

# Pigging Industry News

*the newsletter of the Pigging Products & Services Association*

## THE PRESIDENT'S LETTER

*By Mark Slaughter, Applus RTD, USA*

It is with pleasure that I write the June, 2015 letter to all of you. This is an exciting time for PPSA. First and foremost, we are celebrating our 25<sup>th</sup> anniversary this year! We have completed a PPSA book to celebrate PPSA's contribution to the industry during this time.

I would also like to welcome our new PPSA members and our new directors, Chuck Harris of TDW, Eric Farqué of CDI, and Sean Riley of Exium Technologies. These gentlemen are well-known experts in the industry and their contribution is much appreciated. In addition, I would like to acknowledge Terry Delasalle and Mark Elliot who stepped down recently for their tireless support on the PPSA board of directors.

The PPSA Golf Tournament that took place in February of this year was a huge success, especially considering the economic climate during this time due to the drop in oil prices. On behalf of the entire PPSA organization, I want express a warm

thanks to the sponsors and players. The following day we held our Annual General Meeting and PPSA also exhibited at the PPIM conference. It was great to see so many of our members there.

PPSA also exhibited at the biennial Unpiggable Pipeline Solutions Forum. This is a two day conference and was held in Houston on May 12 - 13. A lot of interesting technical papers were presented as well as enormous customer interest and dialogue at the exhibition booths. The PPSA members have also voted for PPSA to attend the Australian Pipeline and Gas Convention later in the year.

We are now planning the next PPSA seminar on Operational Pipeline Pigging. This will take place in Aberdeen, Scotland on November 18, 2015.

Finally, it is important to recognize the contribution the PPSA organization makes to the industry! Our PPSA members answer hundreds of technical

## NEW Members

### Full

**Inline Pigging Solutions Ltd, Canada**

**PRS International, The Netherlands**

**Gulf Strategic Partners, Kingdom of Bahrain**

**PBJV Group Sdn Bhd, Malaysia**

**Taeseung E&C Co. Ltd Republic of Korea**

### Associate

**Pacific PAC Technologies, USA**

### Individual

**Andy Bain, UK**

**Olu Ibitayo, UK**

**Mark Elliott, USA**

enquiries each year, creating a huge value for both providers and end-users in the pipeline service industry.

Thanks and long live safe pipelines!

## PPSA golf tournament results



### First place

Courtney Zimmerman (TDW)  
Lance Shepherd (TDW)  
James Lavender (Enable Midstream)  
Mitch Zimmerman (Williams)

### Second place

Mike Joiner (ROSEN)  
Mike Stackhouse (Plains All American)  
Liliana Rios (ROSEN)  
Matt Brown (Plains All American)

### Third place

Dennis Boudreau (WHC Energy Services)  
Louis Franek (WHC Energy Services)  
Craig Zerinque (WHC Energy Services)  
Ryan Tebeest (WHC Energy Services)

### Closest to the hole

Mike Stackhouse (Plains All American)

### Longest drive

Courtney Zimmerman (TDW)

## A huge thanks to our golf tournament sponsors:



## STATS Group receives DNV GL seal of approval for its Tecno Plug and BISEP

A world leading accreditation body, **DNV GL** has issued certificate P-15082 for the 3-48" range for both Tecno Plugs and BISEPs. Obtaining type approval from DNV GL ensures clients that **STATS Group** products are fully compliant to the highest standards and are 'ready to go' without the need for further work or adaptation by the end-user.

To date STATS have completed more than 200 Tecno Plug deployments, including recent isolations in Oman, Malaysia, Canada and the UK Central North Sea – with high profile projects including the isolation of the Forties Pipeline System (FPS) for **Apache North Sea Ltd.**


STATS patented BISEP provides high pressure intervention and isolation through a single hot tap penetration. Since its development less than 10 years ago, STATS has deployed over 60 hot tapped isolations, enabling maintenance work to be carried out safely and efficiently while meeting industry-led double block and bleed requirements.

The DNV GL Type Approval verifies that the design criteria satisfies the requirements for Pipeline Isolation Plugs to provide dual seal and isolation in accordance with Offshore Standards; DNV-OS-F101 (Submarine Pipeline Systems) and recommended Practices; DNV-RP-F113 (Subsea Pipeline Repair) and in compliance with the following code; ASME BPVC Section VIII, Division 2.

