



Pigging Industry News

the newsletter of the Pigging Products & Services Association

THE PRESIDENT'S LETTER

By Danny Molyneux, Quest Integrity, UK

Welcome to the October 2023 PPSA Newsletter! Those yummy internet cookies seem to be working well, because my newsletter has been full of pipeline related news designed to appeal to my interest (alongside cat videos of course). “ROSEN Group weighs sale” teases World Pipelines, “Major UK methane greenhouse gas leak spotted from space” reports the BBC, Net Zero Technology Centre promotes “Hydrogen Backbone Link: Connecting Scotland to Europe” and even Netflix are chipping in with “How to Blow Up A Pipeline”. That last one was more than a little disconcerting, and I think any colleague working in the field would do well to follow the advice of my Operations Manager and “Keep your head on a swivel”.

As a precursor to August's Rio Pipeline Conference, PPSA sponsored an event for **Young Pipeline Professionals Brazil (YPP-Br)**. More than 40 young pipeliners enjoyed the Introduction to Pigging and Pig Launching & Receiving event at the impressive CTDUT facility, featuring demonstrations from Pipeway, 4Pipe-Hidropig, NDT Global and Rosen. YPP-Br Institutional Relations Leader Stela Sartorio said it was an amazing experience and the first time she has witnessed pig launching and receiving. As one of my mentors remarked, “you never forget your first pig”!

PPSA Secretary Diane Cordell and I had fun discussing our Association with Russel Treat for Episode 292 of his **Pipeliners Podcast**. Russel has built a fascinating, entertaining and wide-ranging back catalogue through speaking with hundreds of industry professionals; check out the series via your favourite podcast store. Podcasting was a little out of my comfort zone and I certainly will stick to my day job, but I would recommend PPSA members give it a try - get in touch with

Russel to discuss whether the Pipeliners' Podcast could be a conduit to spread messages of your own products, services or experiences with his sizeable audience.

I look forward to welcoming PPSA members and guests to our annual Operational Pipeline Pigging Seminar in my home town of Aberdeen on November 14th-15th. Based on feedback from participants of last year's event, we have expanded the schedule for this edition. In addition to the interesting programme of technical presentations and the popular exhibition, we will host two tutorials this year delivered by PPSA members. **Sanccus Limited** will present “A Tutorial on the Type and Applications of Pipeline

NEW Members

Full

**Growth Avenue Sdn Bhd,
Malaysia**

**PT Titian Serviz Indonesia,
Indonesia**

Sanccus Ltd, UK

**Middle East Manufacture of
Pipe Cleaning Equipment,
United Arab Emirates**

**Quad Industrial Group,
Canada**

Gel Technology”, followed by **Rosen Group** presenting “Conversion and Integrity Management of Pipelines for Future Fuels”. We will round off the event with a dinner featuring a traditional (and optional) Scottish Ceilidh dance – kilts and partners are welcome! ●



Annual PPSA Pipeline Pigging Seminar and Scottish Dinner/Ceilidh

Wednesday 15th November 2023

Ardoe House Hotel, Aberdeen, UK

Register at:
www.ppsa-online.com/seminar

Partners welcome to join the Ceilidh



Presentations include:

Cleaning & ILI of heavy wall subsea pipeline with improved differentiation between debris and corrosion by 3P Services GmbH & Co. KG

Deepwater Pipeline In-line Inspection – A tool box approach by ROSEN Group

The science and technical application of radioisotopes for safe, accurate & reliable pig tracking by Tracerco Ltd

16" / 24" / 34" multi diameter operational pigging by Pigtek Ltd

Assessing the accurate topography of complex channeling corrosion by means of ultrasonic wall measurement tools by NDT Global

The challenge of an all-in-one inspection – first results and benefits by TRAPIL

Application of Advanced Data Analytics to improve metal loss tolerance specifications by Baker Hughes

High flowrate overboarding of pipeline flushing and pigging returns using non-consumable media when facing high oil inlets by CETCO

First use of temporary isolation plug technology on the National Transmission System by STATS Group

