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Inside Pipelines International

Pipelines International is a proud media partner of IPLOCA
Maximise brand awareness by connecting with thousands of industry professionals

The Pipelines International brand comprises: a quarterly magazine, a news website, a fortnightly e-newsletter, multiple social media platforms, an annual map of major pipeline systems in the US and a biennial map of major pipeline systems in Canada.

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VERSATILE. Always a leading innovator, we supply customers with cutting-edge diagnostic and system integrity solutions. This, bound with our focus on flexibility, reliability, cost and quality, leads to offerings beyond your expectations.
JOHN TIRATSOO

We all heard the news on 10 November that John Tiratsoo, our previous Editor-in-Chief, had lost his battle against progressive supranuclear palsy (PSP). This is a particularly rare but aggressive neurological condition.

I choose the word ‘battle’ as it is appropriate – he was working with the condition and living with it for some time, and refused to let it take control of his life.

Eventually it did and he died in his home in Southampton, England. His wife Louise and his family were with him.

He is a great loss to our industry – he is one of the few people in our industry who I can safely say had ‘put more in than he got out’.

On a personal level, he was a friend of many, many years. I will miss him and the pleasure of having a cool lager with him in Brazil, a strong lager in Belgium, and a warm pint of beer in his favourite pub in Newcastle, UK – the Crown Posada.

I’m sure you will all have fond memories of John, and we need to ensure his passion for our industry and his near obsession with transferring knowledge to our next generations of engineers are both maintained and recognised.

And we can start with this edition of Pipelines International, with its wide variety of topics, ranging from news from the North American pipeline industry to new products and services. A rich mix and a feast of knowledge – something that John always championed and enjoyed.

Phil Hopkins
Editor-in-Chief

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**TC Energy announces CA$1.2b expansion**

The West Path Delivery Program is a combined expansion of TC Energy’s NOVA Gas Transmission and the Foothills Systems, which will connect to the GINYN’dow – a recently announced US$130 million project to deliver volumes to downstream markets. The investment includes approximately 119 km of pipeline and associated facilities with applications for approvals to construct and operate the facilities expected to be filed in 2020. Construction is expected to commence in late 2021, pending receipt of regulatory approvals. “This CA$1.2 billion (US$9.1 million) program brings our sanctioned expansions of NGTL and Foothills infrastructure to $10 billion (US$7.5 billion), demonstrating our strong commitment to the long-term viability of the WCSB,” said TC Energy President and CEO Russ Girling.

**Israel Natural Gas Lines (INGL) and IGI Poseidon have signed a memorandum of understanding (MoU) to build an Israeli natural gas pipeline to Europe. The EastMed pipeline has the potential to carry approximately 10 billion m³/a of gas from the eastern Mediterranean to Cyprus, Greece, Italy and other European markets. Over the past decade, offshore gas discoveries have transformed Israel into an energy exporter with international export deals already signed. Due to these discoveries, INGL and IGI Poseidon agreed to form a joint team to examine the technological and regulations involved in the EastMed pipeline construction.**

**Sudan and Ethiopia establish joint pipeline**

In a meeting between the Sudanese Minister of Energy and Mining Dr. Adel Mohamed Ibrahim and his Ethiopian counterpart Seleshi Bekele, a decision was reached to construct a joint pipeline to serve both countries. The meeting also served as an invitation to South Sudan to establish another branch of the pipeline that will extend to the South Sudan State to benefit the region. Dr. Adel said both countries are enthusiastic about the project and will commence the implementation of the pipeline shortly after the completion of partnership procedures. A discussion regarding the technical cooperation between Sudan and Ethiopia in the field of oil exploration and development also took place, with Ethiopia expressing appreciation for Sudan’s oil experience and its willingness to increase the exported electricity power to Sudan.

**MOL Group makes US$1.57b acquisition**

MOL has signed an agreement with Chevron Global Ventures Ltd and Chevron BTC Pipeline to acquire its interest in the Bakken pipeline network and production (E&P) and midstream interests, including a 9.57 per cent stake in the Azeri-Chirag-Gunashli (ACG) oil field and 8.9 per cent in the阜chin-Tblisi-Ceyhan (BTC) pipeline. The ACG oil field is Azerbaijan’s largest strategic oil asset, covering 480 km² including six offshore production platforms and a production average of 366,000 bbl/d in 2018 while the BTC pipeline is a crucial export route for crude oil from Azerbaijan to the Mediterranean port of Ceyhan, Turkey. Subject to government and regulatory approvals, the transaction is expected to close during the second quarter of 2020.

**TechnipFMC awarded major contract**

PetroVietnam Gas has awarded TechnipFMC an engineering, procurement and construction contract for a pipeline in Vietnam. It includes engineering and installing 118 km of rigid pipeline across Nam Con Son basin and Con Long basin as part of the phase 2 of Vietnam’s Nam Con Son 2 Project. The contract also includes the construction of subsea structures to tie back the Nam Con Son 2 Phase 1 gas pipeline to the Long Hai Landfall Station. TechnipFMC President Subsea Arnaud Piéton said the company is extremely pleased to be contracted with the Nam Con Son 2 Phase 2 pipeline contract that is “significant”, with a value of US$75 million to US$250 million. “This pipeline collects and transports gas from several reserves to help meet the demand in southeast Vietnam, and we look forward to collaborating with PetroVietnam Gas on this project,” said Mr. Piéton.

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Missed the October edition? Catch up online!

The latest edition of Pipelines International is now available to be read online. The digital edition can be viewed on a tablet, computer or smartphone and contains interactive content not available in the print version.

The Fall edition contains:

• A project overview of the Trans Adriatic Pipeline (TAP), an asset transporting gas from one of the world's biggest offshore gas fields.
• An article by ROSEN Group on how the digitisation revolution is impacting pipeline integrity.
• A summary of the construction activities in the mountain project recommendation.

And much more!

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If you would like to know more about subscriber benefits, or are interested in signing up for your FREE digital magazine subscription, contact Pipelines International Managing Editor Chloe Jenkins at cjenkins@gs-press.com.au

NDT Global expands services

The ultrasonic pipeline inspection and integrity services supplier has announced an expansion of its integrity services offering to meet the growing industry demand for proactive pipeline integrity management.

“This is the result of data-driven asset integrity management within NDT Global’s portfolio that will transform the way we work,” said Mr Mathews.

NDT Global President and CEO Richard Mathews said the company’s exclusive focus on ultrasonic inspection technology allows for precise accuracy, reliability and sophistication of data.

“We are leveraging machine learning and artificial intelligence techniques and using our big data platforms to continuously improve the accuracy and reliability of the results from our inspection robots,” said Mr Mathews.

NDT Global’s exclusive use of artificial intelligence techniques is the key to delivering value in integrity assessments to enable proactive pipeline integrity management.

Canadian pipeline construction begins

Rangeland Midstream Canada – a wholly owned subsidiary of Rangeland Energy III LLC – has commenced construction of its Martin Hills Pipeline System located on the northern Alberta pipeline corridor. The pipeline will extend approximately 135 km, starting at a high pressure station southwest of Foremost, Alberta and ending at a new processing plant at the Fort St. James Gas Plant.

The pipeline will be part of a major expansion of Rangeland Midstream’s system assets and transportation infrastructure, providing dedicated crude oil production from the Clearwater formation.

The Martin Hills pipeline system is anchored by agreements with the region’s largest crude oil producers who have made a combined minimum volume commitment representing 40 per cent of the system’s capacity.

The Rangeland Canada Vice President of Business Development Brett Speer said that after receiving all the required permits and regulatory approvals, the pipeline construction is expected to begin by the end of the year.

“The Martin Hills system will allow our system to connect southwest Alberta crude to western Canadian energy shippers,” said Mr Speer.

The system is expected to come into service in the second quarter of 2020.

Colorado regulators adopt new flowline rules

The Colorado Oil and Gas Conservation Commission (COGCC) has completed the first flowline rulemaking under Senate Bill (SB) 19-181 to change oil and gas development regulations and increase public safety throughout the state.

Last Thursday, Colorado regulators approved a set of measures to increase public safety and awareness in the oil and gas sector. In 2017, a fatal home explosion in Firestone, Colorado caused by a long-abandoned flowline still connected to the public’s pipeline system. Additionally, the FAQ website of regulators to tighten the rules that utilities follow in reporting requirements for installing, opening, closing and abandoning flowlines.

The COGCC has completed the first rulemaking under Senate Bill (SB) 19-181, which was passed on 3 April 2019 to ensure oil and gas development and operations in Colorado are regulated in a protective manner.

Chair Dan Gibbs says this new rulemaking is on the critically important topic of flowlines, as part of the regulations on oil and gas are to protect public health, safety, the environment and wildlife.

“I am proud to join the other commissioners to adopt rules that provide greater transparency for the public and communities on where flowlines are located and enhanced protective measures on abandoning or where appropriate, removing flowlines to ensure public safety," said Mr Gibbs.

SB 19-181 directed the commission to engage in rulemaking that will allow public disclosure of flowline information, determine when a deactivated flowline requires reinspection, and consider its inactive well and flowline rules.

At the hearing, the COGCC adopted flowline rulemakings to increase public protection by creating – for the first time – a map of the actual paths of all Colorado flowlines, intended to provide general information that enables an individual to contact the operator or authorities.

A flowline rulemaking will ensure that flowlines are abandoned in a manner that is the least impactful, to negate the risks on public health, safety, welfare and the environment.

COGCC Director Jeff Robbins said the commission is committed to an open, transparent and rulemaking process that engages all stakeholders.

“We worked with environmental, industry, local government, homeowners and other stakeholders from across the state in a collaborative manner to arrive at sensible solutions that will deliver stronger protections and more accurate and publicly available mapping information, and help to increase public safety as a result of this flowline rulemaking,” said Mr Robbins.

The proposed amendments were adopted during the COGCC hearing on 19-21 November, and will be effective 20 days after publication in the Colorado Register. Currently, the COGCC is reviewing the SB 19-181 rules and procedures to evaluate what changes are required to reflect the new law.

Corinth Pipeworks wins IGB pipeline contract

ICGB AD has awarded the Gas Interconnector Greece – Bulgaria (IGB) pipeline contract to Corinth Pipeworks, which will manufacture and supply the line pipes for the 187 km pipeline.

The 32 inch (812 mm) diameter steel line pipes will be manufactured in Corinth Pipeworks’ factories in Greece, where the company said an extremely high manufacture performance criteria is in place to ensure the gas pipeline will meet the highest safety standards and good engineering practices.

The supply contract will be executed for a period of twelve months with the first delivery being realised within the initial four months of the contract.

Joint venture partner and owner of the project pipeline, ICGB AD, will be responsible for the development, financing and construction of the IGB pipeline.
A service was held to celebrate John’s life in November in Eastleigh, UK. GSP is currently collecting photos and messages to be passed on to his family. Please send any photos or messages to: aferguson@gsp-press.com.au

John spent his 30+ years in the pipeline industry focused on building international networks of pipeline professionals, encouraging knowledge sharing – including contributing his knowledge to articles in this edition – and helping to build and grow a number of initiatives that will continue to benefit the sector for years to come.

He played an important role in the development of events and associations including the International Pipeline Conference in Calgary, RIO Pipeline in Brazil, the Pigging Products and Services Association (PPSA) and the Professional Institute of Pipeline Engineers (PIPE). Through all of these projects, John brought his infectious enthusiasm and passion for the sector, made many friends and built lasting memories.

