client, the equipment was tested at STATS workshop in Abu Dhabi, mobilised to site and full works completed in under one week.

As the 4" pipework feeds into the main 16" header line, the client wanted to avoid depressurising the system in order to significantly reduce costs and save time associated with a plant shutdown. STATS utilised their patented BISEP® line plugging technology to provide the appropriate level of isolation required to offer safe worksite conditions for breaking of containment activities. As the 4" pipework was unpiggable due to the lack of access to deploy an inline isolation tool, a BISEP was deployed into the line through a mechanical hot tap clamp and valve at the required isolation location.

The STATS supplied mechanical hot tap clamp was bolted to the vertical 4" pipework before a full bore valve was attached and a pressure test was conducted to confirm integrity of the clamp and flange joints.

Hot tapping of the pipework was then conducted with STATS' SureTap hot tapping machine and the pipe coupon was recovered. With access to the pipe created the BISEP was attached to the valve in a pressure competent launcher and hydraulically deployed into the live line, operating at 7 bar. The BISEP requires no additional hot tapped bleed or vent ports and offers significant safety advantages over traditional line stop technologies. Once deployed the BISEP was activated to hydraulically set the dual elastomer seals providing leak-tight isolation of the live pressurised line. The BISEP was then subject to a test regime to independently test both the primary and secondary seals with full pipeline pressure, the cavity between the seals (annulus) was vented to ambient and verified as a zero-energy zone, providing double block and bleed isolation. Once the test regime was complete, an Isolation Certificate was issued to notify all parties of the safe isolation of the pipe section. Utilising the integrated offtakes on the BISEP launcher, the isolated pipework was vented and purged prior to cutting and removing the required pipe spool.

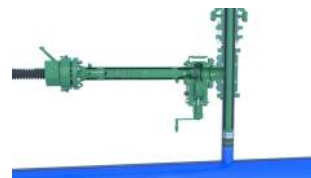


Tecno Plug Installed and Deployed to Isolate 4" Line

The client had requested that the mechanical hot tap clamp was removed from the pipework after the workscope was completed, so STATS utilised their Tecno Plug® inline isolation tool to enable the BISEP to be recovered from the pipe and the hot tap clamp could be cut and removed from the pipework.

With the BISEP isolating the pipework, a pressure competent temporary launcher was installed to the bare end of cut pipe with a pre-installed Tecno Plug inside. The temporary launcher was mechanically activated against the pipe to energise locks and seals to engage on the outside of the pipe. A leak-test of the launcher was conducted against the rear of the set BISEP to prove the integrity of the temporary launcher prior to unsetting and recovering the BISEP. After the BISEP had been retracted out of the pipe, the Tecno Plug was deployed on a stem bar

beyond the BISEP location to become the primary isolation barrier. Once at location the Tecno Plug was hydraulically activated to energise the locks and dual seals and the annulus between the seals was vented to ambient to create a zero-energy zone. Each seal was tested independently with full pipeline pressure in the direction of the expected pressure differential, proving both seals of the double block isolation were leak-tight. This allowed the temporary launcher and BISEP to be vented behind the rear of the Tecno Plug allowing them to be safely removed from the pipework.



Mechanical Hot Tap Clamp, Valve and BISEP Installed

The pipework was then cut to remove the hot tap penetration leaving a bevelled pipe end where a flange was welded onto the line. Throughout the isolation the BISEP and Tecno Plug isolations were constantly monitored to ensure leak-tight double block and bleed isolation was maintained. With the addition of the flange to the 4" pipework a full bore gate valve was installed along with the temporary launcher. This allowed the Tecno Plug to be reattached to the stem bar, hydraulically unset and recovered into the launcher. The valve was then closed providing a barrier to depressurise and vent the launcher and remove it from the system. Once the pump had been successfully replaced a new pipe spool was tied into the pipework behind the new gate valve. The successful isolation was in place while maintenance was carried out on the pump and the new pipework was reinstated without leaving any temporary fittings on the line, preventing any potential leak paths or integrity issues in the future.



Hot Tap Clamp and BISEP Removed, New flange and Valve Installed

Your trusted partner for
**Pipeline Inspection
 and Integrity Assessment**



Celebrating Experience
and Excellence



High-resolution ILI of internally cement coated brine water pipelines – 3P's DMR Inspection Technology

Internal corrosion is a real threat to many pipelines, whether on- or offshore. To protect carbon steel carrier pipes from the corrosive products many pipelines are internally coated. Any internally coated pipeline presents a special challenge in terms of in-line inspection (ILI) tools. Especially cement coated pipelines cannot be inspected using the most common ILI technologies such as MFL (Magnetic Flux Leakage) and UT (Ultrasonic Testing) – the DMR technology and its capabilities to inspect internally cement coated pipelines is the perfect solution.