Detection of pipeline movement made as effortless as cleaning

**Authors: Michael Schorr and Beatrice Haring,
ROSEN, Germany**

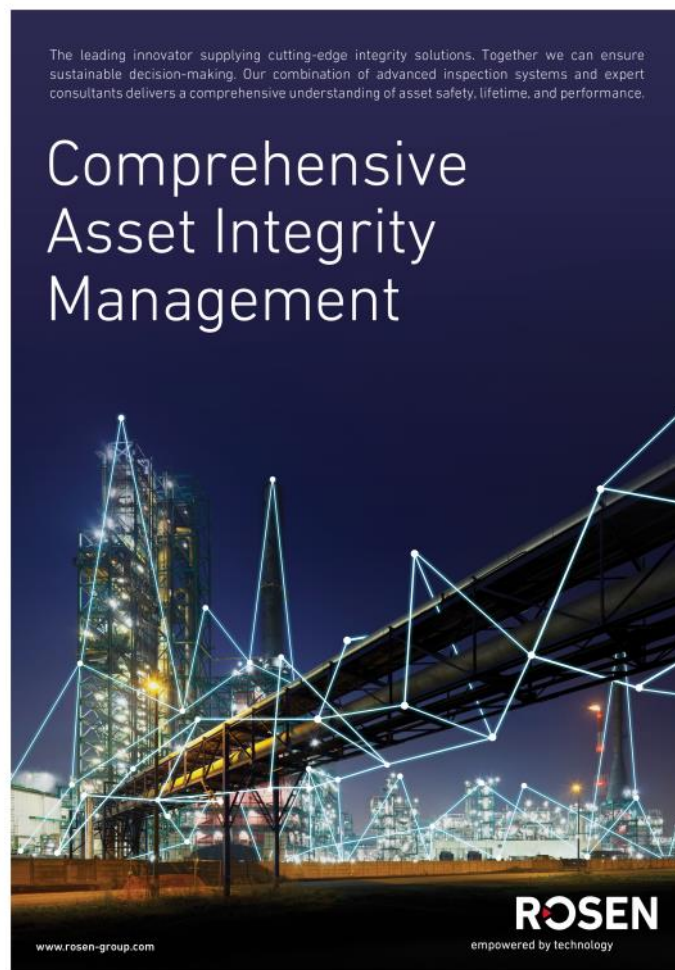
For the detection of geohazard-induced bending strain and pipeline movement, an inertial measurement unit (IMU) has proven itself to be an indispensable component of pipeline integrity. Operators whose pipelines are vulnerable to geohazards like shifting debris, landslides, erosion, washouts or free spans, need to identify stresses promptly following such an event as bending strain and pipeline movement can cause their pipelines to fail.

IMUs are typically integrated into combined technology in-line inspections by utilizing corrosion or crack detection systems and geometric calipers. While these technologies can provide additional relevant information on the threat situation, these more complex tool runs require more resources than a simple IMU unit and have longer lead times – resulting in high costs. The RoGeo PD service combines an IMU with a standard cleaning tool, which allows an operator to successfully mobilize and deploy an IMU with significantly less effort, thus reducing cost and resources required to complete an inspection.



*Figure 1: 20" (508 mm)
Cleaning pig with pipedrift
probe for the detection of
bending strains*

During a recent collaboration with a major North American operator, ROSEN has proven the technology and approach as feasible and reliable on several pipeline segments with a significant number of previous IMU inspections that utilized more



conventional combination technology platforms. A number of these pipeline segments had verified areas of pipeline movement that served as appropriate case studies, two of which can be found below. In these comparisons the PipeDrift (PD) IMU approach and extended caliper (XT) were compared as well as the PD between themselves:

Pipeline Movement Area	Length [ft.]	April 2021 (PipeDrift) – June 2021 (PipeDrift)		April 2021 (RoGeo XT) – June 2021 (PipeDrift)	
		Pipeline Movement [ft.]	Bending Strain Difference	Pipeline Movement [ft.]	Bending Strain Difference
1	562	0.08	0.013%	0.53	0.040%
2	181	0.04	0.033%	0.07	-0.003%

Figure 2: Summary of PD and XT combination pipeline movement results

The bending strain signals produced by the XT and PD technology are particularly notable. The similarities of their signal responses to smaller influences such as girth weld jumps or pipe segments that produce signals containing more “noise” indicate that properly aligned datasets produced by dedicated IMU platforms are as accurate as those of a standard combination tool.