The DNV GL certification covers the complete process from design premise, tool designs and design calculation methods, materials of construction, fabrication process, non-destructive examination methods, in-service risk assessment procedures, quality and inspection plans to factory acceptance process. ●

## STATS Group target Americas

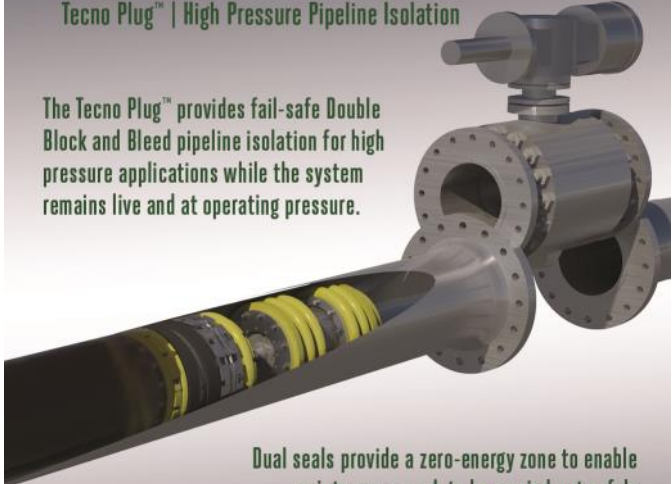
**STATS Group**, has invested \$2 million (£1.3 million) in new facilities in Houston to expand its services in the US and South American oil and gas markets. The UK-based group, which designs, manufactures and installs a range of hi-tech pipeline isolation and intervention tools, has opened a 25,000 sq ft office and workshop facility in Brittmoore and expects to add to its US headcount over the next year. ●



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## Pigging Products



IK design and manufacture in-house solutions to your pigging challenges for either standard products in new applications, operational changes in pigging activities or special "one-off" solutions to resolve your immediate needs.

We have an excellent track record in delivering quality products and flexible innovative solutions.



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## ILI tool for detecting pipeline location

**Joint-stock company “Transneft Diascan” (JSC “Transneft Diascan”)** is a subsidiary company of JSC “Transneft”, specializing in the trunk oil and oil-product pipeline inspection, as well as development and manufacture of pipeline inspection tools and cleaning equipment.

Pipeline laying in permafrost, in mountainous terrain with highly fragmented landscape, in areas with possible seismic activity requires a particular approach during pipeline development, construction and operation. Among other things it requires investigation of the constructed pipeline location stability, including monitoring procedural framework, as well as operational equipment development.

Detecting pipeline location can be conducted in two ways: land surveying method or using the pipeline inspection tool, equipped with navigation system. Implementation of the specialized pipeline inspection tool is the most efficient in terms of operational control over the pipeline location variation.

Based on the research, conducted by JSC “Transneft Diascan,” using its own testing loops and several pipeline sections, company qualified specialists developed the procedure for detection of the pipeline movement, that occurred between two runs.

Based on the results of the research, the specialized tool for pipeline location detection has been developed. The ILI tool is designed with enhanced axial stability) in order to minimize the dynamic deviation of the tool axis from the pipeline axis during the movement. Also, the tool is equipped with high precision strap down inertial navigation system, designed and developed in the Russian Federation, that allows long-term (for more than several days) operation without any degradation of accuracy.

Special system and software for data interpretation were developed, allowing to compensate background noise from sidelong and longitudinal impulse force on the tool during its movement along the pipeline.



*28" tool for pipeline location detection.*

At the moment the company has developed and runs tools with diameter 1020mm/1067mm/1220mm (40"/42"/48") and 720mm/820mm (28"/32"). Tool tests, conducted at the test loops and on live pipelines, demonstrated that the pipeline movement measurement is accurate to within 10 cm. JSC “Transneft Diascan” is currently working on enlargement of size range of the above tools. ●

## EVO series1.0 – The future of ultrasonic inline inspection

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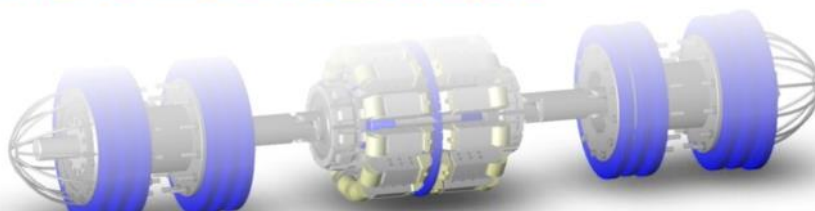
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## 3X Engineering's composite repair

An onshore transfer 24" pipeline was damaged by an excavator causing a large dent and a leak. The pipeline reinforcement was performed in April 2014 by **3X Engineering (3X)** team.