The DMR sensor technology is a proprietary invention of **3P Services**. The sensors are used on-board MFL inspection tools as a secondary sensor for internal / external feature discrimination or as stand-alone in-line inspection technology for specific high resolution measurement applications. They are sensitive to features on the inner surface of the pipeline. These may be internal metal loss or non-ferritic internal coatings or layers like cement.

A DMR sensor delivers very accurate distance readings between its own location and that of a close ferritic steel surface. The sensor has a focused measurement footprint. Each measurement thus refers to a certain area of the steel surface. This sensor reference area can somewhat be compared to that of a UT sensor. The measurement does however not penetrate into the steel and has, therefore, only a single “reflector”, which is the steel surface.

Cement lined pipelines transporting brine with diameters ranging from 10” to 20” and length up to 26km have been inspected. Those lines all contain 1.5D bends. Y-piece connections are present in some of the pipelines. A number of these pipelines have already been subject to several regular re-inspections.

Already after the first DMR inspections, the pipeline operator carried out investigations in coordination with the responsible authority in order to check or cross-check the ILI results. The majority of defects detected fall either into the category of loss of cement liner or metal loss in the upper half of the line. Investigations have verified the reports and

appropriate repairs have been carried out by the operator. No metal loss underneath an undamaged coating have been found in cement lined pipelines although such defect type has been reported in other pipelines under different types of coating or internal repair.

The DMR technology makes an inspection of internally coated brine water pipelines possible. The data obtained are not only related to the carbon steel underneath the cement liner, but also to the cement liner itself, as the liner can be examined for thickness variations or even missing cement spots.

Subsequent key advantages of the DMR inspection technology are:

- Not influenced by wall thickness
- Requires no coupling medium
- Can inspect internal coatings or claddings for presence and thickness
- Very accurate measurement of shallow internal pitting / pinhole corrosion
- Capable of high speed
- Reliable against acceleration / deceleration
- Quantitative assessment of presence of paraffin and scale ●

The expansion is ready!

Dacon Inspection Technologies inaugurated the new Research, Development and Engineering building in Thailand. As well as providing dedicated space for the RD&E team, the 1100m² facility allows for expansion of their manufacturing and fabrication capabilities. Work is also progressing on their new 11,200m² test yard that will have infinity test loops of various diameters to allow development and testing of their latest generations of In-Line Inspection tools.



Dacon Inspection Technologies' new RDE facility ●

3P SERVICES

INNOVATIVE ILI SOLUTIONS
WORLDWIDE.

WWW.3P-SERVICES.COM

INPIPE PRODUCTS™ a winner for second year running at the RoSPA Awards



INPIPE PRODUCTS™ is delighted to be amongst the winners in the RoSPA Occupational Health and Safety Awards 2019 for the second year running, collecting a further Silver Award.

The RoSPA Awards scheme, which receives entries from organisations around the world, recognises achievement in health and safety management systems, including practices such as leadership and workforce involvement.

Case study: 36 inch and 48 inch welding pig / piggable plug

The 36" and 48" welding pig design utilises the iNPIPE PRODUCTS™ uniquely patented tyre design to provide proven reliability. The piggable plugs are provided with 2 sets of inflatable tyres to provide failsafe proven performance and reliability and ensure that the differential breakout pressure is uniform.

The system can be tailored to suit the specific needs of client requirements in terms of retaining pressure together with the required breakout pressure. Initially designed to "pig out" following isolation, over a distance of 370km, the modular design could be modified to travel further distances as required.

The iNPIPE PRODUCTS™ welding pigs can also be supplied with a pipe insertion tool to aid insertion into the line pipe without the need for a launcher or reducer. The hydraulic insertion equipment is based upon our fully tried and tested, patented wet buckle insertion tool technology for insertion. The design of the welding pigs is completely flexible and can also be modified to accommodate subsea installation by divers or ROV. Various water depths can be accommodated as specific buoyancy of the pigs and the necessary insertion tools can be provided within the scope of design.

An additional benefit of the system, based around the widely acclaimed and specified iNPIPE PRODUCTS

Dual Tool™, is that dependent upon positioning the tool can be used as a differential pressure barrier, a tool for the provision of inert gas to improve weld quality or subsequently a hydrostatic testing tool.

The iNPIPE PRODUCTS™ innovative design can be used as a single tool in isolation or alternatively designed as a pig train based upon specific project requirements.