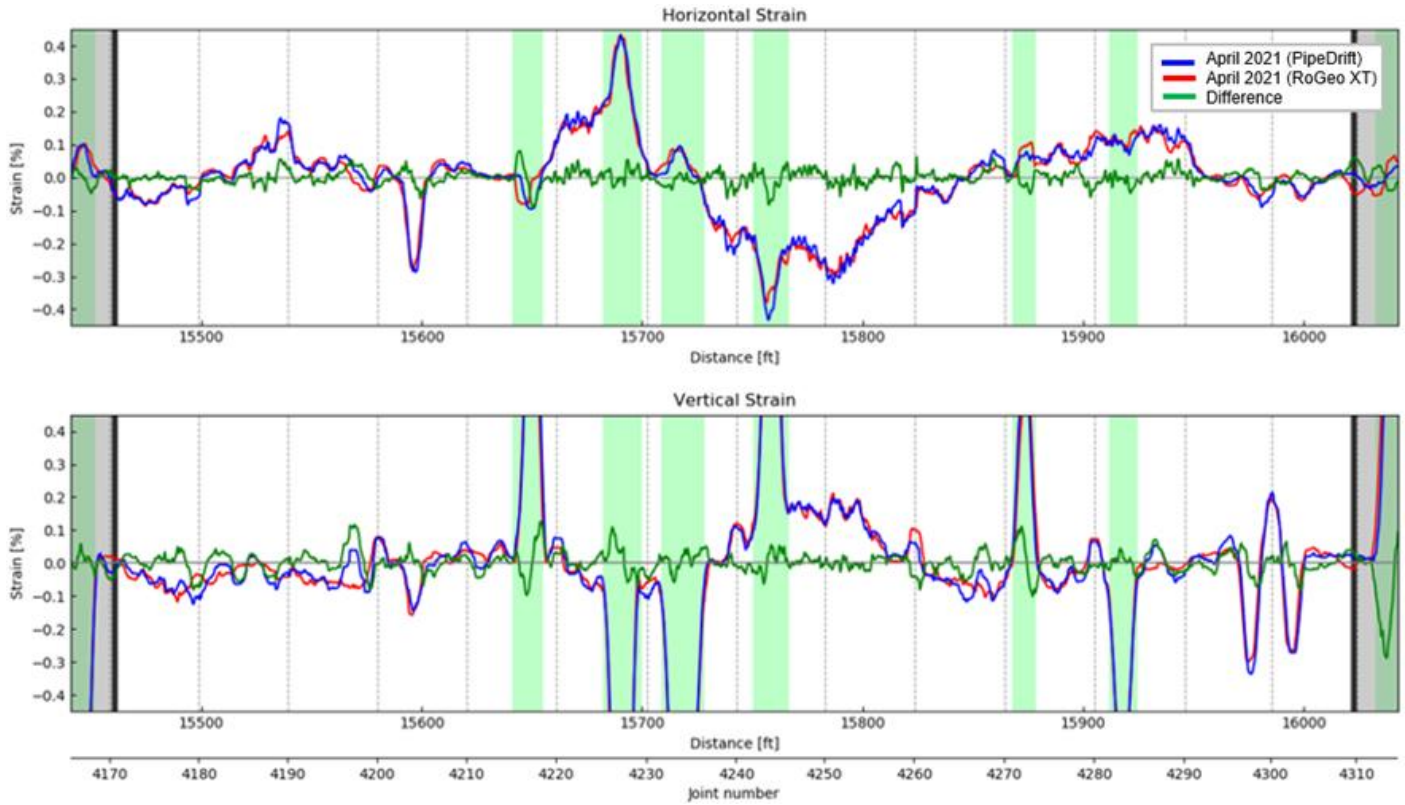


Figure 3: Run 1, Line A. Bending Strain comparison for pipeline movement area 1

The primary objective of these deployments was to determine the feasibility and efficacy of the technology and assessment process when applied to geohazard detection. Upon completion, the accuracy and reliability of the dedicated IMU was confirmed and improvements were made to the assessment methodologies.

The datasets indicate alignment and repeatability when compared to both proven technologies and

other PipeDrift inspections. IMU data quality remained high with average run velocities of up to 6.9 m/s and we believe that even higher velocities are achievable.

In conclusion, the RoGeo PipeDrift service provides a cost-efficient approach with an extremely short turn-around time, enabling pipeline operators to implement a screening process, identifying any movement related hazard to their asset integrity.

Time is money – Operator needs urgent ILI

Two 102 onshore flowlines

Author: Johannes Keuter, 3P Services GmbH & Co. KG

Pipeline description

A European pipeline operator had two 10" onshore sour gas flowlines which were out of service. Significant corrosion had been detected in a nearby pipeline which supplies the medium for the two 10" pipelines. Hence, it was decided that the operation of the two 10" pipelines will be stopped to reduce any risk of environmental contamination due to leakages. This inevitably led to a loss of revenues for the pipeline operator.

Why is it challenging

There was limited pipeline information available at the time, it was extremely urgent which complicated the tool preparation and due to the known corrosion in the nearby pipeline the pressure was limited to 30 barg.

Target of the inspection

Perform a high-resolution inspection for internal and external metal loss. Due to the project circumstances and loss of revenue the inspection was to be performed with utmost urgency, this required many operational, tool preparation and data analysis special procedures. Ultimately, 3P Services determined its express data evaluation service was necessary.

Concept for a solution

3P Services was asked to perform a metal loss inline inspection of both 10" sour gas pipelines as soon as possible. 3P proposed a 10" MFL tool and a 10" UT tool 24 hours after receiving the request, both with a lead time of five working days. The client decided MFL would solve his inspection problems, also due to time constraints he was keen to avoid the additional effort required for a liquid batch needed for a successful inspection with UT. 3P started the 10" MFL tool preparation immediately, the 10" MFL tool and the 3P Service Technicians were mobilized 5 five working days after the award.

Performance

3P Services performed the inline inspection of the first 10" pipeline five working days after the awards. The pipeline operator connected temporary traps to the pipeline to insert the inline inspection 10" MFL tool into the line. These traps were disabled and connected to the second line after the first successful inspection. The second pipeline was inspected three days later. Both tools recovered complete inspection data that allowed interpretation over the entire length of the pipeline.