The whole repair was done according to the proprietary 3X finite elements calculation programme. Twenty layers of composite were found necessary to reinforce the pipeline.

The pipe was fully flooded with water. The leak sealing was done by using arc welding. F3X8 filler (3X) was applied at the welding area. The dent and its gouges were also filled in with this filler.

As this pipeline operates between ambient and 60°C temperature, the R4D-IC kits were used. Aramide tape was impregnated with R3X5 resin (3X) and helically wrapped with 50% tape overlap. Curing time of 72 hours was done prior to hydrotest at 10 bar pressure.

On this quite special case 3X Engineering has demonstrated once again its efficiency and competency in damaged pipeline repairs and particularly in the particular case of very severe dents with gouges (onshore & offshore). Their on-site pro-active support allowed a restarting of the pipeline without removing the damaged pipe.



*3X Engineering's composite repair*

Type of Defect:	dent, gouges and leak
Pipe size:	24" OD (API5L grade B, t=8.1mm)
Nominal pressure:	12.66 bar
Pipe temperature:	60 deg C
Client:	Foselev Agintis
Location:	La S.A.R.A. (Martinique)
3X Product:	Reinforcement 4D (R4D)

## Non-piggable lines - 4 case studies by Pipesurvey International

Looking back at a few decades of intelligent pigging, it is amazing what the industry has achieved. Accurate and free flowing inspection tools using high sensitivity sensors and special-design on-board electronics operate in harsh environments to collect faultless data sets. Starting from the outset on long distance and crucial transmission lines, the industry has now more and more moved its focus towards the so-called non-piggable or difficult-to-pig pipelines. This article will focus on four case studies of such pipelines, and address four extremes on the field of oil and gas transmission lines: low flow pipelines, high flow pipelines, bidirectional operation and multi-diameter pipelines.

### Low flow pipelines: the Guinness-book-of-records run

A typical example of such a line is this 20" x 84 km pipeline that brings crude oil from the North Sea to the onshore storage and processing plant. The pipeline has been in operation since the 70's and the field is exhausted. Currently, the export pipeline is operating at a velocity of 0.03 – 0.04 m/s and max. 7~8 barg operating pressure. Calculated over a distance of 84 km this results in a pigging run time of 27 days. This is a real challenge, both for the cleaning and inspection of the pipeline. A small leakage across the pig may result in loss of propulsion and the pig may get stuck. If debris accumulate in front of the cleaning pig, drive-pressure may rise and the pig might again stall in the line. And as to the inspection tool, it will

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require a very dependable system for data collection, data storage and power supply to make a successful pig run. With a number of pig runs that take about one month each and the various onshore and offshore mobilizations, this project turned out to be a unique case where the actual field work and run time of the pigs exceeded the post processing and data analysis. After ample considerations, cleaning with the aid of chemicals was discarded and the pipeline was cleaned with a relative soft and flexible bidi pig. Since the inspection technology chosen was high resolution MFL, it was anticipated that the inspection tool would be forgiving towards a sub-optimally cleaned line and still collect useful data. After successful cleaning of the line, a caliper tool was run to collect the geometrical data. This data was first analyzed to make sure that no unforeseen features were in the line that could prevent a safe passage of the intelligent pig. The MFL tools required special preparation. The board computer and sensor pads were subjected to a real full scale test, to make sure that the system would operate without flaw for a continuous period of one month. The power packages were specially designed, using special circuits and multiple fuse and safety system to make sure that the system could never generate unsafe current modes. Finally, the pig was launched and after a total run time of 720 hours it was received in perfect condition. The tool had collected > 99.9% data, all of it of good quality. This extreme case history of low-flow pipelines has proven that these lines are now within the realm of piggable pipelines.

