August, 2003

Pigging Industry News
the newsletter of the Pigging Products & Services Association

President's letter

by Coleman McDonough
T.D.Williamson Inc, USA

IT IS A great honour for me to be elected president of PPSA, and I want to thank Dr Michael Beller, the previous president, for his hard work and commitment to the PPSA organization.

PPSA currently has 71 members, comprising global companies involved in pipeline pigging products and services worldwide. With the addition of new members from around the world, the PPSA organization is growing larger each year.

Our mission statement is "To promote the knowledge of pigging and its related products and services by providing a channel of communication between the members themselves and the users and other interested parties", and I am pleased to report that we are on track with our mission objectives.

PPSA as an organization has enjoyed a successful year. We have had record attendance at all of our training seminars in both Europe and the USA, our membership numbers are up, and we are receiving thousands of hits on our web site every month from people around the world seeking information pertaining to pigging products and pigging services.

The web site activity is an indication that the PPSA organization is providing an active channel of communications for our members and other interested parties. The PPSA newsletter is published on our web site; the advertisements in the newsletter are linked to the advertiser's own web site, and so if readers are interested, they can click straight through from the newsletter.

Following discussions at the AGM in Houston, when the directors agreed to represent PPSA at appropriate events, I am pleased to announce that Inline Services will be displaying PPSA directories and newsletters on its stand at Gas Week 2003 on 23-25 September, with both Gary Smith and Harvey Diehl ready to field enquiries. In the UK, Tom Sowerby will represent PPSA at the IQPC Pipeline Inspection and Integrity Management for Oil and Gas Conference in Aberdeen on 22-23 September. The conference organizers have agreed to include a PPSA directory in every delegate pack, and Tom will be on hand to answer questions.

It goes without saying that PPSA will be at the Pipeline Integrity Conference organized by Pipes & Pipelines International and Clarion Technical Conferences in Amsterdam on 12-13 November. We plan to hold an open meeting for members and visitors, details of which will be published nearer the time.

You will be interested to know that Jim Cordell (founder of PPSA) and Hershel Vanzant have updated their seminal reference book *All about Pigging*, and the new edition will be available soon.

We hear that Donald Thomson, of Nautronix (Accoustics), former pesident of PPSA, has been

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seconded to Australia to support Nautronix's ADS2 products and manufacturing in Fremantle. Our good wishes go to him.

Brian Havercroft retired on 2 May after 39 years with GD Engineering. Brian was director of sales and marketing at GD. Much of his time with the company was spent in the development and sales of GD products for inclusion in pigging systems world-wide. GD Engineering joined PPSA in 1990 and, thanks to Brian, has been a firm supporter of the Association ever since. We would like to wish Brian a long and happy retirement.

PPSA's European directors met in Aberdeen on 18 June to make plans for the next pigging seminar, which is scheduled for 20 November in Aberdeen. All PPSA members are welcome to take part in the seminar, as speakers, exhibitors, and delegates. Suggestions for topics, from both members and readers alike, would be welcome. Contact Gill Hornby (*see box on page 1*) if you are interested in participating in the seminar.

In closing I would like to thank Gill Hornby for her good work and her dedication to PPSA, and I would like to encourage our members to be an active participant in our Association.

Coleman McDonough

Industry news

Expansion of pig tracking and locating range...

THE **Nautronix Helle Division**, a specialist in the field of pig tracking, has recently announced a major expansion of its range of electromagnetic pig-location equipment. This is used for the signalling and location of stuck cleaning pigs in a wide range of pipelines.

The present *2900* series range of transmitters is suitable for use in pipelines between 10in and 36in diameter, and can penetrate gas and liquid media as well as up to 3m of cover. In a current project, *Helle* electromagnetic pig locators are set to be used in the world's deepest pipeline by means of 250-bar pressure rated electromagnetic antennae (model *6251*) mounted on an ROV and wired to the surface via the umbilical. This antenna will locate the pig-mounted transmitter in water depths of up to 2100m if the pig becomes stuck.

Pig detection on land is achieved using a portable receiver (model *6385*) and a short hand-held antenna (model *6750B*).

Now, in addition to the ROV-mounted antenna, subsea detection is possible using a diver-held receiver which allows the diver to easily listen for the transmitter signal and detect the position of a stuck pig to within a few centimetres. This unit is rated to 300m, and also has an illuminated visual display. The user-friendly design reflects the vast experience of the Helle division in the development and supply of equipment for the offshore diving industry.

Also new to the electromagnetic range is a miniature electromagnetic transmitter which will be suitable for use in pipelines down to 4in diameter. For all its small size, this is a significant development, as it will now allow Helle customers to track and locate pigs in almost any size of pipeline.