Result

The data was analyzed immediately after the tool run and an express report was issued only two days after the inline inspection run. This express report summarized the most severe anomalies, which allowed the operator to bring the lines back into service immediately. The operator's targets were achieved, budget and time schedule were met.



Timeline of the project

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INNOVATIVE ILI SOLUTIONS WORLDWIDE
3p-services.com

Successfully tackling a multidiameter inline inspection through a wye bend

Growth Avenue provides reliable in-line inspection solutions to multiple operators within the region, with focus on collaboration and seamless adaptability to overcome technical challenges in multiple scopes of the pigging industry. The company continues to push for excellence within the technology and service sector with thorough research and development to complete project requirements.

The existing partnership between Growth Avenue and **Pipesurvey International** has brought success in a recent 365-kilometer subsea pipeline in-line inspection (ILI) operation for **Trans-Thai Malaysia (Malaysia) EVA** offshore pipeline. The inspected pipeline spans 365km from TTMM Muda Riser Platform (MRP) to Terengganu Onshore Gas Terminal (TGAST) and includes a 30-degree 24 inch wye-piece at 63km downstream with a 24"/28" expander at 75km.

Multi-diameter pigging tools were designed specifically for this line in order to inspect through the wye section and its diameter change in the pipeline, as well as the respective 3D bends within the line. Since the inspection team had previously inspected a 24" x 32" line, a similar multidiameter cup design was used to accommodate for the 24"/28" expander. The main challenge for this in-line inspection was designing the

tools to successfully run them through the wye section, maintaining pass-ability by ensuring the tool keeps sealing in the wye in order to prevent the tool from stalling through the expansion while also accommodating for the other 3D bends. A dual module design was used in order to provide sufficient thrust to pass through the wye, where sealing was maintained at the back module when the front module exited the wye section to allow more thrust from the product flow. Figure 1.0 illustrates the two-module MFL tool at the wye section of the pipeline, with the back module maintaining flow sealing as the front module exits the wye section and figure 1.1 shows the front module creating a flow seal as the back module is about to exit the wye section. This is possible through the designed length of the tools.

The technology used in this operation is highly versatile, allowing for flexible modifications for different lines.

- Our multidiameter pigging technology is adaptable to run in all flow mediums and can be used in other pipeline sizes-- with a proven track record of up to 34" NPS.
- Sensor pads for data capture are able to retract and expand mechanically to provide precise readings throughout the inspection during pipeline diameter transitions.
- All aspects of the pipeline were taken into consideration during the design phase to ensure maximum quality in in-line inspection as we carry this mindset every project we dive into.

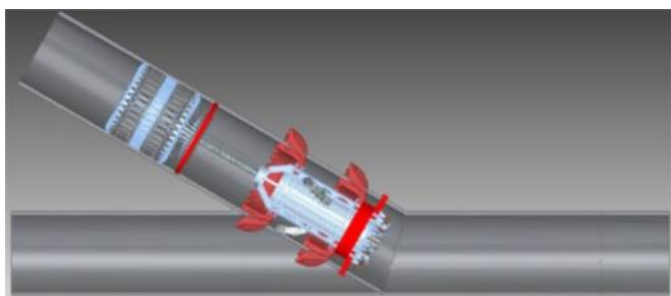


Figure 1.0 multi-diameter MFL

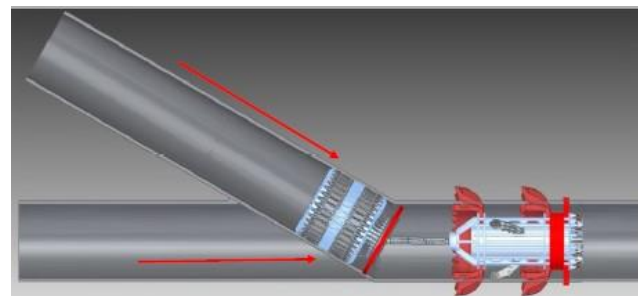


Figure 1.1 multi-diameter MFL



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Transitioning to non-intrusive pig signallers: An environmental and operational necessity for the oil & gas sector

By Carey Aiken – Online Electronics

Actual and perceived hydrocarbon emissions from oil and gas infrastructure – including pipelines – are currently under the microscope. The oil and gas sector, responsible for a substantial portion of global hydrocarbon emissions, is particularly under scrutiny. It's essential to adopt innovative measures that both mitigate environmental impact and ensure efficient operations. One such measure is the transition from intrusive to non-intrusive pig signallers.

Intrusive pig signallers, despite their longstanding use, come with a set of inherent risks. Their installation process involves cutting a nozzle hole in critical pipeline components, followed by welding a specific type of pipe fitting. Not only does each weld introduce a potential emissions source, but the very nature of these signallers, with their pressurized mechanical design, introduces multiple potential leak paths.