### **Bidirectional pigging**

A customer operates a long distance oil transmission line in Central Europe with intermediate pumping stations and tank storage. The pipelines towards the storage tanks are all 30" and vary in length from 100 to 500 meters. Most of the pipeline is buried, having 1.5D radius bends. The pipeline has no pig traps – oil is pumped from the central pumping station towards the storage tanks and it flows back by gravity. In order to get a complete assessment of the pipeline integrity, it was decided to conduct an in-line inspection. The above ground section of the pipeline had flanged spools that could be taken out relatively easily. A temporary pipe spool was created that could act as a

temporary pig trap. The spool is complete with connections, flanges and attached piping and hoses to operate in both flow directions. A temporary pump spread was brought to place to create flow in the line from the storage tanks towards the pumping house. The pump of the pumping house would be used to create the reverse flow and move the tool back towards the temporary pumping station. A real size mock of the system was first built in the yard in order to check the MFL tool flipover pressure and behaviour. When this was proven successful the system was brought to the field. Five of these pipelines were inspected in one mobilization. The work in the field included (1) mechanical work on all lines: removal of existing piping, installation of temporary piping and reinstatement of the original piping in order to bring the pipeline back to its original status; (2) operational work: inserting the pig, pig tracking and pumping; in addition to the field work all lines were analyzed in accordance with the prevailing standards. Field work on all five lines was completed within 3 weeks and all lines reported successfully. The tools operated at flows below 2 barg pressure, including the static pressure of the storage tanks. The project proved to be a very time- and cost effective method for inspecting non-piggable pipelines in tank farms, loading lines and jetties.



A 30" Bi-directional tool with temporary pipe spool upon completion of 1<sup>st</sup> inspection run

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### Multi-diameter pipelines

A great number of multi-diameter pipelines exist, which may range from next-size diameter variations to larger and more extreme differences. They may be due to valve stations, river crossings, connection of two previously separated pipelines, or just have been designed that way. This case history will refer to a major gas trunk-line in Central Europe that transports gas for domestic, industrial and power-plant use. The mainline is 32" but it connects to a major river crossing – already in place for a couple of years – of 24". The result is a difficult configuration, where the pig not only has to collapse from the first, large section into the second, small diameter, but has to expand again to traverse another 100+ km in the large diameter pipe! The tool needs to be optimally centralized and sealing in the last section to guarantee a successful pig passage and measurement. A self-centralizing and flexible MFL measurement module was developed and it is pulled by a module with board computer and odometer. Special design cups were developed that provide two important features: (1) the cups easily collapse and give minimum friction in the small diameter pipe. As a result of this, there will be minimal difference in pressure in both pipe sections. This is important at the point where the pig enters and leaves the reduced bore: a high differential pressure would result in a large expansion of gas when the pig enters the large section again and an associated speed excursion. This has now been prevented and all data collected is useful for evaluation! (2) the cups are highly flexible and have sufficient self-centering capability so that the pig will travel in a good –in-line position through the remainder of the pipeline. Again, before the field work was conducted, a real 1:1 mock up model was built in the yard with an exact copy of the pipe reducer, in order to ensure a smooth transition of the pig in both ways. Prior to the inspection run, a cleaning pig with magnets and spider nose was run through the line in order to ensure that especially the smaller pipe section was free from debris that could impact the passage of the inspection tool. A dual size- caliper pig was run, with two measurement units, in order to get proper geometrical data from all pipe sections. Inspection data proved to be 100% within specification and multi diameter lines are now inspectable without the need of exorbitant prices or

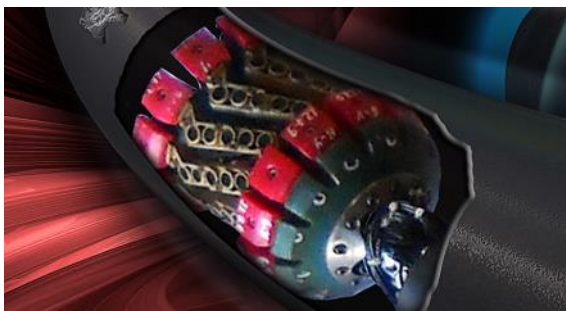
the need of high-impact mechanical work and sectionizing of the various diameters.