A large part of John’s career was spent organising conferences and training courses in collaboration with B.J. Lowe of Clarion Technical Conferences (Houston). Together, John and BJ established the Pipeline Pigging and Integrity Management (PPIM) conference series and ran many other events in North America, Asia and Europe. At the same time, John was actively producing the Journal of Pipeline Integrity, which later became the Journal of Pipeline Engineering.

Throughout the years it was published the journal had an active and loyal readership and an editorial board that included many of the leading minds in the field.

The biennial meeting of the editorial board was held during the International Pipeline Conference at the James Joyce in downtown Calgary. Those involved with the journal will agree that many good nights started with this meeting!

In 2009, Great Southern Press (GSP) was fortunate enough to be welcomed into the international pipeline industry through a merger with John’s company, Scientific Surveys. Over nearly a decade, John was a colleague, friend and mentor to many members of the GSP team.

I had the privilege of working with John from the time I became the Assistant Editor of Pipelines International. It’s fair to say that when I first worked with him, I was daunted. He was a giant of the industry, with an excellent reputation and an in-depth understanding of all the individuals and companies we encountered through our work. But the great thing about John was that he had no ego whatsoever.

He quickly made me feel comfortable and confident in my ability to do my job well, and he did not hesitate to introduce me to so many in the pipeline industry that have subsequently become friends.

John was generous, welcoming, encouraging and patient. He had the best belly laugh, and the warmest smile. It was always a joy to get off a long-haul flight from Australia, to meet him in a new city and to enjoy a cold beer and share some laughs.

He will be hugely missed by the GSP team and by so many others in the industry. John’s legacy will continue for years to come from the many initiatives he spearheaded which will be a great joy and comfort.

Our condolences go to his family at this difficult time. We thank them for having so generously shared him with the industry that he loved. He was a great man, truly one of a kind, and he will always be remembered.

John Tiratsoo sadly passed away on 10 November 2019 aged 71. He was the co-founder of the Pipeline Pigging and Integrity Management Conference and Exhibition (PPIM) in Houston and the former Editor-in-Chief of Pipelines International

Farewell to a giant of the pipeline industry

by Annie Ferguson, CEO, Great Southern Press

A service was held to celebrate John’s life in November in Eastleigh, UK. GSP is currently collecting photos and messages to be passed on to his family. Please send any photos or messages to: aferguson@gsp-press.com.au
PPIM going to another level in 2020

In 2020, PPIM will continue right where it left off in 2019, with an extended conference program full of top-of-the-line technical papers from some of the brightest minds in the pipeline industry. The event will also feature a packed trade exhibition, as well as high-quality training courses and networking opportunities.

Attendees will hear the latest technical papers presented by industry leaders, update their skills at one of the training courses preceding the conference, and learn about the latest innovations in integrity management technology and practices, while making and renewing important business contacts.

The Pipeline Pigging and Integrity Management Conference and Exhibition (PPIM) enters its 32nd year with a 2020 event shaping up to be larger than ever. The event is the pipeline industry’s only forum devoted exclusively to pigging for maintenance and inspection, along with pipeline integrity evaluation and assessment, and attracts more than 2,500 attendees each year.

Held once again at the George R. Brown Convention Center and adjoining Marriott Marquis Hotel in downtown Houston, US, PPIM 2020 will take place on 17–21 February 2020 and attract a wide range of pipeline operators, engineers, manufacturers and suppliers from around the world.

Attendees will hear the latest technical papers presented by industry leaders, update their skills at one of the training courses preceding the conference, and learn about the latest innovations in integrity management technology and practices from the industry’s biggest names at the exhibition – all while making and renewing important business contacts.

As the one-stop event for those interested in pipeline pigging and integrity management, PPIM offers an unparalleled opportunity for those wishing to highlight their support of, and a presence in, the maintenance industry.

The PPIM exhibition will once again feature technical papers covering inline inspection (ILI), data assessment, prioritisation of repairs, new tools, improving tool performance, external coating inspection with ILI tools, pig launch and receiving systems, new regulations, pipeline cleaning and much more.

On Wednesday 19 February, PPIM will kick off with the opening plenary session, featuring opening remarks from the event organizers, followed by a presentation from Juan Martínez from Colonial Pipeline Co and John Godfrey from DNV GL. The presentation of the Young Pipeline Professionals USA (YPP) Annual Recognition Awards will then take place, followed by five more presentations to conclude the first half of the day.

After lunch, the conference sessions will split into three separate tracks. Over the course of two and a half days, 75 papers will be presented by leaders from the pigging and integrity maintenance industry.

The papers have been reviewed by the PPIM Program Advisory Committee, which includes representatives from some of the world’s largest and most prominent pipeline companies, such as ExxonMobil, ROSEN, NDT Global, Baker Hughes and TD Williamson. Turn to page 18 for the full conference program.

YPP AWARDS

The Young Pipeline Professional (YPP) annual awards return in 2020, the first celebrating the achievements of a young pipeliner and the second an outstanding contribution.

The Young Achievement Award will recognise the achievements of individuals under the age of 35 who have given a valuable and original contribution to the industry. The winner of the award will receive a US$2,500 voucher for flights and accommodation to a destination of their choice, an engraved plaque and an interview in an upcoming edition of Pipelines International.

The Outstanding Contribution to the Industry Award will recognise individuals’ and companies’ services to the pipeline industry. The winner will receive a US$1,500 voucher for flights and accommodation to a destination of their choice, an engraved plaque and an interview in Pipelines International.

Nominations for these awards can be made by anyone but must be endorsed/supported by senior managers within the organisation. The nomination form, which can be found on the PPIM website, should be completed and submitted with a 300 word or less biography of the nominee and a summary of their contributions or achievements.

Nominations will be evaluated by a panel of judges, who will then decide the winners. The deadline for nominations is Friday 10 January 2020.

EXHIBITION

PPIM’s exhibition will once again feature representation from more than 160 companies, with top-of-the-line technical papers from some of the brightest minds in the pipeline industry. The event will also feature a packed trade exhibition, as well as high-quality training courses and networking opportunities.
providing the opportunity for delegates to interact one-on-one with the world’s top providers of pigging, ILI, and integrity management products and services. Representatives will be available in the trade hall to discuss the latest technologies for pipeline integrity management, including ILI, pigging for cleaning, geometry, scaling, ILI prep, and other utility applications.

Validation dug, non-destructive evaluation (NDE), and direct assessment, hydrotesting, data management, leak detection, mapping, emergency response, and repair methods, will also be showcased. Many companies schedule demonstrations or presentations, offering a unique opportunity to learn about new products from the engineers and specialists involved in their development.

The exhibition will be officially opened with a reception taking place at 3.00pm on Tuesday 18 February. Another reception will take place in the Exhibition Hall following the first day of the conference, at 5.00pm on Wednesday 19 February.

For a list of who to visit in the exhibition hall turn to page 22.

TRAINING COURSES
A comprehensive selection of pipeline training courses will be held, on Monday and Tuesday 17–18 February, prior to the commencement of PPIM’s conference and exhibition.

In total, 11 training courses will be offered, presenting an opportunity for delegates to brush up on their skills and further their training. The 2020 courses will be delivered by internationally renowned industry experts and will include:

- Practical application of machine learning to pipeline integrity, presented by Michael Gloven
- Advanced pipeline risk management, presented by Kent Muhlbauer
- Fracture mechanics for pipeline engineers, presented by Ted Anderson
- Defect assessment in pipelines, presented by Dr Phil Hopkins
- Hydrostatic testing of pipelines, presented by Gary Zunkel
- And more!

For more information on the training courses, including details on the lecturers, who should attend, course objectives and notes, or to register, visit the PPIM website.

For the most up-to-date information on PPIM 2020 visit www.ppimhouston.com

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**Conference Program**

**Tuesday, February 18**

17:00–19:00 | Exhibition welcome reception sponsored by ROSEN Group

8:00 | Opening remarks

8:15 | [1] Utilization of vendor auditing for continuous improvement of ILI system performance

Juan Martinez, Colonial Pipeline Co., Alpharetta, GA, and John Godfrey, DNV GL, Dublin, OH, USA

9:00 | [2] Beyond compliance... Jan Fowin and Chris Yewat, ROSEN USA, Houston, TX, USA


10:00 | Refreshment break sponsored by Halfwave

11:00 | [4] A process for hydrostatic test data acquisition and validation Gary Zunker, Bluefield, Amosu, CA, USA


12:00 | Pig and dig: how much is enough, how much is too much? Justin Ramos, Integrity Plus, Fort Collins, CO, USA

12:30 | Lunch sponsored by Endura

14:00 | [7] Black swans, red horrhings and sacred cows: the zoology of pipeline cracks Dr Ted Anderson, TL Anderson Consulting, Lake City, UT and Alex Litvinov, LexTech, Sergio Limon, Elevara Partners, Salt Lake City, UT and Alex Litvinov, LexTech, Centervale, OH, USA

14:30 | [8] Next generation ILI crack inspection service – an operator vendor collaboration for a 26-inch pipeline Steven Butt, Endige Crack Pipelines, Edmonton, AB, Canada and Dr Thomas Henmy, NOF Global, Stutensee, Germany

15:00 | [9] Measuring fatigue crack growth rates of pipeline steels and their implications to fatigue analysis Sergio Leon, Elevar Partners, Salt Lake City, UT and Alex Litvinov, LexTech, Centervale, OH, USA

15:30 | Refreshment break sponsored by Halfwave

**Wednesday, February 19**

**Breakfast**

8:00 | 1.0 Plenary opening session

8:15 | [1] Utilization of vendor auditing for continuous improvement of ILI system performance

Juan Martinez, Colonial Pipeline Co., Alpharetta, GA, and John Godfrey, DNV GL, Dublin, OH, USA

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15:30 | Refreshment break sponsored by Halfwave

**Thursday, February 20**

**Breakfast**

8:00 | 2.3 Cracks (cont'd) 3.2 ILI applications (cont'd) 5.1 Data management & leveraging

8:30 | [10] Generation and monitoring of synthetic crack-like features in pipeline materials using cyclic pressure loading Dr Chris Alexander, ADV Integrity Inc., Magnasen, TX, USA

[33] Improving remediation programs with risk-based analyses of inline inspection data Benjamin Harms, DNV GL, Columbus, OH, USA

[36] Data management strategies for an efficient implementation of Industry 4.0 integrity assessments Aidan Charlton, Pentapen Ltd, Newcastle, UK

9:00 | [11] Understanding the detection capabilities of an ultrasonic crack ILI robot in a dent Rogelio Guastando Rodriguez, NDT Global, Karlsruhe, Germany

[34] Closed form probabilistic method for conducting pipeline remaining life assessment from ILI data Joycelyn Nelson, ExxonMobil Upstream Research Company, Spring, TX, USA

[57] Pipeline GIS and mega rule part 1: material property verification and the system of record Sam Acheson, ROSEN USA, Columbus, OH, USA

9:30 | Refreshment break sponsored by Halfwave

10:30 | [12] Burst testing of pipes containing stress corrosion cracking Christopher Davies, ROSEN USA, Columbus, OH; Dr Chris Alexander, ADV Integrity, Magnasen, TX, and Todd Post, Consumers Energy, Jackson, MI, USA

[35] Run comparisons and randomness, when is a change really a change? Joel Anderson, Enable Midstream Partners, Oklahoma City, OK, USA

[58] Fast-track development and deployment of high-temperature ILI tools Nesha Alahmad, Franklin, PA; Marc Houtager, 3P Services, Wieltemarzen / Lohne, Germany