Maintenance recommendations further highlight the issues. Standard practice dictates a maintenance check every two years. But the real-world implications of this can be daunting: either a pipeline shutdown, an operation few companies can afford, or the hazardous procedure of removing the signaller under pressure. Add to this the unfortunate reality that these steps are sometimes neglected, and the risk factor increases considerably.

Non-intrusive pig signallers are a testament to how technology can align with sustainability. Without the



We do your dirty work.

The Enduro UreCast and UreFlex pigs are designed for all pigging tasks relating to cleaning, batching, purging and tracking. The UreCast uses a cup/disc combo for optimum sealing and scraping action.



need for invasive installations, they significantly reduce potential leak paths. Beyond the obvious environmental benefits, their design minimizes operational hazards, promoting workplace safety.

But the advantages don't stop at environmental safety. The operational efficiency of non-intrusive signallers offers compelling incentives for businesses. Their design allows for easier integration into existing systems, reducing downtime associated with

installations. Over time, the reduced need for regular invasive maintenance can translate to cost savings, a factor that makes them an attractive long-term investment.

The switch to non-intrusive signallers is more than just an equipment upgrade; it signals a broader shift in industry practices. As regulatory frameworks worldwide become more stringent and public sentiment increasingly favours green initiatives, industries need to adapt. Embracing technologies like non-intrusive signallers can position a company as an industry leader in



Magnetic signaller

sustainability. This can lead to increased confidence and customer trust.

Moreover, the industry stands to benefit from knowledge-sharing and collaborative initiatives. Companies that have successfully transitioned can serve as case studies, guiding others through the process. By fostering a culture of continuous improvement and innovation, the sector can collectively move towards a more sustainable future.

The case for transitioning to non-intrusive pig signallers is a clear one. As the world strives to overcome the challenges of meeting energy demands and mitigating environmental impact, industries must rise to the occasion. For the oil and gas sector, the choice is evident. By adopting technologies like non-intrusive signallers, they can play a pivotal role in shaping a sustainable future, while simultaneously enhancing operational efficiency and gaining stakeholder trust. ●

Testloop event for young pipeline professionals at CTDUT Technology Centre in Rio de Janeiro, Brazil

On 7th August 2023, the **Pigging Products & Services Association (PPSA)**, the **CTDUT Technology Center** and **PIPELINEBRAZIL** jointly hosted an Introduction to Pigging event for a group of over 40 young engineers from YPP-BR, the local Universities and those who were new to the industry. The event took place at the CTDUT Technology Center in Rio de Janeiro Brazil and it included 4 very interesting presentations by PPSA member companies **4PIPE HI-DROPIG**, **Pipeway Engenharia**, **NDT Global** and **ROSEN Group**.

The students were also given a demonstration of launching/receiving Pipeway Engenharia's DMR pig. It was a real hands on experience as the students had the opportunity to open and close valves and check the dials before the pig launch.

With 20 percent of the students still at University it was a great opportunity to bring together industry experts and academia, showing the students the interesting careers that are available to them.

With thanks to André França for the opportunity to visit the CTDUT facility. The CTDUT is a technology center specialized in pipelines. It is a non-profit private association open for use by any company or institution. Their well equipped labs, test loops and expert staff are available for hire for testing, technology development or demonstration.

André and his team were very helpful and professional making sure the YPP event went smoothly. Hopefully we have inspired the next generation.



Pig ready for launch at the YPP-BR event



Young Pipeline Professional students learning about pigging at the CTDUT Technology Center ●

“Split Code” design approach to pig trap quick actuating closures

By Rolf Gunnar Lie, T.D. Williamson, Singapore and Neil McKnight, T.D. Williamson, U.K.

Delivering quality product at required volumes means leaving nothing to chance, including asset maintenance, which is essential to pipeline integrity. Pigging activities, including in-line inspection (ILI) and cleaning, help keep pipelines in prime operating condition and extend useful life, but it takes proper equipment, planning and operator training to ensure safety, especially during pig launch and retrieval. Without the right technology for safe and easy access, opening the pig trap closure door can present unacceptable risk to both personnel and infrastructure. In fact, opening the closure is considered one of the most critical operations in pipeline pigging.

Why? The key concern is that when the pig trap door opens it will allow air to mix with hydrocarbons, creating an explosive atmosphere. But that’s not the only potential hazard. Sudden releases of pressure and projectiles can also jeopardize the operators’ safety, and valves must be opened and closed in the appropriate sequence to avoid damaging the pigs and the pipeline system itself.

One way to mitigate incidents is to minimize the time and effort involved in opening and closing the pig trap, which is generally a function of the type of pig trap closure in use — some are simply more straightforward and safer to operate than others.

For example, it’s easier to open and close a Quick Actuating Closure (QAC) or Quick Opening Closure (QOC) than it is to install or remove a blind flange.

The QAC or QOC can be opened by one person, typically in a single motion, without tools. In fact, the ability to swing the door open with one movement is part of how ASME defines the equipment: ASME Boilers and Pressure Vessel Code (BPVC) Section VIII standards note that quick actuating means “all elements loosening in a single actuation.” This feature enables the rapid introduction and removal of pipeline pigs without compromising the safety of field personnel, damaging equipment or releasing hydrocarbons into the environment.