### High-flow pipelines

The last case history refers to pipelines at another extreme of operation: high gas flow. MFL tools will function properly up to a velocity of approximately 4 m/s. The faster the tool moves, the stronger the induced magnetic field that originates from eddy currents induced by the moving magnetic field. The eddy-current-induced magnetic field works opposite the magnetic field of the tool, reducing the overall level of magnetization. As a result, the magnetization will drop below 10 kA/m and inspection data will not meet the required level of accuracy and confidence. Reduction of gas flow would be required in order to achieve a successful inspection. For several reasons, reduction of gas flow may not be feasible, be it from economic perspective or from power strategic considerations. In order to move the tool through a high production pipeline, an active speed control unit has been designed which regulates the amount of gas bypass through the tool while moving through the pipeline. Again, a trial set-up is built in order to investigate the behavior of the tool at various speeds and the computer unit of the speed control device is tested. The bypass valve system is also tested in static and in dynamic conditions in order to get a close picture of the system in the pipeline. Finally, the fail-safe mechanism is tested in order to ensure that, whatever the condition of the tool and the gas flow, the inspection tool will always travel to the receiving station. The high resolution MFL tool with inertial navigation system and ASCU (Active Speed Control Unit) is brought to the field to inspect a 28" x 250 long distance subsea gas transmission line. The operation for the ASCU is evaluated upon completion of the pig run and the tool has travelled at the pre-set conditions of 3-4 m/s in a gas line with velocity of 5 m/s at launch towards 9.5 m/s at the receiving end.

### Conclusions

This article discussed scenarios of pipeline conditions, that would usually be considered 'non-piggable'. By using new design of the MFL module and associated technology, such pipelines are now within the scope of pipeline inspection and integrity management. ●



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## CDI receives the 2015 Governor's Award for excellence in exporting

CDI, a world leader in pipeline pig detection, recording, and locating technology, was honored with the 2015 Governor's Award for Excellence in Exporting. This award recognizes companies for success in the worldwide export of "Made-In-Oklahoma" products. The award was presented at the 32nd Annual Oklahoma World Trade Conference on April 9, 2015.

Every Oklahoman is proudly mindful of their standing as the "pipeline crossroads of the world." Approximately three million miles of underground and seabed pipelines conduct petroleum, natural gas, and other materials as diverse as cosmetics and foodstuffs all across the globe. Fewer, however, are familiar with what it takes to keep these pipelines humming. Regular inspection and cleaning is a major part of pipeline maintenance. This is done by launching a device commonly known as a "pig" into one end of a pipeline and recovering it at the other end. A pipeline operator must know exactly where a pig is at any given time so it may be recovered in a timely, efficient manner before the pipeline resumes operation. Enter CDI, who responded to this need by perfecting a reliable tracking system rugged enough to withstand the rigors of a pipeline pigging environment.

Since incorporation in 1982, CDI has seen strong growth in their product sales which now includes a complete line of land-based and subsea pig passage detection and time-based benchmarking equipment; all realized by pioneering electromagnetic through-wall communication technology. This growth has recently led to a 12,000 sq. ft. expansion of their existing Broken Arrow facility. Jason Farqué, VP of Product Development said "CDI's growth directly reflects our many customers' enthusiasm for our products. We work hard to deliver modern, durable pig tracking products and our global customer base has responded."

CDI handles all phases of their product line—from concept to design, prototyping, and manufacturing—at

their Broken Arrow location. Everything is created on-site; electronic and mechanical devices, software, and even firmware programming. Their Broken Arrow headquarters is augmented by a network of distributors on every continent. CDI products are in continual use above and below ground worldwide—in nearly every country from Argentina to Zambia.



Gov. Mary Fallin, Chuck Mills, Chairman, Oklahoma District Export Council, Eric Farqué, CDI, Jason Farqué, CDI, Marcus Verner, Director, U.S. Department of Commerce Export Assistance Center



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## IK-Group acquires Online Electronics

**IK-Group AS (IK)** is pleased to announce that it has acquired **Online Electronics Limited (OEL)**, a leading global pipeline communications specialist.

OEL, headquartered in Aberdeen, Scotland, is the parent company of Online Pipeline Solutions Inc., Houston and additional business units in Dubai, Singapore and Perth W.A., the acquisition further strengthens and widens IK's position within the pipeline sector of the oil and gas industry.

This takes the number of employees in the IK closer to 200. The investment in OEL is expected to create additional jobs in the next twelve months through increased market share driven by research, development and special engineering projects.

The combination of OEL's cutting edge products for pipeline pig monitoring, pipeline data communication and logging systems with IK's top of the line Pig manufacturing and niche pipeline engineering services will provide their shared clients with a strong, innovative service partner to help them with the challenges now seen in the oil and gas market. This combination is expected to enhance IK's special project capability and overall significantly increase IK's market share.

IK will keep the OEL brand and global structure as this has proven to be highly successful. The companies are an excellent fit and fully complement each other in terms of sector, technology and geography.

