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Pigging Industry News

the newsletter of the Pigging Products & Services Association

THE PRESIDENT'S LETTER

by Alan Sweeney, Weatherford P&SS

The PPSA's first annual floating event will soon be upon us. We will be exhibiting at the PPIM conference and exhibition to be held in Prague in October. Please come by and show your support by visiting stand 17 where our Executive Secretary Diane Cordell will be holding down the Fort. Your feedback about the event would be greatly appreciated as we want to ensure that we are selecting events that provide our members with good exposure for new business opportunities.

Shortly after Prague we will also be hosting our 13th annual pigging seminar in Aberdeen on 16th November 2011. This very popular and well attended event will be held at the Marcliffe Hotel where this year's keynote speech about Wax and Scale in Pipelines shall be delivered by Statoil. In addition a further eight presentations shall be made by experts from the PPSA on a variety of topics surrounding the latest developments in the Pigging Industry. Attendance at this event continues to grow and in previous years we have had 130 delegates from as many as 16 nations around the world. The event provides plenty of opportunities for networking during breaks and whilst visiting the many exhibition stands in the hall. The day will eventually culminate with a question and answer session hosted by a select PPSA panel of experts. This session which was introduced last year proved to extremely popular and we look forward to more heavily debated subjects posed from the floor.

Weekly we receive a host of enquiries from many different sources throughout the Globe, who make use of PPSA's free technical enquiry service. These enquiries, which cover a broad spectrum of services and products, are forwarded to our full members or technical advisers depending on their nature. As such we hope that these are providing plenty of business opportunities for our membership. This is obviously a very difficult thing for us to gauge once the enquiry has been fielded so it would be good to get some candid feedback on whether or not this service provides real value.

It is you the membership that have helped the PPSA to grow into the Association it is today, and it will be you that will ensure its continued growth in the future. I therefore once again encourage you to take a more active role in the association. Taking the time to provide feedback whether positive or negative and to respond to the many circulars soliciting input from its members will ensure our continued success and evolution in this rapidly changing business world.

In closing I would like to thank Diane for her continued hard work and in particular for organizing the exhibition at the Prague event which we hope will be a successful and worthwhile venture for all. See you there!

PPSA's Annual Seminar 16th November 2011 Aberdeen, UK

PPSA's One Day Annual Seminar on **Meeting the Challenges of Pipeline Pigging** will be held on Wednesday 16th November 2011. The day will include presentations of technical papers and an exhibition. There will also be a Question and Answer Forum with the chance to have your questions answered by a panel of experts. If you would like more details about the seminar please see our website at http://www.ppsa-online.com or email us at ppsa@ppsa-online.com.

TDW's new SpirALL™ for Seam Assessment

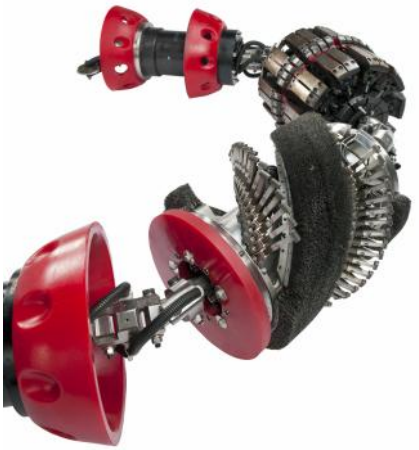
Depending on a pipeline operator's assessment needs, a variety of inline inspection (ILI) technologies are available. One of the most widely used principles, axial magnetic flux leakage (MFL), detects volumetric pipeline anomalies, general corrosion and wide circumferential flaws. MFL tools use magnets to saturate the pipe wall in the axial direction and sensors oriented in the field to detect "leakage" indicative of metal loss. However, all ILI technologies have limitations. As magnetism is introduced into the pipeline longitudinally, defects that run parallel to the magnetic field (such as those in the seam-weld) can go undetected by MFL.