By being the main access point into the pipeline system the QAC is a critical component in minimizing the volume of methane emissions that could escape into the atmosphere. Given the world’s net zero ambitions and the industry’s drive toward sustainability — not to mention regulatory compliance — this is an increasingly important factor. Although it’s difficult to find industry-wide or agency statistics about the amount of methane released during pig trap operation, the U.K.’s National Transmission

System found that each time they averted a failure by replacing pig trap seals, they saved 8.5 tons of carbon dioxide equivalent (CO₂e).

By contrast, installing or removing a blind flange requires dozens of bolts and nuts to be loosened and torqued. Not only does this process call for its own set of tools, but it also adds hours of labor and additional risk for field technicians.

Compliance Without Overdesign

Like any other oilfield equipment, QACs must comply with codes that vary by country and product. Although older pig traps were designed to meet pressure vessel codes, that’s no longer the case, and with good reason: the function of the closure is to provide internal access to the pipeline system not to the inside of a vessel.

Instead, pipeline operators now typically require pig traps to be designed according to the same code(s) as the pipeline on which they are installed — for example, ASME B31.8 - Gas Transmission and Distribution Piping Systems or ASME B31.4 - Pipeline Transportation Systems for Liquids and Slurries. This is possible because pig traps are considered pipeline assemblies, meaning the code that covers the pipeline itself also applies to the pig trap.

Of course, different codes have different qualifications — and different ways a pig trap closure design can satisfy them. For a closure to be installed on an ASME B31.4 or ASME B31.8 pipeline, for example, the interface between the closure assembly and the trap must reflect an intentional methodology that meets safety considerations — like keeping the technician out of the “line of fire” in case of a pressure release. ASME BPVC Section VIII says the closure design must incorporate a safety locking mechanism so the closure cannot be opened while it is under pressure.

Trying to understand and meet all the applicable codes is no easy task. In an effort to cover all the bases, equipment providers may be tempted to overdesign their pipeline traps and closures, which can be a waste of resources.

Let’s say a pig trap is built entirely to pressure vessel code. Not only is this unnecessary, but it’s also more expensive to manufacture. That’s because pipeline code allows the use of thinner (and less costly) high-yield strength API pipe for the barrel and nominal section instead of the lower yield strength, thicker materials limited by ASME BPVC Section VIII. The codes provide flexibility with regards to raw material selection, which reduces overall cost. Why not take advantage of it?

That’s exactly what the split code approach does.

The Split Code Approach

Designing a pig trap using a “split code” approach means the shell of the closure will meet ASME B31.4 or ASME B31.8 pipeline codes while the head of the closure complies with ASME BPVC Section VIII. As highlighted in ASME B31.4, “It is not the intent of this Code to necessarily extend the design requirements of Section VIII, Division 1 to other components in which Closure Door (Heads) are part of a complete QOC assembly.”

The T.D. Williamson (TDW) D2000 QAC satisfies those criteria. It consists of three primary components: a door or head compliant with ASME BPVC Section VIII, a clamp ring retaining device and a shell or hub that complies with pipeline codes (Figure 1).

The D2000 QAC also removes the risks associated with personnel standing in the “line of fire” and being exposed to a potentially deadly undetected build-up of pressure or projectiles: The technician stands safely to the side, operating the closure by the loosening of all holding elements in a single actuation before swinging the door around the fixed hinge point (Figure 2). In addition, the D2000 QAC’s pressure warning lock

(PWL) is located top-center to minimize the possibility of contamination by pigged-in debris clogging up the pressure release port. The PWL works like a bleed plug. When opened any pressure will bleed through the plug and warn the operator there is still pressure inside the pig trap that needs to be bled down before opening the QAC. These features allow users of the D2000 QAC to operate safer and exponentially faster than they would if they had to open a blind flange.

In essence, the D2000 QAC represents the best of all worlds, enabling safe, code-compliant operation while allowing critical pigging operations to proceed with minimal time, cost or intervention.

References

1. AS 2885.1, Gas and Liquid Petroleum - Design and Construction mentions pig traps under chapter 5.9 Pipeline Assemblies.
2. Chapter 5.9.2 Scarper assemblies indicate closures shall be designed, fabricated, inspected and tested as a “special assembly”
3. “Safety in pig trap closures,” National Grid, https://www.nationalgrid.com/sites/default/files/documents/Safety_in_Pig_Trap_Closures.pdf