IK has a well-established model where each company within the Group operates as a separate entity yet leverages the strengths and knowledge to provide top services to each other and the industry.

The main shareholder and current CEO of OEL, Brian Gribble, will remain in the company as an advisor and Director on the Board. Customers will continue to receive the same high quality and services they have come to expect.



Brian Gribble, Christian Bull Eriksson, Bryan Inkster

## Online Electronics' MEG ARTS® wins Subsea Pipeline Technology Award

**Online Electronics Ltd (OEL)**, part of the **IK-Group AS (IK)**, is delighted to have won the Subsea Pipeline Technology Award at the Pipeline Industry Guild Technical Awards. The award was announced at the prestigious 58th National Dinner held at the Grosvenor House Hotel in London, UK.

The award, a top accolade recognising the most significant contribution to subsea pipeline technology and to promote the development of new ideas in the field of subsea technology is for OEL's flagship technology, MEG ARTS® (Mono-Ethylene Glycol Analyser with Real Time Display and Subsea Sampling), a development system which provides highly reliable information on the composition of MEG and other chemicals received subsea during pipeline conditioning operations.

OEL demonstrated to the judges an industry game changing product in MEG ARTS® which autonomously provides highly reliable information on MEG or other chemicals at the subsea pig receiver. The system offers real time display, logging of density, temperature and pressure data and automated sample capturing capability. ●

A brochure for Online Electronics Ltd. featuring a background image of an offshore oil rig at night. The text includes the company logo, 'THE QUEEN'S AWARDS FOR ENTERPRISE INTERNATIONAL TRADE 2014', and a list of services: Pipeline Pig Tracking and Signalling, Pipeline Pressure / Temperature Data Logging, Pipeline Gauge Plate Condition Systems, Automated Pipeline Discharge Sampling, ATEX Certified Products, and Special Pipeline Communication Solutions. It also provides contact information for the Online Electronics Group, including HQ address, phone, email, and website, and lists regional offices in UK, UAE, Singapore, Australia, and USA. The IK Group logo is at the bottom right.

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## ROSEN's data logger developments

**ROSEN** has announced a new range of Pipeline Data Logger (PDL) that can be used for recording data such as absolute pressure, differential pressure, temperature of the medium and acceleration during a pipeline run. PDL mostly run attached to a cleaning pig. From these measurements it is for example possible to draw conclusions about the state of the pipeline, detect changes of wall thickness between different joints and capture temperature profiles of pipes.

The ATEX and IECEx certified "ATEX PDL" features a three axis rotation sensor, which allows to detect bends in the pipeline with a sample rate of 1500 °/s. The ATEX PDL is suitable for a temperature range from -4 °F (-20 °C) up to 167 °F (75 °C) and works in pipelines with an operating pressure up to 3190 psi (220 bar). The differential pressure sensor covers a range from -145 psi (-10 bar) to 290 psi (20 bar). The internal sample frequency of the sensors is up to 1000 Hz. All recorded data are stored to 4 GB onboard flash memory.

ROSEN's high temperature pipeline data logger "PDL HT" has an elevated temperature range from -4 °F (-20 °C) up to 302 °F (150 °C). Very specialized electronic components have been incorporated into the design to allow operation at these high temperatures. Differential and absolute pressure sensors are the same as for the existing ATEX PDL. Acceleration from  $\pm 5$  g-force is measured by a micro electro-mechanical system (MEMS) sensor. The internal sample frequency of the sensors is up to 500 Hz.

With all PDLs, a new PC software version comes along, that also supports existing ROSEN PDL. The software allows a delayed start of measurements by indicating a start time. Furthermore a pressure activated start is possible with the new ATEX PDL and PDL HT. Additionally, the software supports the indication of bends with the ATEX PDL. The PDLs comes with all required accessories needed to start a job immediately. The case includes a short

instruction guide, an user manual, the PDL itself, primary batteries, an adapter flange, USB connection cable or adaptor and the computer software CD, which is used to configure the device, read out and evaluate measured data.



ROSEN's new high temperature PDL ●

## Jee secures six-figure subsea integrity management contract with E.ON E&P

**Jee Ltd**, a leading independent multi-discipline subsea engineering and training firm, has secured a six figure contract with **E.ON Exploration and Production (E.ON E&P)**, to deliver subsea integrity management and engineering services for its North Sea assets.