11:00 | [13] A validation study of computed tomography inspection technology using full-scale test articles with crack-like features Dr Chris Alexander, ADV Integrity, Magnasen, TX, and James Medford, Inspection Associates, Magnasen, TX, USA

[36] Maximizing the accuracy of MFL pipeline inspection Ben Scott, Baker Hughes, Cumbria, UK

[59] Behind closed doors; pipeline closures and traps revisited Alan Morten, T.D. Williamson, Tulsa, OK, USA

12:00 | [14] Pipeline pressure analysis in the frequency domain Michael Rosenfeld, RSI Pipeline Solutions, Houston, TX, USA and Stephan Tappert, Baker Hughes, Houston, TX, USA

[37] Individual anomaly sizing certainty on MFL Data Christoph Herness, ROSEN Group, Lingen, Germany

[60] Pipeline change of service – from dirty to clean in 5 easy steps Mark Gourley, Baker Hughes, Houston, TX, and Brett Roper, SemGroup Corporation, Tulsa, OK, USA

12:30 | Lunch sponsored by Endura

14:00 | [30] Calculation of a laser-scan-like 3D defect profile from conventional MFL data Johnathan Palmer, ROSEN USA, Houston, TX, USA and Andrey Dambis, ROSEN Group, Berlin, Germany

[53] Risk-based decision-making supported by machine learning Michael Groves, Expert Infrastructure Solutions (EIS), Denver, CO, USA

14:30 | [31] A case study – benefit of pipeline specific sizing for engineering critically assessment Genevieve Stewar, Endige, Houston, TX, USA and Stephen Tappert, Baker Hughes, Stutene, Baden-Wurttemberg, Germany

[54] The current progeny of inline inspection machine learning assessment Danie Brand, T.D. Williamson, Scott Lake City, UT, USA

[55] Machine learning to support risk and integrity management Christopher De Leon and Michael Smith, ROSEN USA, Houston, TX, USA

15:00 | [32] Replacing hydrotesting of low frequency ERW pipe with an enhanced ILI solution – Eclipse Marcus de Rez, Marathon Pipe Line, Findlay, OH, USA and Rogelio Guastando Rodriguez, NDT Global, Karlsruhe, Germany

[56] Data management strategies for an efficient implementation of Industry 4.0 integrity assessments Aidan Charlton, Pentapen Ltd, Newcastle, UK

[57] Pipeline GIS and mega rule part 1: material property verification and the system of record Sam Acheson, ROSEN USA, Columbus, OH, USA

15:30 | Refreshment break sponsored by Halfwave

16:30 | [15] A risk-based approach to circumferential stress corrosion cracking assessment Mark Wright, ROSEN USA, Houston, TX, USA

[38] ILI run-to-run comparison and corrosion growth screening case study Matt Ellinger, DNV GL, Dublin, OH, USA

[61] Ready, aim, pig! Dr Mike Kirkwood, T.D. Williamson, Dubai, UAE and Alan Morton, T.D. Williamson, Tulsa, OK, USA

17:00 | [16] Detection of non-axial stress corrosion cracking (SCC) using MFL technology Matthew Romney, T.D. Williamson, Scott Lake City, UT, USA

[39] Leveraging ILI comparative analysis to accurately determine corrosion growth in pipelines Joshua Toold and Matthew Lewis, Ovet Integrity, Houston, TX, USA


8.00 | 2.3 Cracks (cont'd) 3.1 ILI applications 5.1 Data management & leveraging

8.30 | [12] Burst testing of pipes containing stress corrosion cracking Christopher Davies, ROSEN USA, Columbus, OH; Dr Chris Alexander, ADV Integrity, Magnasen, TX, and Todd Post, Consumers Energy, Jackson, MI, USA

[35] Run comparisons and randomness, when is a change really a change? Joel Anderson, Enable Midstream Partners, Oklahoma City, OK, USA

[58] Fast-track development and deployment of high-temperature ILI tools Nesha Alahmad, Franklin, PA; Marc Houtager, 3P Services, Wieltemarzen / Lohne, Germany

9.00 | [14] Pipeline pressure analysis in the frequency domain Michael Rosenfeld, RSI Pipeline Solutions, Houston, TX, USA and Stephan Tappert, Baker Hughes, Houston, TX, USA

[37] Individual anomaly sizing certainty on MFL Data Christoph Herness, ROSEN Group, Lingen, Germany

[60] Pipeline change of service – from dirty to clean in 5 easy steps Mark Gourley, Baker Hughes, Houston, TX, and Brett Roper, SemGroup Corporation, Tulsa, OK, USA

9.30 | Refreshment break sponsored by Halfwave

10.30 | [15] A risk-based approach to circumferential stress corrosion cracking assessment Mark Wright, ROSEN USA, Houston, TX, USA

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[61] Ready, aim, pig! Dr Mike Kirkwood, T.D. Williamson, Dubai, UAE and Alan Morton, T.D. Williamson, Tulsa, OK, USA

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[39] Leveraging ILI comparative analysis to accurately determine corrosion growth in pipelines Joshua Toold and Matthew Lewis, Ovet Integrity, Houston, TX, USA

13:30 [18] Corrosion under insulation in pipelines, avoiding pitfalls when inspecting with MFL or ultrasonic ILI tools.
Bernardos Cuervo and Mark McQuarn, G2 Integrated Solutions, Houston, TX, USA

14:00 [19] Considerations for validating an ILI technology: controlled implementation of a new MFL product. 
McKenzie Kissel, Onstream Pipeline Technologies, Calgary, AB, Canada

14:30 [20] Improving inline inspection performance with dig feedback. 
Ted Barker, T.D. Williamson, Salt Lake City, UT, USA

15:00 Refreshment break sponsored by Halfwave

Ahmed Al Saif and Nasser Al Qahtani, Saudi Aramco, Damman, Saudi Arabia

16:00 [22] Full-scale destructive testing and metallographic evaluation to quantify inspection performance and validate remaining life predictions. 
Michael Turner, Quest Integrity, Houston, TX, USA

16:30 [23] Accounting for a half-century of pipeline materials to enhance AKISSM II ultrasonic strain measurement accuracy. 
Mohamed El Seify, Baker Hughes, Calgary, AB, Canada and Raymond Karm, Eddyfi Technologies, Milton Keynes, UK

17:00 Conference day two concludes

17:30 Conference concludes

20:00 #PPIM20 #PPIM20
Exhibition Hall

In 2020, the Pipeline Pigging and Integrity Management Conference and Exhibition (PPIM) trade hall will feature almost 170 companies, showcasing the latest in pigging and integrity management products, services and technology. This spread shows where you can find the companies that have supported the PPIM edition of Pipelines International.

Pipelines International is proud to be the official media partner of PPIM 2020. Visit Booth 337 in the exhibition hall and pick up your copy of the industry's leading magazine.

17 – 21 February 2020, George R. Brown Convention Center and Marriott Marquis Hotel, Houston, US

Visit Circor at Booths 627 and 726
CIRCOR produces highly engineered products and sub-systems for some of the world’s most critical applications. It delivers solutions to the oil and gas, industrial, aerospace, defence, power generation, commercial and institutional facilities, and marine industry sectors through its expansive network of sales partners to more than 100 countries.

Visit E-Z Line Pipe Support at Booth 451
E-Z Line® is an industry leader serving the petrochemical, pipeline and construction industries in Houston, US and surrounding areas for more than 60 years. It manufactures the original E-Z Line® Pipe Support, E-Z Line® Pipe Clamp, Shim Block and Base Plate Assemblies, customised pipe clamps and supports, along with a wide variety of structural steel products including platforms, stair assemblies, ladders, handrails and structural steel pipe racks.

Visit Enduro Pipeline Services at Booth 727
Enduro is a vertically integrated manufacturer and supplier of all types of pipeline pig – metal-body and uni-body (all urethane) for unidirectional and bidirectional applications – used to clean and maintain pipe and international surfaces. It offers a complete line of attachments to accomplish all pigging applications and uses.

Visit Girard Industries at Booths 519 and 618
Starting with the Polly-pig, Girard Industries has since developed and manufactured new pigging products to meet the demands of a changing industry. From natural gas and hydrocarbon, to water and special application pipelines, Girard can provide technical assistance and the specific pig to accomplish the most difficult of tasks.

Visit Halfwave at Booth 613
Halfwave delivers advanced inspection services to the oil and gas industry. It provides accurate and reliable inspection data that allows customers to make informed choices to maintain the integrity of their critical assets. Key to Halfwave’s offering is its patented ultra-wideband acoustic inspection technology (UWBTM), giving penetration and measurement capabilities, which exceed those of existing inspection technologies.

Visit Inline Services at Booths 913 and 915
Inline Services was established in Houston, US in 1992 to offer pigging equipment and associated technical services to the pipeline and processing industries. The company is led by a team of industry professionals, each having many years’ experience in the construction and management of pipelines.

Visit NDT at Booth 607
NDT Global is a leading supplier of ultrasonic pipeline inspection and data analysis. The company’s inspection fleet provides inline inspection services for onshore and offshore pipelines worldwide, with offices located in Australia, Canada, Germany, Ireland, Mexico, Spain, UAE, the UK and the US.

Visit Pigs Unlimited at Booth 512 and 514
Pigs Unlimited offers a range of foam, solid cast and steel mandrel pigs. The company also manufactures replacement brushes, caps, discs, and other polyurethane components and spares.

Visit Pipelines International at Booth 337
Pipelines International is a quarterly print and digital publication featuring news, technical innovations, project reports and other high-level content targeted to the international pipeline industry. Come and talk to our team about the editorial and marketing opportunities available in the publication.

Visit ROSEN Group at Booth 707
ROSEN is a privately owned company providing innovative product and service solutions for the inspection, integrity, and rehabilitation of complex oil and gas infrastructure. ROSEN operates in more than 100 countries and employs more than 2,000 people.

Visit STATS Group at Booths 715 and 717
Founded in 1998, STATS Group is a privately owned specialist engineering company and service provider that operates in the field of pigging, pipeline integrity and maintenance. The company’s comprehensive range of products and services enables piping and pipeline isolation, intervention, repair, sabotage and shutdown services. Today, STATS provides expertise and full service capability for the maintenance, integrity and repair of oil, gas and petrochemical installations and infrastructure.
Enduro offers state-of-the-art pipeline solutions through its high-quality products and services. In order to enhance the customer experience and increase visibility of its business, Enduro has recently launched a new digital storefront exhibiting what the company has to offer.

Well known throughout the oil and gas industry, Enduro Pipeline Services has developed a wide range of cleaning and inspection tools that have been used to maintain the peak performance of countless pipelines worldwide.

Capitalising on both a steadily growing customer base and a consistently digitised world, the company has now launched Enduro.com to provide customers with a simple, easy to access marketplace where Enduro products can be purchased – a luxury not afforded by most other pipeline service companies.

Customers visiting the website can purchase some of Enduro’s most popular offerings, including the Wireless Geophone and the Non-Intrusive Pig Sensor (NIPS) Unit, as well as Enduro apparel that would be a solid addition to any pipeline operator’s wardrobe.

The inspection of multidiameter pipelines with large changes in diameter has always been a challenge for pipeline operators. Before ART Scan®, these inspections were extremely difficult, with limited tools suited to run through different diameters.

A RT Scan, a highly innovative and adaptable tool using acoustic resonance technology (ART), is currently one of a few solutions available that successfully addresses the multidiameter inspection challenge. Although ART Scan is a relatively new inline inspection (ILI) technology, it has already undergone extensive evaluations and has performed numerous dual-diameter inspections.