One answer to utilizing MFL for seam assessments has been Circumferential Magnetic Flux Leakage (CMFL) tools. CMFL tools induce magnetism circumferentially rather than axially, creating a solution to the limitations of MFL. The CMFL approach uses two offset magnetizers to achieve full pipe wall coverage. CMFL tools detect general corrosion as well as longitudinal metal loss features. CMFL will detect crack-like features in the long seams, but other features in the seam can be misrepresented, creating uncertainties in data validity.

T.D. Williamson, Inc. (TDW) has developed a new approach to seam assessment, that relies on a spiral (or oblique) magnetic field in what is known as a SpirALL™ magnetic flux leakage (SMFL) tool. SMFL inspection technology is designed to detect longitudinal defects in a pipe body or longitudinal weld seam. SMFL tools create a diagonally flowing, 45-degree magnetic field that enables the tool to accurately detect and characterize longitudinal anomalies. This spiral approach achieves the same full-wall coverage as CMFL, but with just one compact magnetizer, so SMFL technology can be paired with axial MFL technology without extending overall tool length.

Pairing technologies generates multiple datasets with only one run. The more information you have, the more comprehensive the "picture" of your pipeline becomes. Overlaying multiple datasets from the same inspection during post-run analysis enhances anomaly characterization. For example, pairing MFL and SMFL allows traditional internal and external metal loss assessment, classification of seam-weld anomalies and quantification of other longitudinal defects in the pipe body.

The MFL plus SMFL platform is run in tandem with other technologies such as high resolution deformation (DEF) for locating, sizing and determining orientation of diameter reductions



TDW's SpirALL™ magnetic flux leakage (SMFL) tool.

or expansions. Additionally, inside and outside diameter (ID/OD) sensors are incorporated on deformation arms to verify ID/OD metal loss classifications and internal surface details. Residual or low-field sensors detect hard spots, the "halo-effect" caused by dent re-rounding, and other flaws.

Looking at a pipeline using a variety of technologies does two things. First, it improves detection, providing more opportunities to detect a defect or anomaly. Second, once an anomaly has been found, use of multiple technologies assists accurate identification and sizing. Obtaining multiple views of an anomaly from a single inspection run gives analysts more information that can be correlated more completely than ever before giving the pipeline operator superior reporting, resulting in enhanced anomaly characterization and elimination of unnecessary digs, saving time and money.

Challenger-SOS' Inline Inspection Pig For Pipeline leak detection

Leaks are important incidents for pipelines operators. Some can be detected by volume loss or pressure drop monitoring, but for minor leaks or those on an important length of pipeline, their detection and localization can be really problematic. **Challenger-SOS** offers a highly sensitive but yet cost effective acoustic PIG to address this type of problem. The unit is compactly built in a pressure -and-explosion proof housing, adding more convenience to its operational safety aspects. The new technology innovation, allows collection of specific ultrasonic signals by multi-channel spectrographic analysis that make it possible to detect and trace even small leaks. Small failure points were a particular problem with pipelines laid in soil and water where interference from other noises prevented their detection.

It is already known that the utilisation of intelligent pigs is the most sensitive and reliable measurement method to detect a leak in a pipeline. Especially, since it also provides the possibility to trace the location of the failure points. However, this method is not without any downside as it is normally a cost-intensive operation. The costs involved are caused by heavy equipment and personnel expenditures, not to mention that the pipeline production can be interrupted for several days. Therefore, it is essential for any pipeline operator to carefully select, plan and monitor the pig and pigging program based solely on its effectiveness.

If the best quality-price comparison is what your company is looking for, then Challenger-SOS offers the solution. Their inline inspection pig has a wide range of flexibilities to ease the handling and operations, thus reducing the expenditure on resources. The unit's chassis is adjustable to fit the pipelines specifications. It is also equipped with sealing discs and several wheels to provide enhanced mobility during the travel in the pipeline. Compared to other similar systems, the unit's applicable safety precaution for use in explosive atmosphere is minimized.