The three year contract, which was awarded in March 2015, involves Jee supporting E.ON E&P's Subsea Technical Authority, by providing annual integrity management services for its subsea assets. The scope of work includes flowlines, risers, umbilicals and structures on EON E&P's Huntington, Babbage, Hunter/Rita and Johnston assets.

Vivek Chhabra, Senior Engineer at Jee Ltd, said: "This is a significant contract win for Jee, with the scope of work involved reinforcing our integrity management and engineering reputation and capabilities.

"Effective integrity management can lead to significant cost saving potential for companies by minimis-

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empowered by technology

ing operational interruptions and reducing downtime. At a time when cost saving is so imperative to the industry, and as subsea assets are maturing and reaching the end of their design lives, good integrity management has never been more important. ●

## Foam disc pig for efficient liquid removal

**Inline Services'** foam disc pig has once again proven to be one of the most efficient liquid removal pigs on the market. Inlines' unique design of multiple flexible discs on this pig means it displaces liquids much more efficiently than other pigs. The discs are coated with MAXITHANE™, a polyurethane elastomer material, in order to improve the precise wiping action and increase wear resistance.

It has been proven numerous times that this pig can displace the unwanted materials in a pipeline in just one run. Inline has received numerous positive comments from customers surprised at how clean their pipeline was after running this style cleaning pig. Just recently a valued customer praised the foam disc pig after two runs through a liquefied petroleum line. Inline was told that the customer had no nitrogen by-pass the pig in the initial run. They further stated that on the second run there were "no liquids left in the line to come in with the pig" and "they never had any pig do that before this one."

Mostly known for liquid removal, the foam disc pig can also be used for many other applications. Condensation, paraffin, grease, and nitrogen are some other materials that can be efficiently removed from a pipeline with the foam disc pig. Other beneficial features include a single piece construction, configuration for multi-dimensional pipes, bi-directional and availability with pull ropes, cables, nylon straps and transmitter cavities. ●

## PPSA celebrates 25 years with a commemorative book

Founded in 1990 by Jim Cordell, **The Piggig Products and Services Association (PPSA)** has been actively serving the International pipeline industry for 25 years. At the Annual General Meeting in 2014 PPSA member John Tiratsoo suggested producing a book to show the fantastic achievements that have taken place in the Piggig industry over that period. The book which has now been published, includes entries from some of PPSA's earliest member companies, key individuals and their contributions to Piggig and entries for many of the PPSA Presidents to date. Thanks to all who have contributed articles and images, to John Tiratsoo for producing the book and especially thank you to the companies below who purchased advertisements in the book.

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## TD Williamson isolates North Sea line for Statoil

**Statoil Petroleum AS** recently completed a North Sea inline isolation in order to facilitate the tie-in of its new Valemon platform to its Huldra-Heimdal pipeline. Statoil chose SmartPlug® isolation technology, by **T.D. Williamson (TDW)**, to safely isolate the line for 89 days during the operation.

Since 2001, the gas and condensate produced from Statoil's Huldra platform has been shipped to its Heimdal Gas Center through a 22-inch wet gas pipeline extending 150 km (93 mi). To bring its Valemon platform online, Statoil had to decide between constructing an additional 177-km (109-mi) pipeline, running from Valemon to Heimdal, or to lay just a 27-km (16-mi) line from Valemon and tie into the existing Huldra-Heimdal pipeline. They chose the latter.

The tie-in alternative necessitated a fairly complicated isolation operation, for which Statoil turned to TDW. The SmartPlug isolation method provides a proven, double block and monitor isolation that would prevent flooding during the tie-in operation.

"The DNV GL-certified SmartPlug isolation method allowed production from Huldra to continue for an additional five months," says Atle Halvorsen, TDW Project Manager. The line was isolated for 89 days at an average isolation pressure of 84 bar and hydrotested at 174 bar.

In addition to the production gains, this isolation was distinctive for its extensive use of Global System for Mobile Communications (GSM) monitoring. GSM delivered several tangible benefits to Statoil:

- Reliable, real-time, 24-7 monitoring from TDW's Stavanger control center
- Elimination of on-site monitoring personnel and associated platform crew
- Reduced risk and cost associated with on-site personnel

The SmartPlug tool and standard commissioning pigs were fitted with SmartTrack™ transponders that allowed monitoring of the tools through a wide range of communication setups, including cabled, acoustic, radio link, and GSM-based logging. The greatest advantage of the GSM link was that it allowed for accurate monitoring to continue during the long periods of inactivity – a month or more – between certain phases of the tie-in. Without the GSM link, a one- or two-man crew would have been required during these periods, thus increasing Statoil's cost for the operation. ●

## Pipeline operators invest in continued education to ensure pipeline safety

For the pipeline operations and maintenance engineers and the field technicians who attended this year's Practical Inline Inspection Workshop in Tulsa, Oklahoma, their return on investment included real-world demonstrations and hands-on learning activities with some of the industry's leading experts and most progressive integrity technologies.