This ILI technology is built to include a unique non-contact sensor design and the tools are able to complete inspections with a large standoff between the sensors and the pipe wall. This makes it the ideal technology to inspect pipelines with changing diameter and suitable for passage through flexible connections.

ART Scan itself is flexible as it has been built with revolving wheels that collapse to the narrowest pipes and expand in larger diameters. The tool has been deployed in several dual-diameter inspections including 20 by 24 inch (508 by 610 mm), 24 by 30 inch (610 by 762 mm) and 34 by 36 inch (864 by 915 mm) pipelines, pipelines over 600 km long, as well as wet gas pipelines with high liquid dropout and pipelines with high liquid dropout and pipelines that require subsea launch. This advanced technology has already been adapted for 16 by 24 by 28 inch (407 by 630 by 712 mm); and 20 by 42 inch (712 by 1,067 mm) assets, with inspections scheduled to take place.

A single run of the ART Scan tool provides a full set of metal loss data (used to submit multi-diameter accuracy) as well as a complete geometry survey, including dents, out-of-straightness and ovality.

If a client has a multidiameter pipeline that needs inspection, Halfwave’s sales representatives are more than happy to provide a solution.
Inline Services satisfies the need for speed

High velocity natural gas pipelines pose the unique challenge of effective cleaning for corrosion mitigation purposes, maintaining throughput efficiency and pre-ILI cleaning runs. Inline Services has now launched a range of tools to specifically meet these challenges and allow pipelines to keep operating at their highest level.

The SCP onboard technology maintains optimal cleaning speeds of 2.06–4.17 m/s within a gas flow velocity of up to 14.75 m/s. In addition, the SCP’s recording electronics and internal measurement unit (IMU) collects real-time performance and pipeline configuration data that can be exported and analysed onsite. Inline’s new SCP tool recently exceeded expectations during a project involving more than 400 km of 30 and 36 inch pipelines containing numerous 1.5D short radius bends. Along with the SCP tool, Inline provided a team of experts to facilitate the safe operation, handling and turnaround of the tools on-site.

### THE PROJECT

The project consisted of four phases per pipeline section with the overall objectives being:

1. Safe and effective pipeline cleaning
2. With and without the use of cleaning chemicals
3. Even distribution of corrosion inhibitors
4. Maintaining gas throughput at different flow speeds to downstream customers while the pipeline cleaning was in progress.

### PROJECT PHASE

**Phase I**

Proving took place with tools specifically tailored for each pipeline. Each section was first ‘proofed’ using an appropriate SCP configuration to ensure the tool could traverse safely through each pipeline section with no obstructions.

**Phase II**

Chemical cleaning followed, with the client-selected chemical vendor providing a unique cleaning chemical mixture for each section of the line. The Inline field services team reconfigured the SCP with discs, cups, brushes and magnets to disperse the chemicals evenly per the chemical vendor’s specification.

The vendor injected the cleaning chemicals at specific locations in each section of the line to ensure the correct amount of chemical was dispersed. As the SCP travelled through the line, it dispersed the chemical onto the pipeline wall. This step was repeated and the pig was reconfigured on site until the desired chemical cleaning result was achieved and the tool was then prepared for the next phase.

**Phase III**

A dry run was performed, with the objective of a dry run being to test the pipeline of any lingering cleaning chemicals from Phase II of the project. After obtaining the desired results in Phase II, the field services team reconfigured the SCP with discs, cups, brushes and magnets that would provide the best results for a dry run or ‘sweep’ without the insertion of any cleaning chemicals.

**Phase IV**

Finally, corrosion inhibitor application took place. The SCP was reconfigured for even distribution of corrosion inhibitor on the pipeline wall. Like the chemical cleaning technique used in Phase II, the corrosion inhibitor was formulated by the client’s vendor and created specifically for these lines.

The vendor application specifications required the chemicals to be injected at strategically selected sites at speed of 3.12 m/s. Once the chemicals were injected by the vendor, the SCP travelled through the pipeline, evenly dispersing the chemical to manufacture specification.

### SUCCESS WITH SCP

While the normal gas flow velocity was maintained, the SCP averaged an ideal control speed of 3.12 m/s, allowing for both efficient cleaning and uninterrupted gas delivery.

Other key features of the SCP include its on-site reconfiguration capabilities. Most high flow pipeline pigging jobs consist of several runs in order to achieve the desired result. Each run has a specific purpose and may require a unique configuration of accessories to address the result. Since the result is not ready until the run is complete, decisions are made at the end of each run on what liquid and debris was or was not displaced. The ability to quickly identify and install the most effective configuration of discs, cups, brushes and magnets for subsequent runs on site is key to minimising risk and costs associated with the transport and off-site pig reconfiguration.

In addition, the recorded tool performance and IMU data was downloaded and analysed on site. The immediate access to the SCP’s recorded data was key in streamlining the preparation of the tool for subsequent runs, as well as effective communication of job status to client project managers.

To complement the SCP’s ability to maintain optimal cleaning speeds within high flow rate environments, its design offers comprehensive safety features allowing the tool to navigate through obstructions safely via preset shutdown sequence settings. These are customisable to meet the pipeline’s unique characteristics and potential design obstacles that could prevent the safe passage of the SCP.

For more information visit [www.inlineservices.com](http://www.inlineservices.com) or visit Inline Services at Booth 915 during PPI 2020.
The past year has been monumental for Pigs Unlimited with a transition to a limited liability company and a facility relocation to Tomball, Texas that will allow massive growth for the company’s inventory and give it the ability to triple its production output. In addition, a changing of the guard will see the company take on new leadership in the near future.

The new year will bring exciting opportunities and continued expansion. Newly added machinery, some of which is the first of its kind to arrive within the continental US, has allowed Pigs Unlimited International to increase not only efficiency, but productivity as well.

Pigs Unlimited says the backbone of American economy relies heavily on family owned business, and the company makes no exceptions with the continued manufacturing and business operations run exclusively within the US. John Pennington and Tiffany Fenske currently serve as future leaders of the company while working closely with their father, Pigs Unlimited President Allen Pennington, who remains at the forefront of the company’s foundation and success.

With two generations of family valiantly working to ensure the company’s momentum will continue as the new generation prepares for future leadership roles, Pigs Unlimited’s goal is to ensure a smooth transition and maintain the core values of hard work and product quality that it is recognized for.

In 2011, John Pennington joined Pigs Unlimited and has become an asset with his past knowledge of pigging and pipeline process technology. Mr Pennington’s specialisation is within the production and sales management side of the business and he has applied his experience to each position within the company.

Tiffany Fenske joined Pigs Unlimited in 2017 and brings 10 years of experience working within the oil and gas industry. With a natural ability to lead, Ms Fenske handles all the managerial aspects of the office as well as taking care of the day-to-day operations for the company. Through the undertaking of immense cross-training within every position at Pigs Unlimited, Ms Fenske has established herself as a true leader.

The gradual transition of leadership from one generation to the next has allowed collaboration, mentorship and a solid foundation for the future of Pigs Unlimited. The company is enthusiastic to see what the new year has in store as it continues to be a driving force within the pipeline pigging market.

Reach more than 48,000 pipeliners!

Pipelines International recently celebrated growing its digital subscriber base to more than 48,000 people, making it the perfect medium for marketing your company to an international audience.

Launched in 2009, Pipelines International is a global publication focused on the international oil and gas pipeline sector. Published quarterly by Great Southern Press, the co-owner of the Pipeline Pigging and Integrity Management Conference and Exhibition (PPIM), the publication boasts more than 50,000 subscribers, including the industry’s most comprehensive list of pipeline integrity contacts, gathered over the more than 30 years of PPIM.

During PPIM the Pipelines International team, including CEO Annie Ferguson and Business Development Manager Nick Lovering, will be on the ground to discuss advertising and editorial opportunities in the magazine, snap images for the event newsletters and share a drink with colleagues, new and old.

If you spot one of our photographers roaming the exhibition hall, don’t miss the opportunity to get your photo taken and be featured in PPIM’s daily photobook, in the Pipelines International online gallery or in the post-event magazine.

If you would like to know more about the publication and learn how you can use it to promote your news and projects, meet your marketing goals or extend your digital reach and build brand awareness, visit the team at Booth 337. If you would like information emailed to you, please send an enquiry to advertising@gs-press.com.au.

Pipelines International recently celebrated growing its digital subscriber base to more than 48,000 people, making it the perfect medium for marketing your company to an international audience.

For more information visit www.pipelinesinternational.com or visit Pipelines International at Booth 337 during PPIM 2020.
Competency first: the Qualification Panel for the Pipeline Industry

In the December 2016 edition of Pipelines International, former Editor-in-Chief John Tiratsoo announced the establishment of QPPI. In this article, the panel members discuss QPPI’s aim to help companies and individuals ensure that staff are competent and qualified to work on pipelines, in accordance with pipeline standards and regulations.

The panel sets competency standards for pipeline engineers in its published Competency Standards Manual, advises on how engineers can gain and maintain these standards, as well as assesses and certifies engineers who meet the competency standards.

The independent panel’s membership (past and present) includes John Tiratsoo (UK), Andrew Palmer (Singapore), Roger King (France), Eric Jas (Australia), Kent Muhlbauer (USA), Alan Murray (Canada), and Phil Hopkins (UK). The 2020 panel will comprise Mr Jas, Mr Muhlbauer and Mr Hopkins, who will be joined by new members: Patrick Vieth (US), Tom Miesner (US) and Fabián Sánchez (Ecuador).

The panel was formed in response to industry need. Mr King says that initially, a group of industry leaders agreed to work on a three-year project to categorise competency and establish standards against which the competency can be measured. “The panel believes that the pipeline industry needs a body that can advise on competencies in the pipeline industry, as both engineering standards and government regulations require staff competency to be demonstrated – that means assessed,” says Mr Muhlbauer.

Mr Tiratsoo said that initially, a group of industry leaders agreed to work on a three-year project to categorise competency and establish standards against which the competency can be measured. “This group became the Qualification Panel for the Pipeline Industry (QPPI). The work has now been completed, with new work ongoing, and we encourage everyone to visit the website and learning portal called the ‘Competence Club’ where more details and more learning experiences can be found,” says Mr Tiratsoo.

The focus of the panel, therefore, is to establish a program that is prescriptive rather than reactive. “The panel has produced a Competency Standards Manual that details 52 competencies ranging from pipeline integrity management, to geo-technics. These 52 competency standards were produced and reviewed by subject matter experts,” says Mr Hopkins.

Since competency can be described and defined in many ways, three panel members have highlighted the definition that QPPI stands by. Mr Jas says competence in a job is a combination of practical and thinking skills, experience and knowledge and includes “values” or “behaviours”, while Mr Murray adds “qualified”. “Qualified” means a competency has been formally assessed. So, now we have the answer to standards and regulations requirements of “competent and qualified” staff – those are staff who have had a required competency assessed and have passed the assessment,” says Mr Murray.

While someone may be certified to perform certain tasks, it does not necessarily mean that one is qualified to perform the task,” says Mr Vieth. In terms of competency importance, Mr Murray says that competency is a stated requirement in many pipeline standards, and that it’s vital that competency be not only maintained but also increased. “A seamless transition to younger generations in the industry would ideally include not only extensive knowledge transfer involving technical expertise, but something less tangible: the ability to make sound decisions,” says Mr Murray.