As the pig can be directly deployed on the actual conveyed medium of the pipeline, normal operation of the pipeline can be maintained during the inspection, thus saving the pipeline operator from expensive production interruption, or worse, shutdown.

The software is compatible with many other programs such as Google Earth and if required interfaces to all kind of GIS software could be programmed. This gives the possibility to track the run on a map and locate areas of noise.

There are a number of inspection techniques available to detect and locate leaks in a pipeline. The technology Challenger-SOS is using is based on the principal that a fluid leak more than 5 litres/hour will emit a characteristic ultrasonic frequency when forced through a small hole in the pipeline under pressure. Their experience has shown that leaks generally display an increase in volume in the frequency range between 20 and 40 KHz. The signature of each character varies depending on the size and form of leaks, different pressures, temperature and type of liquid. The detector carried in the pig's body searches in the ultrasonic range for this noise. The detector marks and monitors the run while traversing the pipeline. When a leak is detected, a signal is conveyed to the control room and a marker signal is sent out.

Each acoustic event is identified with a specific location in the pipeline. Any unusual noise can be precisely located within a few meters, using time and distance measurement. The system uses detected sources of interference as acoustic waypoints to measure distance. If the number of existing sources is not sufficient, additional waypoints can be used. The markers continually produce a prominent ultrasonic signal, which is recognized by the detector's electronics. Interference caused by pumps, rivers, road traffic, etc, is identified and singled out using the multi-channel spectrographic analysis.

Data parameters:
Signal and frequency analysis: analog range limits 10-50000 Hz, digital sampling rate 132000 samples/second.

Pressure: recording of the pipeline pressure 0 to 80 bar (1% accuracy)

Operating temperature range of 0-60° C (1% accuracy).

ROSEN Celebrates 30th Anniversary

ROSEN is a leading privately owned company serving the oil and gas industry with inspection, integrity, and rehabilitation products and services. For 30 years, ROSEN has provided the industry with advanced inspection and integrity solutions to ensure safe and economical operation of a wide range of assets and facilities. **The ROSEN Group** operates in more than 100 countries and employs over 2000 people. Founded by Hermann Rosen in Germany in 1981, ROSEN has been headquartered in Switzerland since 2000. In September 2011, ROSEN celebrated its 30th anniversary.

Over the last 30 years, the ROSEN Group has evolved from modest beginnings in the field of pipeline inspection to a world-renowned high-tech company employing more than 2000 staff. This impressive success story started in Lingen (Northwest Germany) in a tiny office that specialized in electronic engineering, with two employees only.

The company was not working to capacity. Therefore, ROSEN set out to explore an alternative range of uses for electronic measurement equipment and microprocessor systems, novel and innovative technologies at the time. A promising economic niche was discovered in the area of pipeline inspection technologies. The systematic examination of pipe defects such as leaks, dents, corrosion and cracks seemed to offer a challenging international field of business activities. ROSEN recognized early that due to the demanding nature of the oil and gas market, operators are under increasing pressure to run their facilities without interruption or downtime while at the same time being forced to meet ever stricter safety standards. That is why ROSEN's product, service and technology developments closely follow the operational trends of the industry. Company founder Hermann Rosen summed up the company's philosophy of the early days when he said: "What others are doing, we should manage to achieve better, faster and cheaper without imitating." This philosophy is still valid today.

ROSEN Awarded Pipeline Baseline Inspection Project

The ROSEN Group has announced the recent award of four major baseline pipeline inspections worth around $9 million for the Chevron-operated Gorgon Project.

Managed out of ROSEN's Canning Vale operating facility, the multi-million dollar project is planned to start immediately with design of four specialized tools, and baseline inspections due for completion mid 2013.

The contract includes intelligent tool design, fabrication, testing and baseline inspection of the Gorgon, Jansz, domestic gas and CO_2 pipelines utilizing a variety of technologies.