Co-sponsored by the **Southern Gas Association (SGA)**, engineering and technical services provider **Kiefner & Associates**, and global pipeline services provider **T.D. Williamson (TDW)**, the workshop provided operators from the United States and Canada with introductions, education, and demonstrations of both inline inspection (ILI) and non-destructive evaluation (NDE) technologies.

Pipeline Integrity Engineer Evan Kostelka of **Enable Midstream** in Shreveport, Louisiana, says he would recommend the workshop to anyone remotely involved with ILI. "The workshop was a great introduction to the various ILI devices and NDE methods," Kostelka says.

The three-day event, held May 5-7 at the TDW Technology Center in Tulsa, Oklahoma, featured lectures, hands-on equipment demonstrations, and group exercises led by experts from **Kiefner & Associates**, **N-Spec Pipeline Services**, **Quest Integrity Group**, **Rosen USA**, and **TDW**. ●



PIPELINE PIGGING AND MAINTENANCE EQUIPMENT

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## Introducing ROSEN's challenging pipeline diagnostics team

For decades, **ROSEN** has been a well-known name in the pipeline inspection industry. Today the ROSEN Group provides a wide range of inspection and integrity services, not only for pipelines but also for other oil and gas assets.

Since the introduction of ILI tools there has been a continuous need to develop inspection solutions, especially for pipelines that are considered "unpiggable". However, this term can be misleading. In the majority of cases an in-line inspection of the pipeline can still be completed, even if initially deemed "unpiggable". ROSEN has therefore defined these assets as "challenging" pipelines.

### The Challenge:

One characteristic of a "challenging" pipeline is the need for a unique, tailor made inspection solution. This solution is more than just the provision of a specific tool, but rather requires the combination of the best inspection technology and a tailor made approach. Fulfilling these special requirements is only possible with access to a wide range of proven inspection technologies and the experience to effectively apply them.

Pipelines are often deemed as 'unpiggable' or 'challenging' if an inspection with current technologies and procedures is not feasible. When working with operators it often becomes clear that it is not simply one obstacle which prevents the utilization of a standard inspection. Commonly, the complication lies in the combination of features which must be addressed. Though obstacles vary from one pipeline to the next, the most common challenges include:

- Insufficient or non-existent pipeline access for existing in-line inspection tools
- Complex mechanical pipeline designs
- Problematic operating conditions, such as low flow or low pressure
- Limited or no documentation
- Pipeline cleanliness

### Providing Solutions:

ROSEN's Challenging Pipeline Diagnostics (CPD) team provides the industry with tailored solutions, backed by ROSEN's comprehensive technology portfolio. Creating the most suitable solution for each application entails having a complete understanding of the challenges, the operating conditions, and insight into which measurement technologies are most suitable. Using a tool box approach the CPD team is able to create individual solutions based on proven technologies, experience, and market knowledge.

This toolbox contains complementing methods, applications, modules, and components that are developed and manufactured by ROSEN's Technology and Research Centers (RTRC) around the world. With these elements, and with the flexibility of each solution, true added value is created for the customer. Examples of solutions include customized uses of magnetic flux leakage, ultrasonic, or eddy current technologies for measurement purposes, with the use of free swimming, tethered, and robotic/self-propelled units focusing on propulsion.

### The Benefits:

ROSEN established the Challenging Pipeline Diagnostics team to respond to these challenges by providing solutions enabling operators to safely operate their assets. This approach aims to create individual solutions reducing overall project expenses and increasing efficiency throughout the inspection process.

The ultimate target is to ensure uptime is maximized while still meeting safety regulations and providing reliable datasets. ROSEN strives to be the solutions provider that makes the unpiggable piggable, benefiting operators by:

- Ensuring strict regulatory requirements are met.
- Asset uptime is maximized.
- Increasing lifetime of assets.
- Meeting necessary safety compliances.
- Boost the return on the operator's investment. ●

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