Mr Vieth says that competency provides the basic tools to perform critical thinking, therefore demonstrating its importance to the industry. “The challenges of our pipeline industry will continue as the core infrastructure continues to age, the challenges for constructing new pipelines increase, and the threats and risks become more complex. The core competency will ensure that our future leaders have the background information and learnings from yesterday to solve tomorrow’s challenges,” says Mr Vieth.

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Patrick Vieth.
Mr Veith believes the panel has an obligation to provide industry leaders with such tools. “While providing appropriate training and experience is paramount, we also need to assess the effectiveness of the learning. What’s working, what can be improved and what are the gaps will become readily apparent through competency assessment,” says Mr Veith.

TRAINING OPTIONS

The new generations within the industry will require training before being assessed as ‘capable’. The panel acknowledges that while classroom-based training can be expensive, lack of training is often even more costly, both financially and safety-wise.

“Classroom training is efficiently supplemented and sometimes even replaced by distance-learning tools/techniques, field demonstrations, on-the-job training, and many other alternatives,” says Mr Muhlbauer. Further to this idea of supplemental learning, Mr. King suggests that efficient knowledge transfer can occur in popular venues like YouTube for those seeking a cost-affordable option.

FUTURE VIEWS

The millennial generation will be the next to ensure the pipeline industry stays safe and efficient. Mr Muhlbauer says that this ‘passing of the torch’ is potentially more efficient today than ever before because of information technology tools. However, the tools alone – such as courses and assessments – will not ensure a knowledge transfer.

“There must also be a willingness to direct resources towards that knowledge transfer. Fortunately, our current younger generation, perhaps more so than previous, has recognised this ‘changing of the guard’ and is sensitised to the urgency and challenges,” says Mr Muhlbauer. “This means the future is very bright.”

NOTE

ROSEN would like to acknowledge and thank John Tiratsoo for his commitment and dedication to ‘competence’ within the industry.

STATS’ BISEP is more than by the numbers

STATS was recently retained by a major operator in Malaysia to provide hot tapping and isolation of a pressurised 8 inch (204 mm) pipeline at an onshore gas plant.

STATS Group proposed the use of its patented BISEP® to provide a double block and bleed isolation of the stainless steel flare line. The leak-tight isolation enabled a 15 m section of damaged, thin wall piping to be safely cut, removed and replaced with a new section, which was welded into the system.

The BISEP was deployed into the pipeline through a split tee fitting, welded to the line at the isolation location. Once the fitting was pressure tested, a STATS supply slab valve and hot tap machine was attached to the fitting. The hot tapping operation was conducted, recovering the cut pipe coupon into the hot tap machine and closing the slab valve. The BISEP, which is housed in a pressure competent launcher, was fitted to the slab valve and leak tested, confirming the integrity of the launcher.

The slab valve was then opened and the BISEP was deployed into the pipe towards the pressure to be isolated. The BISEP isolation is provided by a spherical plugging head that incorporates dual compression seals. The elastomeric seals are activated by a hydraulic cylinder inside the plugging head, which compresses the seal. The resultant radial expansion pushes the seals out against the pipe bore creating a leak-tight isolation.

The BISEP was then subject to a seal 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 through the BISEP and verified as a zero-energy zone. The vented annulus void was then closed and monitored throughout the work scope, confirming leak-tight double block and bleed isolation.

Following successfulveal testing, an Isolation Certificate was issued to notify all parties of the safe isolation of the pipeline. The BISEP then remained in the pipeline for 24 hours while the damaged pipe was cut, removed, and new pipe work was welded into place.

For more information visit www.statsgroup.com or visit ROSEN Group at Booth T07 during PPIM 2020.
CIRCOR metal pigs a steel for any job

CIRCOR is a trusted name in the oil and gas industry thanks to its variety of quality engineering products used on sites around the world. Its top-quality metal bodied pigs remain notable within the market thanks to highly customisable nature creating a product applicable for nearly any job.

When it comes to an intensely specialised and complex industry like oil and gas, only highly engineered products can be counted on to consistently achieve the results necessary. CIRCOR designs and manufactures such products, with its range of pigging solutions bringing an unmatched level of quality and efficiency to the workflow.

Through its brand Pipeline Engineering, CIRCOR is an industry leader in the design, manufacture and testing of pipeline pigging and flow assurance products. The company has a presence in a number of countries around the world and always works closely with its clients in order to design and develop pigs offering only high-performance pipeline solutions.

In addition to its ranges of foam pigs, pipeline spheres, solid cast polyurethane pigs and specialty pigs, Pipeline Engineering designs and manufactures metal bodied pigs that can be used during all phases of a pipeline’s life cycle.

These pigs are designed to be reusable with replacement caps, discs, brushes, plough blades, gauge plates, magnets, tracking equipment and other available components and are available for pipelines ranging from 6 to 60 inches (153 to 1,524 mm).

The metal bodied pigs produced by Pipeline Engineering contain wear lines and unique identification numbers on discs when they need replacing to help ensure customers always achieve effective pigging, while ancillary equipment such as pig trolleys and baskets are also available.

Available pigs include unidirectional standard cup pigs, unidirectional conical cup pigs, bidirectional skid pigs, cleaning pigs, bulk pigging pigs and gauging pigs, and each product draws upon the years of oil and gas expertise held by the Pipeline Engineering staff.

These pigs are a highly engineered, innovative and cost-effective product that, when combined with the company’s field support for pigging operations, creates an unparalleled suite of comprehensive pigging services. As with all of CIRCOR’s output, quality and customer satisfaction is paramount, and the staff will work at length to make sure all parties achieve the best result possible for their assets and businesses.

#PPIM20

NDT Global inspecting pipelines with 2020 vision

NDT Global stays at the forefront of the ultrasonic pipeline inspection and analysis sector through consistent improvement and a drive for excellence. The past 12 months have been much more than just business as usual for the company as it transitions into a new year and a new decade of technological advancement.

A mong NDT Global’s recent watershed moments was its release of the first ultrasonic crack inspection technology to overcome lift and skew limitations. Known as the Evo Eclipse, the new technology combines high resolution crack robots with new analysis methodologies to achieve a circumferential resolution of 5 mm.

Its development was driven by improvements in four key areas: greater sensor density, greater onboard processing power, greater onboard data storage capacity and improvements in analysis methodologies.

In addition to its tilted and skewed crack identification capabilities, an inline inspection (ILI) critical feature detection capability supports the replacement of hydrostatic testing. By using critical feature detection as a replacement for hydrostatic testing, operators are able to reduce the probability of damaging the internal pipeline wall while still ensuring the detection of severe flaws.

The demand for accurate pipeline inspections has been rapidly increasing, giving rise to a need for the enhanced technologies NDT Global is capable of developing. The Evo Eclipse is part of the company’s continual effort to push the envelope on what’s possible in the sector and achieve a new level of results.

NEW HEADQUARTERS

In 2019, NDT Global relocated its UK headquarters in Aberdeen, Scotland to a new centralised location in the city’s centre. The relocation will allow the company to leverage key resources and more efficiently inspect pipelines in the surrounding region.

“NDT Global opened its first office in Aberdeen in 2016 and since then has gone from strength to strength, so I am pleased to announce the opening of our brand new office right in the heart of the city centre,” says NDT Global United Kingdom Key Account Manager Ben Bergius.

“Opening this new office in Marischal Square has allowed us to not only be more centralised, 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.”

About NDT Global

NDT Global is a leading supplier of ultrasonic pipeline inspection and data analysis. The company’s Inspection fleet provides inline inspection services for onshore and offshore pipelines worldwide, with offices located in Australia, Canada, Germany, Ireland, Mexico, Spain, UAE, the UK and the US. For more information visit www.ndt-global.com or visit NDT Global at Booth 607 during PPIM 2020.

About CIRCOR

CIRCOR manufactures flow and motion control products for the world’s most severe service and mission critical applications – from valves to instrumentation, actuation to pumps, motors to regulators.

For more information visit www.circor.com or visit CIRCOR at Booths 627 and 726 during PPIM 2020.
Where there’s a pipeline, there’s a way

Flaring during oil and gas production has been a major topic in the industry for a number of years, but in the US’ busiest basin the practice is at its peak. Increasing production has not always been matched with measures to limit flaring, with the region suffering from a lack of new pipelines.

The Permian Basin, located in west Texas and southeast New Mexico, produces more petroleum than any other basin in the US, with close to 2 million bbl of oil produced across the region every day. Oil wells have been in production in the Permian for close to 100 years and today around 20 per cent of US oil and 7 per cent of US dry natural gas production originates from the area.

Oil and gas demand, demonstrating not only its impact on the environment but also the level of resource wasted by flaring; however, some estimates say by 2021 output from the region could have increased to around 283.2 million m³ of natural gas, so these three pipelines are expected to curb the level of resource wasted by flaring, some estimates say by 2021 output from the region could have increased to around 283.2 million m³ of natural gas, so these three pipelines are expected to curb the level of resource wasted by flaring.

The Permian currently produces about 283.2 million m³ of natural gas, so these three pipelines are expected to curb the level of resource wasted by flaring, some estimates say by 2021 output from the region could have increased to around 283.2 million m³ of natural gas, so these three pipelines are expected to curb the level of resource wasted by flaring.

In the absence of further gas infrastructure construction, end-users by both US Government and industry to decrease flaring are likely to be conceivable more difficult, particularly in a market where production continues to increase exponentially. Until the practice is reined in, oil and gas companies in the Permian are likely to draw the focus of regulators and lawmakers.

One way to decrease flaring is capturing the gas intended for release through the flare and transporting it via pipeline into gas markets.

CAPTURING THE GAS

Rystad says there has been a vast increase in Permian flaring and venting at the well head in recent years, driven by higher activity levels, basin-wide takeaway capacity bottlenecks and greater production from areas with undeveloped gas gathering infrastructure. One way to decrease flaring is capturing the gas intended for release through the flare and transporting it via pipeline into gas markets; however, a lack of new pipelines in the region has made this difficult for producers.

The most recent pipeline earmarked to alleviate some of the flaring pressures is Kinder Morgan's Gulf Coast Express Pipeline (GCX), which officially came into service in late September 2019. The pipeline delivers natural gas from the Waha area in West Texas to Agua Dulce near the Texas Gulf Coast, providing approximately 56.6 million m³/d to that market. Although the GCX is expected to have an impact on flaring levels, Rystad says a major portion of the activity is located in the Midland area, nearly 160 km away from the starting end of the new pipeline.

“The most recent increase in flaring is predominantly driven by the Delaware Texas portion of the basin, which accounted for more than 40 per cent of basin-wide flaring and venting as of the third quarter of 2019,” says Rystad Head of Shale Research, Artem Abramov.

“Northern Midland also saw a significant boost in new activity, which resulted in increased flaring of associated gas. The sub-basin has basically returned to the record level of flaring seen in the fourth quarter of 2018.”

While a lateral to the pipeline through the Midland area exists, additional gas infrastructure will have to be constructed to continue downward pressure on flaring, and another Kinder Morgan development – the Permian Highway Pipeline (PHP) Project – could provide further assistance.

The US$2 billion project would transfer another 56.6 million m³/d from Waha to the US Gulf Coast and Mexico markets and its entire capacity has been fully subscribed under long-term agreements. Kinder Morgan, EagleClaw Midstream and Aliso Midstream each have a stake in the pipeline, which is anticipated to be brought online in early 2021. A third 56.6 million m³/d pipeline, known as the Whistler Pipeline, will transport gas approximately 724 km from Waha to the Agua Dulce area in South Texas via a 62 inch (1,567 mm) steel pipeline. A 36 inch (913 mm) lateral running approximately 80 km will provide a connection for gas processors in the Midland Basin and construction is expected to commence in 2020.