The company has almost 15 years of Western Australian experience and the project will employ 35 locally based permanent employees.

ROSEN Australia General Manager, Neil Pain, said the award was the culmination of several years of discussion between ROSEN and Chevron in understanding, and pushing, the limits of high end in-line inspection technology for challenging offshore pipelines.

"The ROSEN Group has used its extensive worldwide experience and expertise in developing inspection solutions that meet Chevron's specification requirements, whilst at the same time utilizing inspection methods that have a proven track record."

ROSEN has a fully operational inline inspection facility in Australia with full Project Management, Maintenance, Field Services and Data Evaluation capabilities.

"This will allow Chevron a fully flexible in-line inspection execution team for all technologies and all diameters," Neil Pain said.

The Gorgon Project is operated by an Australian subsidiary of Chevron and is a joint venture of the Australian subsidiaries of Chevron (approximately 47 percent), ExxonMobil (25 percent) and Shell (25 percent), Osaka Gas (1.25 percent), Tokyo Gas (one percent) and Chubu Electric Power (0.417 percent).

STATS Group perform Tecno Plug™ isolations in Malaysia

STATS isolation technician Iain Reid, prepares 36" Remote Tecno Plug™ for deployment

The Petronas Liquid Natural Gas (LNG) complex in Bintulu, Sarawak comprises of three LNG plants owned and operated by Petronas' joint venture companies. This is one of the world's largest LNG production facilities at a single location, with an annual production of 23 million tonnes. As part of the Kumang Cluster onshore tie-in project, **STATS Group** were required to isolate 36" Trunk Lines 3 and 4 while the lines remained at an operating pressure of 69 barg. The new pipelines to be tied-in will supply the onshore facility with gas from the Kanowit CPP located approximately 250km offshore Bintulu.

Two STATS remotely operated 36" Tecno Plugs™ were utilised, one in each trunk line, to isolate the pipelines upstream of the tie-in locations. They were configured in a three module train, to allow the tools to negotiate multiple bends as they were pigged approximately 80 metres each to their set locations. The Remote Tecno Plugs™ were tracked and accurately positioned using through-wall communication. An extremely low frequency radio control system sets and monitors the plugs throughout the isolation. The remote control system provides a high degree of flexibility and eliminates the need for tethers or specially modified pig-trap doors.

The Remote Tecno Plugs™ were constantly monitored and remained stable and in location for around seven days each while tie-in operations, which included close proximity hot work activities (welding), were completed. Finally the plugs were unset and reverse pigged back to the receivers for demobilisation.

STATS Group managing director, Peter Duguid, said: "This project marks a significant milestone for STATS as these are the first Tecno Plug™ isolations carried out in Malaysia. There is great demand for STATS isolation technologies throughout South East Asia which we look to expand with future plans for a permanent base in region."

View upstream of the tie-in point showing STATS 36" Tecno Plug™ in the pipeline

Weatherford's ILI Base Relocation

Weatherford's Pipeline & Specialty Services group has relocated its In-line Inspection (ILI) base to their headquarters in Aberdeen as part of its growth strategy.

The Weatherford Centre, at Souterhead Road, Altens, Aberdeen, is a 15 acre facility housing a new operational and management hub. The campus like environment enhances their cross product line capability, improved communication and integration between product lines and service, resulting in increased efficiency for Weatherford and its clients. In addition the improved workshop and office facilities provide the potential for Weatherford's product lines to grow as required.

A number of tools will be relocated to the Aberdeen base for quick deployment by air or sea across the eastern hemisphere. These new facilities, complemented by the existing ones, will better enable Weatherford to provide the following technologies: multi-channel caliper, magnetic flux leakage, transverse field inspection, ultrasonic wall measurement and ultrasonic crack detection inspection technologies. These technologies and facilities aim to meet both the integrity and compliance needs of pipeline operators. Newly developed tools incorporate all of the latest technology needed for the accurate detection and characterization of corrosion, metal-loss, SCC and manufacturing anomalies.