In addition to these products, the company can work closely with partner customers to develop specialist pig-tracking and locating equipment.❖

...and lease service expanded

THE Nautronix' Helle division has expanded its lease pool of equipment to meet the challenging demands of the international pipeline sector, with its pig tracking products providing a solution to a wide range of pig location and acoustic tracking needs.

An example of the equipment's capabilities was shown in a recent deepwater project off the coast of Angola. The company's expertise was required for the controlled flooding of five 8.5-in production pipelines and the gauge pigging of three 11-in injection sea lines. Three injection line pigs were fitted with acoustic pingers (model *24XX*) for tracking and positioning. All three worked successfully, and confirmed the pigs' receipt at the receiver.

In the 1350-m deep projects, the receiver was checked using Helle's new and advanced deepwater ROV antenna (capable of depths of up to 3000m) and topside receiver. The signal was clearly heard for all the lines and provided the confidence to be able to leave recovery of the receivers until later in the construction schedule.❖

Precommissioning offshore Nigeria...

ABERDEEN-**based BJ Process and Pipeline Services** (BJ PPS) has been awarded a $multi-million contract by **Stolt Offshore Services S.A**. to provide pipeline pre commissioning services on several sections of **Shell Petroleum Development Co's** new offshore gas-gathering system (OGGS) in Nigeria. During the coming months, BJ PPS will provide flooding, cleaning, gauging, hydrotesting, de-watering, air-drying, and nitrogen packing services on the OGGS 32-in trunkline, and 24-in and 16-in spurlines.

The first phase of the project, which has commenced, is to pre-commission the 32-in trunkline. Working both on- and offshore, the company has already successfully flooded, cleaned, and gauged the offshore section of this trunkline, which will be tied in to the unmanned OGGS RP-A platform, located approximately 18km WSW of South Forcados, where BJ PPS will work from a support vessel alongside the platform. This trunkline runs approximately 268km SE along the Nigerian coast to Bonny Island, where it reaches the shore and runs onshore 8km inland to the NLNG plant on the island. The onshore pipeline contractor will then tie-in the pipeline to the NLNG plant after all necessary procedures are completed.

Phase 2 involves the pre-commissioning of the 24-in spurline that lies between the OGGS RP-A platform and Forcados Yokri, located approximately 88km north of RP-A. The third and final phase is to pre-commission the 16-in spurline between RP-A and South Forcados, which measures approximately 18km. Both Phases 2 and 3 will be carried out from a support vessel positioned alongside RP-A, and on the respective beaches at Forcados Yokri and South Forcados. BJ PPS will leave the pipeline on the beach sealed, following completion of all related precommissioning services.

The award of this contract further solidifies BJ PPS's presence in West and North Africa, as well as its relationship with Stolt Offshore. In recent years, BJ PPS has carried out precommissioning services for Stolt Offshore on the Amenam-Kpono field, EA field, Girassol, Lombo East, and Mossgas projects in West Africa, and the Scarab/Saffron project in Egypt.❖

...and plant testing in Kazakhstan

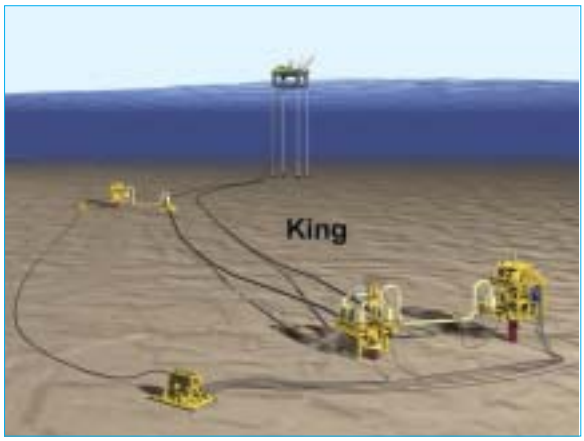
A CONTRACT has been awarded to **BJ PPS** by **Karachaganak Petroleum Operating BV** to provide process plant testing services in Kazakhstan. The company will provide nitrogen/helium leak-detection testing and lube-oil flushing services for KPO's new process facilities currently being constructed as part of the massive Karachaganak field development project.

A large onshore gas-oil-condensate field, the Karachaganak field is located in NW Kazakhstan near the city of Aksai, north of the Caspian Sea and south of the Russian border, near Orenburg. Reserves in the field are estimated at 8B brl (1.2B tons) of oil and gas condensate, and 1.35Tcum of gas. The KPO consortium – consisting of **BG Group**, **Eni**, **ChevronTexaco**, and **Lukoil** – has a production sharing agreement with the Kazakh government to enhance production which, in 2001 totalled 3.75Bcum of gas and 4 million tonnes of condensate.