The pipeline will be owned by a consortium made up of MPLX LP, WhiteWater Midstream and a joint venture between Stonepeak Infrastructure Partners and West Texas Gas. The Permian currently produces about 283.2 million m³ of natural gas, so these three pipelines are expected to curb the level of resource wasted by flaring, however, some estimates say by 2021 output from the region could have increased to around 283.2 million m³ of natural gas, so these three pipelines are expected to curb the level of resource wasted by flaring.

In the absence of further gas infrastructure construction, end-users by both US Government and industry to decrease flaring are likely to be conceivable more difficult, particularly in a market where production continues to increase exponentially. Until the practice is reined in, oil and gas companies in the Permian are likely to draw the focus of regulators and lawmakers.

One way to decrease flaring is capturing the gas intended for release through the flare and transporting it via pipeline into gas markets.
billion in US dollars (bbl) of oil since the late 1970s.

The company’s Prudhoe Bay oil field began producing in 1977 and has yielded more than US$20 billion in investment by BP’s upstream Alaskan oil and gas interests, as well as its downstream operations. BP’s presence in Alaska has been instrumental in BP’s growth and success over the previous three years and will continue to investigate further investment opportunities. He was also complimentary of the Alaskan assets’ new owners, describing Hilcorp as a “highly capable operator.”

“Hilcorp is ideally placed to take this important business on into the future, continuing to optimise its performance and maximise its value for the state of Alaska. We are committed to a safe and smooth transition of operations so that our employees, partners and local, state and federal government officials all feel that we have handed over these important assets in the right way.”

Mr Dudley says BP’s exit from Alaska does not diminish BP’s commitment to America, as the company has invested more than US$20 billion in the US over the previous three years and will continue to investigate further investment opportunities. He was also complimentary of the Alaskan assets’ new owners, describing Hilcorp as a “highly capable operator.”

Sun sets on BP in Alaska

In a major transaction, BP has agreed to sell its Alaskan business interests to Hilcorp Alaska. The multi-billion-dollar deal will see BP exit a region where it has had a strong presence for more than five decades.

BP will offload its Alaskan business for a price of US$5.6 billion. The transaction will include BP’s entire upstream and midstream business in the state, including BP Exploration (Alaska), Inc., owner of all of BP’s upstream Alaskan oil and gas interests, as well as BP Pipelines (Alaska), Inc.’s interest in the Prudhoe Bay field and the Trans Alaska Pipeline System.

Under the agreement, Hilcorp, whose Alaskan business is based in Anchorage, will pay BP a total consideration of US$5.6 billion, comprising US$4 billion payable near-term and the remaining US$1.6 billion payable within a five-year period. BP has been working in Alaska since the late 1950s and helped to build the 1,288 km Trans Alaska Pipeline in 1975.

The company’s Prudhoe Bay oil field began producing in 1977 and has yielded more than US$20 billion in US dollars (bbl) of oil since the late 1970s.

For more information visit www.bp.com

Acadian system becomes an expanding enterprise

Enterprise Products Partners plans to expand and extend its Acadian pipeline system in Louisiana, US in order to deliver growing volumes of natural gas to the market.

The Acadian Gas Pipeline System spans approximately 2,052 km and consists of the Legacy Acadian and Haynesville Extension pipelines. The system links gas supplies across the US over the previous three years and will continue to investigate further investment opportunities. He was also complimentary of the

For more information visit www.enterpriseproducts.com

For more information visit www.enterpriseproducts.com
The following paper presents an analysis of the cost and energy benefits of transporting liquids offshore by pipelines compared with ship transportation. It is the second part of a more comprehensive paper, with the first abbreviated part presented in Pipelines International Summer 2019.

**SHIPS**

- **Container traffic**
  - Standard ship designs are available for moving hydrocarbons in containers. With a liquid capacity of 20,000 L (double-skinned containers), 100 containers per day are needed to accommodate the 150 m³/h flow rate.
  - In 1989, fuel cost was 12.25 per cent of the total cost of container transport. It varied with ship type and size, market conditions and unit cost of the fuel. Today, it can be up to 50 per cent of a ship’s operational cost.
  - From the energy aspect, a small container ship consuming 100 t of bunker (4,070 GJ) with an efficiency of 44.2 per cent would have an energy flow equivalent to 1,460 MJ (1.46 MW) per day.
  - Therefore, a pipeline consuming 650 MJ (0.65 MW) per day would be energy efficient.
  - CCGT stations (including rectangular tanks in standard 12 m containers) are cylindrical. The assumption is 100 per cent efficiency, and this is not realistic, unless other factors are introduced.
  - The infrastructure cost and capital investment involved in converting an oilfield to carriage of hydrocarbons by pipeline would be approximately 1.9 kg.

- **Fluids and Flow Rate**
  - The required average flow rate is 150 m³/h, with tankage at each end of the line. The proposed liquids are hydrocarbons ranging from kerosene (SG = 0.78) to diesel (SG = 0.82). Other fluids can be selected andwith suitable pumps and traps, multiproduct pipelines can be employed.
COMPARISON OF OPTIONS

Estimated line cost

The cost of the line, based on a 360 km line length, is as follows:

- 360 km of continuous 12 inch line = US$403.3 million
- 560 km of continuous 10 inch line = US$151 million

Offshore pipeline system duration

Detailed design and procurement activities will take 12–15 months, after the permits, licences and funding are obtained and the route and any crossing details agreed. Pipeline design is helped with detailed bathymetric and geotechnical surveys before commencement of other activities. The installation of the pipeline would be undertaken in a single campaign for the fleet of ships.

For tankers, the depot terminal will have a similar configuration to the pipeline case except that the pumps will have lower heads. As the reception terminal, the tanker’s own pumps will unload the vessel into the reception tanks.

Costings

For two electrically driven pump stations, the costs are summarised in Table 2 using imported electrical supply.

Table 2: Predicted emissions for pipelines and ships.

<table>
<thead>
<tr>
<th>Line size</th>
<th>10 inch</th>
<th>12 inch</th>
<th>Ship</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power (kW)</td>
<td>44.5</td>
<td>22.7</td>
<td>16.93</td>
</tr>
<tr>
<td>Diesel (MM US$/yr)</td>
<td>0.879</td>
<td>0.452</td>
<td>0.2358</td>
</tr>
<tr>
<td>NOx (MM US$/yr)</td>
<td>125</td>
<td>66.6</td>
<td>17.69</td>
</tr>
<tr>
<td>NOx (MM US$/yr)</td>
<td>26</td>
<td>14.4</td>
<td>20.04</td>
</tr>
<tr>
<td>Parachute (MM US$/yr)</td>
<td>0.0649</td>
<td>0.0326</td>
<td>0.2358</td>
</tr>
</tbody>
</table>

Facilities

Fuel to meet Crete’s needs will be supplied by the refinery and the source of utilities, such as electricity, need be assured. However, the total island consumption of electricity was 1.9 TWh in 2011 and this compares with the 51.0 TWh for mainland Greece. The relatively low demands of Crete compared to the demand in Greece suggests that importing power is an option.

In 2016, total world freight movements were 1.89 billion t, 170 billion km moved, 19.2 billion km travelled using 298 million t fuel. The fuel components were 72 per cent fuel oil, 26 per cent diesel and 2 per cent LNG. On a weight basis, this gives the air (Te-km/l) shown in Table 6. The VLOC used for Shipping 2 was a ‘Strozmes’ design and could transport 335,400 Te of oil at 15.2 knots for 41,296 km, consuming 101 Te of fuel per day.

Transport efficiency

Table 5 gives specific fuel consumption of liquids’ transport.

<table>
<thead>
<tr>
<th>Transport</th>
<th>Distance (km)</th>
<th>Specific fuel cons.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SHIP 1</td>
<td>300</td>
<td>1.58</td>
</tr>
<tr>
<td>Pipeline 1</td>
<td>300</td>
<td>1.58</td>
</tr>
<tr>
<td>Pipeline 2</td>
<td>196</td>
<td>1.58</td>
</tr>
<tr>
<td>Pipeline 3</td>
<td>290</td>
<td>1.58</td>
</tr>
<tr>
<td>Pipeline 4</td>
<td>715</td>
<td>1.58</td>
</tr>
<tr>
<td>PIPELINE 5</td>
<td>290</td>
<td>1.58</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pipeline (AMBO 1)</th>
<th>(Te-km/l – shipping 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crete example</td>
<td>112.8</td>
</tr>
<tr>
<td>Pipeline (AMBO 2)</td>
<td>107.0</td>
</tr>
<tr>
<td>Pipeline (AMBO 3)</td>
<td>104.0</td>
</tr>
<tr>
<td>Pipeline (AMBO 4)</td>
<td>103.0</td>
</tr>
</tbody>
</table>

About the authors

William Atteridge is a Chartered Engineer with more than 40 years’ experience in the oil, gas and energy industries as a technical specialist and project manager. He has worked on projects in more than 50 countries worldwide, from development studies, concept designs and front end engineering design (FEED) through to construction and commissioning.

Stephen Lloyd is a Chartered Engineer with more than 40 years’ experience as an engineering specialist and in management in the onshore and offshore gas, oil, petrochemical and power industries. His principal field has been in the production of energy and its use, with sub-specialty in combustion and heat transfer equipment.

Stephen has worked on projects worldwide including studies, conceptual design, FEED, construction and commissioning.

This paper is a synopsis of the offshore discussion in a paper titled ‘Transport of fluids comparing energy requirements, appearance and costs of pipelines with other options such as ships and trucks’. This full paper can be obtained on request by emailing schumanoff321@gmail.com

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Delivering supply to an international market

Equinor and its partners began production ahead of schedule and, as of October, the first oil from the North Sea Johan Sverdrup field arrived at Mongstad. The oil is transported by a 283 km pipeline to the Mongstad complex, where it is stored in caverns and prepared for shipping to markets worldwide.

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Queensland pipeline on the Atlas

Australia’s Atlas Gas Pipeline Project is continuing to reach milestones and is well on track to start delivering gas by the end of the year, with the mechanical completion of the pipeline finalised and successful hydrotreating achieving “excellent” drilling reports.

Located approximately 20 km southeast of Warwick in Queensland, Australia the Atlas Gas Pipeline Project (AGPP) consists of a 60 km pipeline and compressor station constructed by Jemena and its partners, Senex Energy and Spiecapag. The pipeline itself is 8 inches (203 mm) in diameter, buried at a depth of 1,200 to 2,000 mm and has the capacity to transport 40 TJ of gas.

In 2017, the Australian Government directed the Australian Competition & Consumer Commission (ACCC) to conduct a wide-ranging inquiry into the supply and demand for wholesale gas in Australia through the next three years. The ACCC’s report – released earlier this year – highlighted that the east coast gas market supply remains tight with more production and additional gas reserves becoming available from the Atlas Production area. “We are confident that the AGPP will also be delivered by its due date later this year.”

RELIEF FOR THE AUSTRALIAN DOMESTIC MARKET

“The demands of the domestic gas market are obvious to us,” says Mr Spink.

“We regularly meet with our commercial and residential customers through our customer council meetings and community engagement programs. Those opportunities sit down and listen to their needs, and in particular, they have told us they want to be treated fairly, as well as have access to affordable, reliable and sustainable energy.”