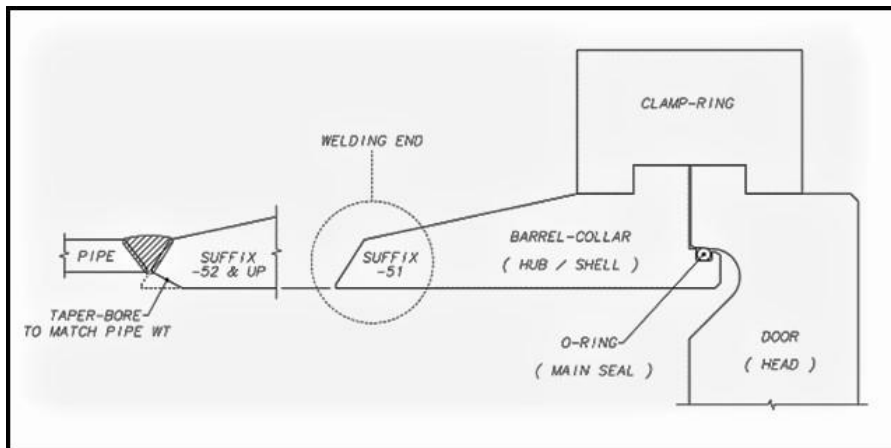


Figure 1: D2000 QAC main components



Figure 2: Operation of QAC outside "Line of Fire."

IP Pipeline Technology's self-propelled MFL technology successfully deployed

By: Fred Lee/Li Guanying, IP Pipeline Technology

In a groundbreaking development, **IP Pipeline Technology** has achieved a significant milestone by completing the first-ever domestic project involving the deployment of self-propelled Magnetic Flux Leakage (MFL) technology for pipeline inspection. This remarkable achievement, carried out in May 2023, entailed inspecting a 52.5-kilometer-long pipeline with a diameter of 28 inches. The project focused on baseline detection to ensure the integrity and safety of the newly constructed pipeline, and the inspection data obtained proved to be complete, valid, and met the precision error specifications as stated in the equipment specification document and the relevant standards and regulations.

The successful deployment of the self-propelled MFL technology in the aforementioned project holds immense promise for revolutionizing pipeline inspections, particularly in the area of baseline detection for newly constructed pipelines.

The use of self-propelled MFL technology in pipeline inspections offers a multitude of advantages over traditional methods. By combining its unique design and autonomous crawling capability, this cutting-edge tool significantly enhances performance and data quality. The reduction in frictional resistance allows for smooth traversal along the pipeline, ensuring prolonged

operational lifespan while maintaining high precision in detecting metal loss.

The inspection of the 52.5-kilometer pipeline with a diameter of 28 inches was conducted to establish a baseline for detecting any potential defects or irregularities before the pipeline goes into operation. The integrity of the pipeline is of utmost importance, and the meticulous inspection carried out using the self-propelled MFL technology yielded accurate and reliable results.

Field excavations conducted as part of the verification process further confirmed the precision of the inspection data obtained through the self-propelled MFL technology. The findings matched the accuracy and precision error specified in the equipment specification document, as well as the relevant standards and regulations, solidifying the tool's credibility and effectiveness.

IP PIPELINE TECHNOLOGY is thrilled by this accomplishment and eagerly anticipates the widespread adoption of this cutting-edge technology in the oil and gas industry. The successful implementation of self-propelled MFL technology for baseline detection in pipeline inspections showcases its immense potential in providing novel solutions to ensure the safety and integrity of newly constructed pipelines.

As IP PIPELINE TECHNOLOGY continues to refine and improve this state-of-the-art technology, the oil and gas industry can expect to witness a paradigm shift in pipeline inspection practices. The company remains committed to pushing the boundaries of innovation, offering safer and more efficient solutions to meet the ever-growing demands of the industry.



Figure 1 Before launching



Figure 2 After receiving

Mitsui completes acquisition of 100% shares of STATS Group

STATS Group announced that it has executed a Share Purchase Agreement to sell 100% of the issued share capital of the Company to **Mitsui**. The acquisition combines Aberdeenshire-headquartered STATS with Mitsui's Iron & Steel Business Unit, with the closing of the transaction expected in the summer subject to the satisfaction of regulatory competition approvals.

STATS, a market leader in the provision of innovative, technology-led pressurised pipeline integrity solutions, including its BISEP® and Tecno Plug® products, will help progress Mitsui's medium term management plan for "transformation and growth".

"The acquisition of STATS is complementary to Mitsui's plan to establish a strong, sustainable presence in the pipeline maintenance market as a service provider" said Leigh Howarth, CEO of STATS. "Having worked with the Mitsui team for several months now, we're delighted to be formally joining forces to pursue opportunities in both the traditional oil and gas pipeline markets and the emerging low carbon markets."

STATS will continue to deliver its services, products and solutions to customers from its existing operational bases across the globe. "Supported by Mitsui's broad energy relationships and investments, we see significant growth potential for STATS from this transaction, and resultantly excellent career development opportunities for all our staff" continued Howarth.