Welding Pig / Piggable Plug Specification	36"	48"
Subsea travelling distance design requirement (project specific requirements)	180 km	370 km
5D bends	Yes	Yes
Full bore tees	Yes	Yes
3% reduction due to ovality	Yes	Yes
5% localised ID dent reduction	Yes	Yes
Differential pressure (project specific requirements)	1.5 bar	1.5 bar
Pigging break out pressure (project specific requirements)	2.0 bar	2.0 bar
Incorporate independently inflatable tyres (project specific requirements)	Yes	Yes
Resistant to thermal heat build-up from welding process	Yes	Yes
Accommodate acoustic, magnetic, electro-magnetic or radioactive pig detection	Yes	Yes
Compatible with air, seawater, fresh water and chemically treated water	Yes	Yes
Complete with tool insertion tool and lifting eyes	Yes	Yes
Diver or ROV insertion (project specific requirements)	Yes	Yes



iNPIPE PRODUCTS™ piggable plug



iNPIPE PRODUCTS

Market leaders of pipeline pigging, maintenance and testing products for over 30 years

Email: sales@inpipeproducts.co.uk
Tel: +44 (0)1748 813270
www.inpipeproducts.com

Pigging Products
Pigging Services
Hire/Rental

Discovery™

This is the second project that the Operator had taken advantage of Tracerco's innovative fast scanning technique for CT scanning of pipelines. Fast scanning is a unique method for CT inspection to detect defects of pipelines which can reduce the overall time to carry out an inspection project by a factor of five. Launched in January 2018, Tracerco's fast scanning technique utilises the presence of a key defect characteristic, which is rapidly visible in a CT scan. This enables the Discovery™ CT scanner technicians to determine the benefit of performing a full scan at that location. As a full CT scan is only required to size a defect, if this characteristic is not present, then sizing is not required, and the scan can be terminated early. This allows for a significant increase in overall project speed and efficiency, without any adverse impact on the quality of the scan data.

Call for Papers for PPSA Pigging seminar

<https://ppsa-online.com/seminar>

NDT Global announced the relocation of their NDT Global, United Kingdom offices based in Aberdeen, Scotland. This relocation allows NDT Global to leverage key resources to better allow them to inspect pipelines in surrounding regions.

"Opening this new office in Marischal Square has allowed us to not only be more centralized, but it gives customers a place to truly enjoy visiting when they come to Aberdeen. The modern, bright open space and home-like feel of the office is complimentary to all that Marischal Square has to offer" highlights Ben.

NDT Global has seen a higher interest in cracking technology since the release of Evo Eclipse, both within and outside of United Kingdom region, so having a centralized office in the hub of Aberdeen is key to being accessible to current clients and businesses.



**Leading in the
design & manufacture
of battery packs for
over 30 years.**

Toll Free US: 1.866.647.0600

Toll Free Canada: 1.800.667.8448

info@excellbattery.com www.excellbattery.com

i2i Pipelines launch their new single module 3inch Pioneer

i2i Pipelines have successfully developed a single module 3inch Pioneer inspection pig that is available for immediate operations. Continuing i2i's objective of developing single module inspection pigs that are easy to deploy, maintain and can be operated by non-specialist personnel the 3inch Pioneer provides a great value, low risk inspection option to the owners and operators of gathering lines.

The 3inch Pioneer has all the benefits of the Pioneer range of inspection pigs including but not limited to

- Single module units are easy to handle
- No requirement to modify the launch / receive facilities
- They can pass complex geometry including 1.5D bends as standard
- They can pass 20% ID changes
- They can operate in a wide velocity window (0.1m/s (3ft/s) to 7m/s (21ft/s))
- Little or no cleaning of pipelines required prior to operations
- They carry a lithium ion rechargeable power pack giving 1hr run time. Tools can be recharged quickly and run multiple times in the same day
- The sensor unit is a disposable item and can be changed between runs or pipelines.
- If contaminated with H2S they can be thrown away and replaced thereby negating any strip down and clean up time
- They can be operated by non-specialist personnel
- Reporting is typically within 10 working days
- All internal defects can be detected

As the single module tools are easy to launch and operate but are limited to the amount of sensors that can be integrated into the single module, i2i have developed an ODO pig to operate alongside the inspection pig and record accurate distance measurements. The odo pig has fewer inspection sensors but carries 2 x odo wheels. Once both tools have been run the inspection data can be aligned and the distance measurements can be applied to the data. Between the 2 x smart pigs a 100% sensor coverage is achieved from an inspection perspective with the odo pig give accurate distance measurements if follow digs and NDT needs to be carried out. ●