“Commercial customers want cheaper energy and our residential customers want to continue to cook with gas because it is instant, controllable and safe. It’s these insights which make us really appreciate how important the AGPP will be in relieving pressure on domestic gas demand.”

Jemena Executive General Manager of Gas Markets Antton Boey says the organisation is working hard with gas exploration companies at the Atlas project to bring new gas to Australian homes and businesses.

“We are acutely aware that Australia faces a gas supply crisis and Jemena is investing heavily in new gas transmission infrastructure to bring new gas supplies to the market,” says Mr Boey.

“The Atlas pipeline and processing facility have been designed to enable further expansion once additional gas reserves become available from the Atlas production area.”

PROJECT TIMELINE

In 2018, Senex and Jemena partnered to build, own and operate a gas processing facility and subsequent pipeline: Project Atlas.

In July 2019, Jemena awarded Spiecapag Australia a $30 million contract to construct the Atlas Gas Pipeline, while Australian energy and infrastructure services group, Valmec, was contracted to build an associated compressor station. In total, Jemena invested around $140 million for AGPP, creating 200 jobs throughout Queensland.

By September, Senex had drilled and completed the first five wells for production in its Project Atlas drilling campaign, which comprises an approximate total of 60 wells. The drilling reports showed a neat coal seam thickness of 45 m and all wells were scheduled to connect to the compression station in October.

By October 2019, Jemena reached mechanical completion of the natural gas pipeline – less than three months since construction began, while construction of the gas processing facility and commissioning are still ongoing.

Senex Managing Director and CEO Ian Davies says over the course of the project, partners met and exceeded every development milestone for Project Atlas in the Surat Basin.

“Project Atlas is supporting both local construction jobs and the manufacturing industry, with gas to be sold to local manufacturers including CSR, Otsuka and O-I, with more contracts under negotiation,” says Mr Davies. “Minister for Natural Resources, Mines and Energy Dr Anthony Lynham says the project is a major milestone in securing domestic gas supply and creating jobs, and it is located on land that the Queensland Government granted for domestic-only gas last year.”

“Senex’s Project Atlas is the first gas venture created by the government’s innovative domestic market policy and Queensland continues to set the pace on gas supply and policy,” says Dr Lynham.

The Atlas Project partners expect first gas by the end of 2019.
Power of Siberia achieves new milestone

Gazprom has completed feeding natural gas into the largest gas transmission system in eastern Russia: Power of Siberia. Now, the line is ready to commence the supply of gas from Russia to China from the first time in history.

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The mysterious title of this article hints at the path that past articles have hopefully taken us down. Let’s take a quick look at those past articles, which can be seen in Table 1. The common thread among these disparate titles might not be apparent but they all point to better decision making. Managing the risks of inherently threatened assets and processes is more assured and more efficient when our decisions are informed by the best available information—that is the path being highlighted by these articles.

This leads us to one critical application of all that has been presented along this path: how to best address suspicious—but not critical—irregularities identified by inspections. Say you’ve done an inline inspection (ILI) and identified irregularities along a pipeline. You are probably compelled by regulations to repair/remediate some of these based on established criteria. Once those are addressed, you now have, perhaps for the first time ever, an opportunity to apply the ALARP (as low as reasonably practicable) framework on which to base these challenging decisions. Per ALARP, once we have attained a predetermined minimum level of safety, we are compelled to then take every risk reduction action until the cost of such action becomes ‘grossly disproportionate’ to the benefit derived. That quoted phrase is important. Assume that, as a long-time practitioner of ALARP, your company has determined the break over into ‘grossly disproportionate’ to be a factor of 7. That is, your company is willing to spend up to US$7 to avoid US$1 of risk.

You can use that to ‘back into’ an actionable level of risk. If an excavation with repair/remediation costs around US$21,000 in the area of this recent ILI and each excavation can cover an average of three anomalies, there is a cost of US$7,000 per anomaly addressed.

Managing the risks of inherently threatened assets and processes is more assured and more efficient when our decisions are informed by the best available information.

A key goal of risk management is to determine when risk reduction actions are needed and when ‘enough is enough.’ This article explores ideas of how to arrive at such critical decisions using inspection results.

Managing the risks of inherently threatened assets and processes is more assured and more efficient when our decisions are informed by the best available information.

A key goal of risk management is to determine when risk reduction actions are needed and when ‘enough is enough.’ This article explores ideas of how to arrive at such critical decisions using inspection results.
Once complete, the analyses not only show which anomalies are actionable, they also provide a transparent, defensible trail of how you determined those that are actionable.

**Table 1:** Risk management articles from previous editions of *Pipeline International*.

<table>
<thead>
<tr>
<th>Title of article</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL risk assessment essential elements</td>
<td>2014</td>
</tr>
<tr>
<td>PL risk assessment as a measurement tool</td>
<td>2012</td>
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<tr>
<td>RA controlling the base (PXX)</td>
<td>2012</td>
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<tr>
<td>Risk profiling</td>
<td>2010</td>
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<tr>
<td>Threat interaction – a case of continuing terminology</td>
<td>2010</td>
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<tr>
<td>Myth busting – I don’t have enough data (part 1)</td>
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<tr>
<td>Myth busting – I don’t have enough data (part 2)</td>
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<tr>
<td>Measuring failure potential – what is attacking? How effective are defenses? Can it survive?</td>
<td>2010</td>
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<tr>
<td>Formal risk assessment – is it helping me?</td>
<td>2014</td>
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<tr>
<td>Troubles with weightings</td>
<td>2011</td>
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<tr>
<td>Q/A with a PL risk expert</td>
<td>2013</td>
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<tr>
<td>PL RA as a tool for resolving conflicts</td>
<td>2016</td>
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<td>Where is the risk focused strategy?</td>
<td>2015</td>
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<td>Due diligence</td>
<td>2015</td>
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<tr>
<td>The economics of acceptable risk</td>
<td>2015</td>
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<td>Certification the leaking tree incident</td>
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<tr>
<td>Damage vs failure – a risk assessment needs to know the difference</td>
<td>2016</td>
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<td>LI vs ILIA – the risk view</td>
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<td>Risk in pole of co – where should the focus be?</td>
<td>2016</td>
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<td>Updating guidance documents for pipeline threat identification and risk assessment</td>
<td>2017</td>
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<td>Vessels matter</td>
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<td>Escalating times for pipeline risk management</td>
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<td>Proper use of inspection rate in a risk assessment</td>
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<td>Getting info from SMEs – facilitation</td>
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<td>The essential elements</td>
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<td>Analyses of risk estimates – how to begin</td>
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<td>Reduced by graphics – the myth of risk management by images</td>
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<tr>
<td>Redundant means risk versus rate of risk</td>
<td>2014</td>
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<tr>
<td>Don’t worry, we did an ILI</td>
<td>2014</td>
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<tr>
<td>Pipeline risk assessment – an HDD example</td>
<td>2014</td>
</tr>
<tr>
<td>What are they missing</td>
<td>2014</td>
</tr>
</tbody>
</table>

| Verb phrase in the digital edition can be accessed at www.pipelineinternational.com | |
| After ensuring that the baseline level of safety is still being achieved. | |

**Let’s get technical**

The Pipeline Science and Technology journal is calling on specialists in the oil and gas pipeline industry to engage with and contribute to its high-quality selection of technical papers.

**Readership**

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PST's priority areas of research include, but are not limited to: methods to improve the performance and reduce energy consumption of oil transport processes; pipe steel ageing mechanisms; rheological properties of oils; the theory and practice of oil and petroleum products transport, including heavy and ultra-heavy oils, and improvement of diagnostic methods and inspections efficiency for pipeline transport facilities.

To ensure that top quality content is published, submissions are reviewed by an independent editorial board composed of international experts from the pipeline industry using a double-blind system. The policy on publication ethics and covers topics like fracture mechanics, structural integrity assessment, corrosion, maintenance and life extension of pipelines.

The manuscript itself should contain a title page, authors, abstract, key words, article text, spelled out list of abbreviations, tables, formulae, illustrations, notation and units of measurement, references and acknowledgements. For full submission guidelines visit www.pipeline-science.com. If you are interested in submitting a paper or receiving a free subscription to the journal contact Victoria Malinina at Malinina.V@naim.transneft.ru or visit www.pipeline-science.com.

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PST welcomes paper submissions from Pipeline International readers. To be eligible for inclusion, papers must contain a cover letter from the authors who completed the work and a signed agreement transferring copyright.

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**CALL FOR PAPERS**

Pipeline Science and Technology

ISSN 2514-541X (Print) | e-ISSN 2652-371X (Online) | Vol 3. No 4. June 2020

**Deadlines**

Submission deadline (full paper): 10 March 2020

Review Process: 1 April 2020

Final Paper (Issued): 31 May 2020

The author can submit their paper by visiting www.pipeline-science.com or by email Malinina.V@naim.transneft.ru (Victoria Malinina)

**Link to editorial board**

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You should begin by recognising how each anomaly type and severity contribute to risk.

For example, an external metal loss anomaly should impact many risk assessment variables including:

- CP effectiveness
- coating condition
- leak versus rupture implications for consequence scenarios including leak detection/reactivation, hazard zone generation, and others.

- remaining life estimates for any time-dependent failure mechanism: external corrosion, internal corrosion, cracking
- resistance to external, internal and intermetallic loadings (etc).

Crack-like indications, geometrical anomalies (dents, ovalities, etc.), stress concentrators and all the other possible anomaly types will each have their own implications to future risk if left unaddressed. Furthermore, mere appearance in an inspection, whether subsequently addressed or not, also has implications to risk.

Don’t be intimidated. This rather challenging set of considerations can be set up in a basic software environment (like a spreadsheet or desktop database) to automatically analyse thousands of anomalies, requiring little effort, once set up.

Once complete, the analyses not only show which anomalies are actionable, they also provide a transparent, defensible trail of how you determined those that are actionable. All stakeholders can see the rationale and consequences to the future risk if left unaddressed. For example, an external metal loss anomaly should impact many risk assessment variables including:

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New potential unlocked for oil and gas sector

Recent DNV GL recommended practices have unlocked new opportunities for the oil and gas sector to deliver more cost-efficient and environmentally friendly subsea processing and operations.

The benefits of adopting energy efficient subsea processing systems include the lower emissions and the decarbonisation of processes.

DNV GL’s recommended practice DNV-RP-F303 provides a comprehensive specification for subsea pumping systems to complement existing industry standards and agreed and harmonised operator requirements.

The following JIP, initiated by DNV GL in early 2019, was to increase alignment and predictability of requirements for subsea pumping projects.

As of October, Baker Hughes, a GE company (BHGE) successfully shifted to trade under the name Baker Hughes Company with the company’s Class A common stock now traded on the New York Stock Exchange under ‘BKR’.

In 2017, General Electric (GE) Oil & Gas and Baker Hughes merged to create Baker Hughes, a GE company. The new company was the first to bring together industry-leading equipment, services and digital solutions across the entire spectrum of oil and gas development. Now, in 2019, the companies have announced their separation.

CHANGING NAMES

The change to Baker Hughes Company, known as Baker Hughes, follows the recently closed secondary offering of 132.5 million shares of BHGE Class A common stock and share repurchase from one or more GE affiliates — in a privately negotiated transaction — for $11,805,211 shares of Class B common stock, at which the underwriters purchased shares of Class A common stock from the selling stockholders in the offering.

As a result of this offering, GE and its affiliates ceased to hold more than 30 per cent of the voting power of all classes of BHGE’s voting stock. This reduced the number of individuals entitled to designate the BHGE’s board of directors from five to one, with John Rice remaining on the board as its chairman.