Quest Integrity Group Extends Signal™ Fitness-for-Service Capabilities

Quest Integrity Group recently announced availability of its powerful Signal™ Fitness-for-Service (FFS) Version 4 software tool, which adheres to all API 579 standards. Designed by industry experts, Signal FFS allows engineers to quickly perform fitness-for-service and fracture mechanics analyses on fixed and rotating equipment, thereby reducing equipment and operational safety risks.

Signal FFS is now available in both Standard and Professional editions to satisfy the user's analysis requirements. Both versions help to mitigate safety risks by performing rapid fitness-for-service assessments while providing comprehensive and consistent adherence to industry standards. In addition, Quest Integrity Group also offers a Quick Start Package, which combines either the Standard or Professional edition with training, direct access to Quest Integrity engineers and additional example problems to aid in analysis.

"Our new Signal FFS Standard and Professional editions allow our clients to choose the right fitness-for-service and fracture mechanics analysis that best fits their asset and operating circumstances," said Dr. Ted Anderson, Chief Technology Officer, Quest Integrity Group. "We have responded to client input and added functionality and user interface features to reduce the client's learning curve and make it even easier to use, while empowering clients with a tool to help avoid costly unplanned downtime."

Signal FFS Standard provides quick Level 1 and 2 Fitness-for-Service assessments for common damage mechanisms, while the Professional edition also includes comprehensive Level 2 support and advanced functionality to support Level 3 assessments. Both versions offer an intuitive wizard interface that guides users through assessment calculations. A detailed, yet simple, description for each input value is given, eliminating the need to look up additional information. Fully worked API 579 example problems are installed and ready to use so users can follow the calculation steps. An integrated Help function includes the background and applicability of each assessment type.

Quest Integrity Group focuses on asset integrity and reliability management solutions for clients.

TDW completes pressure isolation in Gulf of Mexico

TDW Offshore Services (TDW) has completed a pipeline pressure isolation operation in the Gulf of Mexico. The operation made it possible for the operator to safely replace a faulty shut down valve (SDV) above the riser on a platform off the coast of Louisiana.

The riser leads to a pipeline that plays a central role in transporting gas through a key transportation system. When they realised that an SDV on this line needed to be replaced, the operator examined the situation. The engineers concluded that they were not confident that the two downstream valves would be capable of isolating the pressure while the faulty valve was replaced.

To ensure that the SDV would be safely replaced, TDW was retained to provide a field-proven solution. TDW would perform a "double-block" isolation against the gas pressure in the designated riser using two SmartPlug® isolation plug modules linked together.

In keeping with new U.S. safety, environmental and risk mitigation regulations, TDW and the operator prepared for the operation by carrying out extensive hazard identification exercises and testing.

Working from the platform, TDW launched the SmartPlug modules, using the SmartTrack system to monitor pressure and track them. The modules were pigged in for 80 feet - traveling under a flow rate of 30 – 40 gallons per minute at approximately 131 bar - until reaching their destination near the top of the riser. TDW set the downstream SmartPlug module and bled the topside pressure to about half of the riser pressure. With data from the SmartTrack system confirming the integrity of the downstream seal, TDW set the upstream SmartPlug module and monitored the pressure between modules until they were confident the module was holding pressure and the SDV could be replaced.

The SmartPlug modules remained in the riser for 12 days while the operator replaced the SDV. During this period, TDW took hourly pressure readings of the isolated section using SmartTrack "through pipe wall" communications technology. TDW assessed the data until the SDV was installed. Utilizing the double-block isolation created by the SmartPlug modules, the crew performed a leak test on the repaired section. After confirming the integrity of the newly installed valve, pipeline pressure was equalized and the SmartPlug modules unset and retrieved, allowing normal production to resume.