14th Pipeline Technology Conference

The Pipeline Technology Conference (ptc) has been held successfully from 18 to 21 March 2019 in Berlin, Germany. The outgoing Conference Chairman Dr. Klaus Ritter emphasized at the handover of this function to Dennis Fandrich the following: 750 participants from 54 different nations, and delegations from almost 80 different pipeline system operators as well as 78 exhibitors have joined and contributed to the event. This makes ptc 2019 the biggest and most successful event so far. It enables technology and service providers from all over the world to get in direct contact with many potential clients and to show them new products and solutions. Exhibiting companies went home with folders full of notes and orders.

ptc's attractiveness results especially from the insightful plenary sessions and panel discussions. The event tackled some of the most important challenges for pipeline system operators, providing them with important impulses and suggestions for the fulfilment of their tasks - and making ptc to an attractive address for pipeline system operators.

The core of the ptc have again been 25 Technical Sessions with more than 80 lectures reviewed by the members of the ptc Advisory Committee. All abstracts and papers are accessible through the Pipeline Open Knowledge Base for future reference and research purposes.

The ptc also offered several social events which provided plenty of networking opportunities. The Get-Together-Party and the Dinner Invitation within the Classic Remise, a center for vintage cars provided memorable experiences for the participants.



ptc exhibition © 2019 Philip Wilson / EITEP ●

CDI

PIPELINE PIG TRACKING - LOCATION - PASSAGE DETECTION
INTELLIGENT PROBLEM SOLVING FOR LAND AND SEA

www.pigging.com

**Subsea - Over Land - UL- CSA - ATEX
Permanent - Portable - Custom**

OFFICES IN TULSA AND HOUSTON WITH DISTRIBUTORS WORLDWIDE

CDI • 1801 N JUNIPER AVE, BROKEN ARROW, OK USA • +1-918-258-6068 • sales@pigging.com

YPPE needs you!

59,000 people – or roughly the population of Inverness. That's a lot of people. It also represents the projected shortage of engineering graduates and technicians, to fill core engineering roles in the UK, according to Engineering UK.

Adding that fact to the green shoots of recovery in the oil and gas industry, and it's no surprise that many in the industry are seeing a perfect storm for personnel shortages. It's clear that talent retention and development are critical for the ongoing success of the industry. Within this maelstrom of demand the pipeline industry needs to make its voice heard. Thankfully the **Young Pipeline Professionals Europe (YPPE)** have the perfect medicine to this ailment!

YPPE was setup by a group of young pipeline engineers in 2018 and, in its short life, grown to 150 members throughout Europe. The group aims to build a network of likeminded young pipeline professionals to holistically develop the industry at a grassroots level. And it's not just young members, with several experienced pipeline professionals already members of our steering committee, the YPPE hopes to bridge the gap between generations through collaboration and knowledge sharing. The YPPE welcomes all age groups, with those under 35 becoming associate members and those over 35 supporting members, acting as mentors to the wider group.

Their membership already represents the broad spectrum of pipeline industries: from operators to inspection vendors and precommissioning companies to pipe-lay contractors - in addition to graduates and undergraduates looking to cut their teeth in the world of pipelines.

The group is still very much in its infancy and thus a core aim for 2019 is to bolster their membership throughout Europe - that's why they encourage PPSA members to support the group by signing up and urge those within their organisations to do the same. Membership is free and includes access to a variety of events, seminars, their quarterly newsletter and even discounts to major pipeline events. They have already hosted several successful events at the likes of Technip, Aubin and STATS Group, with plenty more planned. If you would be interested in hosting an event for their membership they would love to hear from you.

Want to register or know more? You can get in contact with them and register via their new website: <http://www.yppeurope.org/> ●



Making the world a cleaner place...
One pipeline at a time.



Products Include:

- Foam Pigs
- Steel Pigs
- Urethane Pigs
- Spare Parts
- Cups & Discs
- Brushes
- Pig Trackers
- Pig Detectors
- Process Pigs
- Pigs Launchers/Receivers

www.pigsunlimited.com

Call us:
800-351-2749
or email:
sales@pigsunlimited.com

 Polyurethane Manufacturers Association
 PIGGING PRODUCTS & SERVICES ASSOCIATION


Ready for a comeback: Logistics and services key to reactivate idled cross-border pipeline

In 2003, the owner and operator of a 17-km (10.6-mi), 8-inch pipeline began transporting liquefied petroleum gas between Laredo, Texas, and a storage facility in Nuevo Laredo, Mexico. After market conditions changed, the pipeline was taken out of service and remained idle for nearly a decade. However, when demand for diesel increased from one of the company's business units, it prompted the pipeline's reactivation.