The change of its corporate name aims to better reflect its current and intended principal business operations. Current Baker Hughes Chair and CEO, Mr Simonelli, says it is an important milestone in the company’s journey and it is looking forward to building an exciting future on an already strong foundation.

“Baker Hughes is now distinctively positioned as an independent technology company that helps customers, shareholders and employees be more productive,” said Mr Immelt.

The completion of the transaction marks a new era in the industry, and is extremely proud of our team’s focus, dedication and diligence, which resulted in the completion of this combination in just eight months,” said Mr Immelt.

In order to keep pace and stay competitive, it is essential for all involved in the subsea sector to work together to standardise requirements and ensure more predictable project outcomes.

Stian Saltnes Gurrik says the JIP has shown that investment in subsea oil and gas production is growing rapidly as the industry realises the significant cost efficiencies compared to traditional onshore operations.

DNV GL’s Oil & Gas CEO Liv Hovem says it is an important step towards a more united, sustainable and cost-effective sector.

The company’s series of JIPs aims to extend the scope of recommended practices to more applications within subsea production systems, with Mr Hovem concluding that the oil and gas sector is on a clear path of increasing efficiency and reducing its carbon footprint.

“The thinking behind the joint industry project was to increase alignment and predictability of requirements for subsea pumping projects. This open the door to repeat projects and the reuse of qualified technology, which can reduce costs and address the perception of technology risk,” says Ms Berg.

“The benefits of adopting energy efficient subsea processing systems — which are more predictable — create the potential for cost savings in the supply chain. Starting with subsea pumping, this new recommended practice works towards standardising this sector from the outset to keep costs optimal for the long term,” says Mr Hovem.

Recently, the JIP Project Manager, Materials Technology Stian Saltnes Gurrik says the JIP has shown that the subsea sector is on a clear path of increasing efficiency and reducing its carbon footprint.

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“Baker Hughes is flying solo again”

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YPF site visit to Qenos

Australia’s Young Pipeliners Forum (YPF) members learned about the key role the pipeline industry plays in delivering ethane gas as a feedstock for the plastics industry during a site visit to Qenos’ plastics facility in Sydney, Australia on 12 July.

A total of 19 YPF participants joined event sponsor Tremco’s representative Brett Trembath for the tour of the plant, which included a briefing from a Qenos representative on the processes involved in producing polyethylene plastics.

The Qenos Botany complex includes four plants and is situated 17 km south of the Sydney CBD. The chemicals industry began operations in Botany in 1942 and the area has since developed into a major site.

In one plant, ethane feedstock supplied by a dedicated 1,375 km pipeline from the Cooper Basin in South Australia is made into around 250 kT of ethylene annually to supply the two downstream polyethylene plants and other domestic and export customers.

YPF wrapped up its visit to Qenos with a networking session at a Sydney location. The committee would like to thank Tremco for sponsoring the event.

For more information about YPF visit www.apga.org.au/YPF

YPPE turns two and celebrates with PPAS!

With the support of key individuals and companies, the Young Pipeline Professionals Europe (YPPE) has grown from a small group of just 5 members to more than 200, in just two years!

To celebrate, Pigging Products and Service Association (PPSA) sponsored a trip for YPPE members to the Petrofac Pigging Loop in Montrose, Scotland. The event was a great success and demonstrated the practicalities of launching and receiving pigs – something that a number of the group’s members had never witnessed before!

YPPE members also received a discounted ticket price to the PPSA Seminar in Aberdeen, allowing them to spread the YPPE message in the exhibition hall and experience the technical conference.

YPPE’s ‘pigging contest’ proved very popular in the exhibition hall – congratulations to Odd Reidar Boye (IKM) for winning first prize!

For more information about YPPE visit www.yppeurope.org
IPLOCA hits the mark in Thailand

Founded in Paris in 1966, IPLOCA has held annual gatherings in different locations around the globe for the past 53 years. These conventions are held for key players in the international pipeline construction industry to network, catch up on the latest industry trends and share best practices and 2019 was no different.

APPONITMENTS AND AWARDS

During the Final Banquet held on Friday 4 October, Mr Tikkanen informed the delegates that he was handing the gavel over to Ioan Panchak of J+S Welding, the incoming IPLOCA President for the period 2019-20. Olivier Corevi of Benetti was elected as First Vice President and Les Richards of McConnell Dowell as Second Vice President.

Mr Hughes of Pipeline Induction Heat was confirmed for the third year running as Treasurer and the results of the 2019-20 Board of Directors elections were ratified during the AGM.

Three industry awards were presented at the event: the IPLOCA Health and Safety Award sponsored by Chevron, the IPLOCA Corporate Social Responsibility Award sponsored by Total and the New Technologies Award sponsored by RI.

The 2019 IPLOCA Scholarship Program recipients were also announced and Scholarship Program Lead Steve Sumner informed attendees that member companies now have the possibility to sponsor scholarships.

Three company scholarships were sponsored by Gulf Interstate Engineering, ROSEN Group and Vacuworx in 2019, contributing to a yearly total of 23 places.

KEEPING BUSY

Following the success at last year’s convention in London, Business to Business and Poster Sessions were once again offered keeping members up-to-date on important developments and business opportunities.

This year Bechtel Pipeline, Brightstar Asia, Fluor, Herrenknecht, Jemena, Liebherr and Ritchie Bros. Auctioneers held 10-minute Business to Business meetings, while Herrenknecht, PBI, Pipelinc Incorporated, RSK Group, Sherrin Williams, Verizon Corporation, Video Construction Equipment and Worldwide Group hosted Poster Sessions.

The cultural program on Monday, Tuesday and Wednesday offered delegates the opportunity to visit the main Bangkok must-see attractions such as the Temple of Dawn, the Summer Palace, Ayutthaya, Damnoen Saduak Floating Market, Flower Market, Reclining Buddha Temple, Grand Palace, the Emerald Buddha Temple, Gold Buddha Temple, Marble Temple, Jim Thompson’s house, Amulet Market, MOCA and the National Museum.

For more information visit www.iploca.com

International pipeline community to meet in Berlin

Europe’s leading pipeline event will take place for the 15th time from 30 March to 2 April 2020 at the Estrel Congress Center in Berlin, Germany. Pipeline operators from all over the world take part in PTC, which is looking to be bigger than ever.

Pipeline Technology Conference and Exhibition (PTC) provides the international pipeline industry with a platform to discuss technical challenges and solutions and the future of the entire industry, with the event continuing to grow from year to year.

“For 2020, too, we as organisers expect growth of between 15 and 20 per cent compared to the previous year,” says EITEP Institute President Dr Klaus Ritter.

Attendees will experience a series of high-ranking plenary sessions and panel discussions, all of which deal with topics of global interest to those in the pipeline industry. This includes classic topics like safety, as well as current challenges in the areas of qualification and recruitment, difficult to inspect pipelines, illegal tapping and climate adaptation. The program will also include topics important to the industry’s future, like hydrogen transport and power-to-X.

About two thirds of the participants come from abroad. Last year, we saw the greatest growth of about 15% in international attendance. This year the conference and the trade exhibition will take place at the Estrel Congress Center in Berlin, Germany for the 15th time from 30 March to 2 April 2020.

For more information or to register online visit www.pipeline-conference.com
Popular annual research event returns in March

The Pipeline Research Council International (PRCI) will host its annual Research Exchange Meeting (REX2020) next year in Houston, to provide PRCI member companies, key research partners and external stakeholders with a report on important research results while providing a forum for an exchange of ideas. Each year, the event is scheduled as a key knowledge transfer window for PRCI and will provide the attendees an opportunity to learn how to move results into practice. The two-day event will feature presentations covering a variety of safety and integrity management topics, including corrosion assessment; addressing cracks and dents; right of way monitoring; design considerations; material characteristics and properties; pipeline exchange the most innovative practices
200 delegates and 40 exhibitors gather to projects and many others.
predictive analysis, the cost-effectiveness of pipeline construction in challenging conditions, automation and digitalisation, asset integrity, able to answer questions regarding pipeline Oil and Gas Congress 2020 will be willing and transport via pipelines, Transportation Oil and Gas Congress transportation Oil and Gas Congress 2020 will be willing and able to answer questions regarding pipeline automation and digitalisation, asset integrity, pipeline construction in challenging conditions, predictive analysis, the cost-effectiveness of projects and many others. Each year, more than 100 companies, 200 delegates and 40 exhibitors gather to exchange the most innovative practices and business approaches. Pipeline operators, oil and gas majors, engineering, procurement and construction contractors and technology providers will discuss the current state of the market while sharing ideas on future developments. Key topics for the 2020 event include cross-country pipeline projects, how to meet green standards and ways of decarbonisation, pricing dynamics on the market and commercial regulatory issues. The event will also host a special workshop on an ILI based corrosion assessment model presented by TC Energy, and ample networking opportunities for attendees to engage with industry colleagues.

Annual congress gathers in Milan

As an annual congress dedicated to oil and gas transportation via pipelines, Transportation Oil and Gas Congress 2020 will be willing and able to answer questions regarding pipeline automation and digitalisation, asset integrity, pipeline construction in challenging conditions, predictive analysis, the cost-effectiveness of projects and many others. Each year, more than 100 companies, 200 delegates and 40 exhibitors gather to exchange the most innovative practices and business approaches. Pipeline operators, oil and gas majors, engineering, procurement and construction contractors and technology providers will discuss the current state of the market while sharing ideas on future developments. Key topics for the 2020 event include cross-country pipeline projects, how to meet green standards and ways of decarbonisation, pricing dynamics on the market and commercial regulatory issues. The event will also host a special workshop on an ILI based corrosion assessment model presented by TC Energy, and ample networking opportunities for attendees to engage with industry colleagues.

Leading energy event back again

Attracting more than 25,000 international and domestic oil and gas executives from more than 22,500 companies, Global Petroleum Show (GPS) is a leading energy event through North America. Officials from government, national and international energy companies will convene to share innovative technologies, conduct business and engage in complex and controversial discussions aimed to shape the energy industry’s future. The GPS offers comprehensive three-day strategic and technical conferences where more than 170 industry-leading experts share their knowledge and understanding across the event’s expansive line-up of conference sessions. The 12 technical categories for 2020 span field development and infrastructure, exploration and production geoscience, post-production and more. GPS is the premier international meeting place for the industry to introduce new technologies, share ideas, meet new prospects and network, while also providing a platform for all industry players to develop strategies for oil and gas, renewables, and introduce new energy sources not yet discovered.

Major conference calls for papers

The 13th International Pipeline Conference (IPC) has issued a call for papers, with its technical tracks set to cover topics of pipeline safety management systems; project management; design, construction and environmental issues; pipelines and facilities integrity; operations, monitoring and maintenance; materials and corrosion; human factors in pipelines; leak detection; welding; subsea technology enhancements and validation; leak detection; welding; human factors; and subsea research. The technical transfer, networking and sharing of best practices during the conference has exceeded founders’ and attendees’ expectations, with significant support from executive levels of pipeline operating companies and its regulators continuously growing.

International Pipeline Conference

28 September – 2 October 2020
Hyatt Regency, Calgary
Calgary, Canada
www.event.asme.org/IPC

Global Petroleum Show 2020

9–11 June 2020
Stampede Park
Calgary, Canada
www.globalpetroleumshow.com
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| DEADLINE                        | 21 February 2020                                | 8 May 2020                                     | 7 August 2020                                    | 8 November 2020                                  |

Features and deadlines are subject to change.

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