For Mitsui, this transaction presents an attractive opportunity to achieve market acceleration in relation to sustainable infrastructure maintenance. "Under its Medium-term Management Plan, Mitsui is aiming to work toward a global energy transition by providing optimal solutions through business" said Koichi Fujita, Chief Operating Officer of Mitsui Iron & Steel. "Utilising the equipment and services provided by

STATS, Mitsui will also work to strengthen the value chain for its upstream oil and gas interests and businesses, particularly in the areas of CCS and hydrogen."

Leigh Howarth and all other executive members of STATS will remain with the Company upon completion of the transaction, whilst Pete Duguid, Chairman and founder of STATS, will retire. ●

PPIM 2024 to feature 'pigging operations'

Plans are well underway for **PPIM 2024** in Houston February, 12-16. The organisers tell PPSA that last year's sessions on operational pigging issues were among the best attended. "We are looking for good papers about the mechanics of running pigging tools, launching-receiving stations and appurtenances, tracking, signalers and communications, calibration, and the like," said Ben Stroman, editor at **Clarion**, who organise the conference.

"In recent years these important operations topics were under-represented. The emergence of sophisticated and more-specialised ILI, advanced analytical techniques, and more rigorous engineering assessment methods led to a wave of papers on these subjects. That's a trend that continues, but we must remember that knowing the physical condition of the pipe prior to inspection is critical, and there is zero information from a stuck pig – except that something's wrong in the line and a lot of money is down the drain", Stroman added. "The deadline for abstracts was 7 September, but we are especially interested in high-quality papers on pigging operations. Anyone who missed the deadline but wants to contribute should contact me immediately at bstroman@clarion.org.

Stroman says the exhibition is almost sold out due to re-bookings from the 2023 companies. "We have just opened up the remaining spaces for new companies to join in 2024" he said. More information on PPIM can be found at ppimconference.com. ●



CALL FOR PAPERS NOW OPEN

ppimconference.com/call-for-papers

3X Engineering performs long-term composite repair solution for tank and pressure vessel reinforcement

Overview

The objective of the repair performed in June 2023 by **3X ENGINEERING (3X)** specialists was to reinforce the roof of a tank damaged by severe internal corrosion leading to important through wall defects. The 14.6m diameter oil storage tank, located at a Middle East refinery, was repaired using a 3X Engineering REINFORCEKIT® PATCH solution specifically dedicated to tank reinforcement.

Scope of work

The repair design was performed in compliance with API 653 and ASME PCC-2 standards. It was not possible to step on the roof, the work was conducted out of a basket man lifted with a crane and supplied by the client. Protection and safety were required including a charcoal mask for respiratory protection and a height harness.

The roof tank reinforcement was performed following 4 main steps:

1. Surface preparation and cleaning

The surface preparation was performed manually. No electrical or spark productions work was allowed. Once the surface preparation was done, hygrometric conditions were checked and the complete area was cleaned with acetone.

2. Filler and steel plate application

3X filler was applied on small holes and then sealed using steel plates (previously prepared on both sides) covered with 3X specific filler. The steel plates were held using magnets until the filler is cured.

3. Wire mesh application

Wire mesh was applied on the large defected areas and covered with 3X filler before patches application.

4. Composite patching reinforcement

First layer of R3X95 resin was applied on the entire surface. Then patches of Kevlar® fiber with R3X95 resin were applied => 9 patches of 3 layers each one was necessary to cover the complete defected area meaning a total of 27 patches installed.

Results

Totally, the repair covered an area of 100m² including the defect. The tank is now repaired and protected from any infiltration from the roof as well as vapor emissions, as requested by the client.

This repair was designed for a lifetime of 5 years. ●

ptc 2024: Shaping the future of pipelines on a global stage in Berlin

The **Pipeline Technology Conference (ptc)**, Europe's premier event for pipeline industry professionals, is set to return to Berlin from April 8-11, 2024. This much-anticipated conference and exhibition will once again serve as the epicenter of knowledge exchange, innovation, and collaboration for the global pipeline community. The 19th Pipeline Technology Conference promises an enriching experience for all attendees, with an extensive program encompassing a diverse range of activities. Delegates can look forward to a lineup of 1-day training courses, illuminating panel discussions, in-depth technical sessions, interactive operator round-tables, culminating award ceremonies, and engaging social events.

The pipeline industry is currently navigating a dynamic landscape fraught with an array of unique political, economic and technical challenges across different continents, including Europe, North America, Latin America, Asia, and Africa. Against this backdrop, ptc 2024 will provide a vital platform for the international pipeline community to share invaluable experiences, technical advancements, and lessons learned.

"ptc is much more than an annual gathering. It is an opportunity for the industry elite – pipeline operators, industry leaders, experts, and young talent – to come together and shape the future of the industry," said Dennis Fandrich, Member of the Management Board of the organizing EITEP Institute and Chair of the Pipeline Technology Conference. "We will delve deep into political challenges, explore cutting-edge technological developments, and present real-world case studies that demonstrate our commitment to a net-zero emissions future in Germany, Europe and the rest of the world."



Pipeline Technology Conference Exhibition 2023 ●