To prepare the pipeline to transport as much as 24,000 barrels per day of diesel and other petroleum products, the company contracted **T.D. Williamson (TDW)** to:

- Use progressive pigging to clean the line in preparation for in-line inspection (ILI)
- Inspect for anomalies using magnetic flux leakage (MFL) + deformation (DEF) technology
- Develop hydro test procedures

The operator was counting on the company's experience working on global pipeline projects—including those that required an understanding of complex cross-border regulatory and technical issues.

To facilitate a rapid and appropriate response, TDW mobilized pipeline cleaning and ILI teams from regional solutions centers in the U.S. and Mexico.

Approach: Safe mobilization for effective progressive Pigging and accurate ILI

Prior to ILI, the pipeline must be cleaned to clear debris that can prevent the ILI tool's sensors from contacting the pipe wall and result in degraded data.

Progressive pigging—running a series of increasingly aggressive cleaning pigs in a pipeline segment until cleaning specifications are met—is the recommended practice for pre-ILI cleaning. The process typically begins with a pig made of urethane foam that's used to prove the pipeline is piggable. With each additional run, a more aggressive pig is set into action. The series is highly variable, and there is no standard progressive pigging program: Pipeline conditions determine the types of pigs to be used, and the number of runs depends on cleanliness requirements.

In this case, the progressive pigging plan included five 8-inch cleaning or gauging tools, each run once from the launcher in Nuevo Laredo to the receiver in Laredo.

After the pipeline met the cleaning standard, TDW performed ILI using its MFL+DEF technology. Because the combined tool detects and produces accurate data about pitting, general corrosion and interacting threats such as dents with metal loss in a single run, it saves operators time and money. Specifically, the MFL tool identifies volumetric corrosion features while the high-resolution DEF tool detects minute bore reductions—including dents, expansions, ovalities, wrinkles and misalignments.

The 8-inch MFL+DEF tool was propelled by water from Laredo to Nuevo Laredo. Once the inspection tool was received, the water remained in the pipeline and was used to complete the hydrostatic testing.

Results: Reinstated Pipeline Meets Operator's Business Development Needs

Analysts at the TDW global pipeline integrity solutions center in Salt Lake City interpreted the ILI tool data and expedited a preliminary report to the customer; the final report was ready within 30 days. The inspection survey detected a total of 32 metal loss groups, none of them pressure-reducing. This meant the pipeline could be reinstated to meet the operator's business development needs without any additional repairs.

The project was completed within the operator's time frame and other specifications. Since then, TDW has provided the operator with additional isolation, inspection and pigging services. ●

3X Engineering repairs oil pipelines in The Netherlands

The objective of the repair, performed in October 2018 by **3X ENGINEERING** (3X), was to repair and reinforce 4 external corrosion defects on 2 straight lines (2 defects situated on the 10" line and 2 defects on the 12" line). The pipes are located on the top of the bridge of the platform. Each repair is designed specifically according to the pipe characteristics, the operating conditions and the size of the defect. According to ASME PCC-2 standard and 3X repair calculations, 4 layers of REINFORCEKiT® 4D HT+, specifically dedicated to high temperature, were determined to repair each of the 4 defects.

Because of the complex pipes situation, the client provided scaffoldings to perform the repair.

Before starting the composite reinforcement, 3X technicians first recognized and delimited the repair areas with adhesive tape. Surface preparation was completed with grit blasting to get a good surface roughness and ensure the bonding between the steel pipes and the composite. The surface was then cleaned using acetone and hygrometric conditions were checked before wrapping procedure.

The composite repair for each defect was performed as follows:

- F3X8 filler application on each defect to give back the initial shape to the pipes.
- Wrapping process covering the delimited areas was completed using Kevlar® tape impregnated with R3XHT+ resin (4 layers for each defect but with a specific repair length in accordance to defect characteristics —> 260mm repair length for both 10" line defects, 457mm and 1060mm for the defects on 12" line).
- Reference plate for traceability purpose was positioned on each repair.

For each repair, samples of filler F3X8 and resin R3XHT+ were taken during installation for quality control. After 3X operation, anti-UV coating was applied by the client to protect the repair.

The lines suffering from external corrosion were successfully repaired using the REINFORCEKiT® 4D HT+. Hardness measurements were performed and concluded the success of the repair. The design life for this composite reinforcement is 10 years.



Wrapping in progress ●

**** 3X ENGINEERING is currently seeking for a Distributor in USA and Canada ****