VKVC launches Pipeline Service Group

Vee Kay Vikram & Co (VKVC) has launched a pipeline service group dedicated to carrying out installation of leak repair clamps, Pig tracking and Pig locating services and bolt tensioning services. With its experienced team, the right equipment and necessary tools VKVC has expertise in handling most difficult jobs. They provide solutions in the fields of installation, tracking and location and tensioning services.

The required leak repair clamps, weld-end couplings, Pig tracking equipment and bolt tensioning units are available off the shelf for immediate mobilization.

VKVC provides Pig tracking and locating services for pipeline sizes from 6 to 60". Tracking can take place on all types of terrains and environments. They can also provide time based benchmarking to meet customer requirements.

VKVC has trained technicians and state of the art equipment for all bolting needs. They provide tensioning services using hydraulic torque wrenches and bolt tensioners suitable for studs of sizes from ½ to 3½" drives.

VKVC provides Pig tracking and locating services, and installation of clamps to clients in India and in the Middle East. They have a bases in Dubai and in Ahmedabad, India.

IKM Testing's Aberdeen Office Attains QHSE Certification

IKM Testing (UK) Ltd has reached some Quality, Health, Safety & Environmental (QHSE) milestones at its Aberdeen office. Firstly it has gained certification to the integrated QHSE Standards BS EN ISO 9001, 14001 and OHSAS 18001. The benefits of the ISO and OHSAS certification are well known for operating a company efficiently with regard to health, safety and the environment. Secondly it has received its FPAL Verify certificate following assessment of its health and safety, environment and competence and training practices. Verify enables potential clients to identify suppliers who go the extra mile.

Employees are key to these successes. By involving personnel from the start, the Aberdeen office has been able to generate processes, procedures and practices that not only allows them to meet these QHSE certification requirements but also helps to indoctrinate a QHSE culture within the company.

IKM Testing specialises in providing a wide range of pipeline and process pre-commissioning and commissioning services to the UK and international onshore and offshore markets. With offices around the world IKM continually strives to achieve superior performance, working with clients to provide optimal technical solutions and deliver results.

TDW completes Pressure Isolations in Malaysia

TDW Offshore Services AS (TDW) completed a series of pipeline pressure isolation operations offshore western Borneo in Malaysia for Sarawak Shell Berhad. They were carried out on the Jintan, B11 and F6 platforms in the South China Sea, as part of Sarawak Shell Berhad's ongoing pipeline valves maintenance program.

The first operation took place on the Jintan platform on a 24-inch gas export pipeline that extends from the JNDR-A platform to platform M1 off the West coast of Sarawak. TDW executed a double-block pressure isolation against 90 bar pipeline pressure so that Shell could safely replace a passing shut down valve (SDV). A 24-inch SmartPlug® isolation tool was pigged using production gas approximately 30 meters into the pipeline and set at the vertical section of the riser. During the operation the SmartPlug tool was remotely operated, monitored and tracked by TDW with its Smart-Track™ technology. After the topside section was depressurized, a spool section was replaced and a flange welded to it to accommodate the new shutdown valve. TDW utilized a joint tester tool to verify the flange installation prior to Shell installing the replacement SDV. The section was isolated for 13 days at a pressure of 90 bar while testing and SDV installation took place.

On the second operation, a 32-inch SmartPlug isolation tool was utilized to replace two passing launcher motor-operated valves (MOVs) on a 32-inch gas export pipeline at the B11 platform that connects to the E11RB platform. By pigging in a SmartPlug tool with water over a distance of 50m and monitoring it with SmartTrack technology, TDW set the tool vertically in the riser and created a double-block isolation against the gas pressure. The SmartPlug tool remained in the riser for eight days at 102 bar to facilitate safe replacement of the MOVs.

The third operation also involved replacement of launcher MOVs on a 32-inch gas export pipeline that extends from the F6P-A platform to the E11 hub. This particular operation required TDW to utilize the SmartPlug system to isolate the pipeline against 70 bar. The pipeline was isolated for 11 days for the replacement of defective MOVs and an extended duration for additional topside maintenance activities.