BJ PPS's work will be initially involved with Unit 2 at the processing complex, which will process hydrocarbons from field wells and generate condensate and gas streams. The gas will be used as feedstock for the power plant that generates electricity used to power the facilities; the remaining gas will be re-injected to maintain reservoir pressure. The condensate will continue through the processing facilities for further treatment before being transported via pipeline to market.❖

Weatherford news

BP America Production Co commissioned **Weatherford P&SS** to develop a special *SAAM* tool to inspect the King flowlines in the Gulf of Mexico. At 1680m water depth, the 27-km dual flowlines use a novel active heating 8-in/12-in pipe-in-pipe



*The BP King field (*courtesy of BP*).*

approach. The annulus is circulated with heated water, to ensure continuous flow during normal production, and to minimize downtime during suspensions in production. In order to accommodate thermal expansion and contraction effects, the flowlines have been designed to bend laterally in a controlled fashion at designated intervals along their length.

Weatherford has completed development of the *SAAM* system, which will provide BP with lateral and vertical pipeline profile data for each of the flowlines. In particular, BP is interested in the shape of the flowlines at the 29 discreet locations where the controlled lateral bending will occur. This will assist BP to determine the current operational behaviour of the system, and also help in validating this approach for use in future projects. The project is supported in part by BP's Upstream Technology Group.

The primary development challenge to Weatherford was the requirement for the single-module tool to navigate the 8-in inner pipe and the subsea template at King. This template contains an interesting configuration of components, including a valve sized to an ID of 5.13in. This combination of component sizes necessitated a more complex pig design, which reduced the space available to fit the *SAAM* tool. A new carrier pig was designed and manufactured by Knapp Pollypig, and the *SAAM* technology was miniaturized to 60mm (2.36-in) diameter by 285mm (11.22-in) length.

The *SAAM*-equipped pig is currently based in Lafayette, LA, ready for deployment in the flowline system at the next opportunity.❖

IN Q3 of 2002, P&SS (from its German base, **Weatherford Kopp**) successfully completed the caliper survey of the high-profile 24-in *Blue Stream* subsea pipeline which runs for 387km across the Black Sea between Baregovaya in Russia to Carsamba near Samsun in Turkey, in water depths exceeding 2100m.

P&SS was contracted to conduct a post-construction caliper survey of the line, using specially-designed caliper pigs to ascertain the ovality of the pipeline and detect any internal imperfections. Two calliper tools were run (one acting as a contingency pig) at an average speed of 0.37m/sec, with a maximum-recorded pressure applied to the tool in excess of 250bar.

The primary challenges presented by *Blue Stream* were water depth, line pressure, and pipeline profile and length, but others included timing, logistics,

A Weatherford caliper pig awaiting launch on the Blue Stream project.

and political and working environments. ❖

THE company reports excellent progress for the PIPEAIMS (pipeline asset integrity management system) pipeline joint-industry project (JIP) based on RST Projects' smart utility pigging technology.

The objective of the project is to develop a low-cost pipeline-condition-monitoring system which can be incorporated as part of a routine pigging programme, capable of detecting mechanical damage, in-line debris, out-of-straightness, and corrosion. This will be based on RST's existing SAAM (smart-acquisition analysis module) smart utility pigging technology. There are eight sponsoring members in the JIP: BP, Enterprise Oil (now Shell), Kerr-McGee, Marathon Oil, Shell, ChevronTexaco, Total E&P UK, and Petro-Canada, and the project has been running since July, 2001.

The project is currently at the field-trials stage to prove the tool's capability in different line sizes, speeds, and fluids. Two of these trials have been completed to date, with encouraging results.

Future stages will include more field trials, formalization of the validation work, and writing a recommended practice for the use of the new-generation tools.❖

Bi-directional, single module MFL pig...

AN UNUSUAL inspection was recently completed by **3P Services** on a 36-in, 8-km long, tanker-unloading pipeline on the east coast of the UK. The line is unpiggable by standard in-line inspection tools, since there is only access from the shore end. The task was accomplished using a bi-directional high-resolution MFL pig that was pumped to the pipeline manifold and – by reversing the flow – back to shore. The inspection operation took less that eight hours.

Besides the general task to determine metal loss, an important target was to distinguish between the laminations and the external metal loss indicated by previous ultrasonic inspections. To prepare the tool for this inspection took less than two months. All targets were achieved on time and within budget.❖

...and 4-in inspection pigs for 1.5-D bends

3P SERVICES has recently developed a 4-in MFL tool capable of negotiating standard elbows of 1.5D radius, and suitable for schedule 40, as well as schedule 80, pipelines. The existing 4-in tools, originally designed for flowline inspection with a bend radius of 5D, have proved to be successful in inspecting many oil- and gasfield lines. For the 4-in tool, the microelectronics of the company's existing 3-in MFL tool were used for data storage, and a newly-engineered magnetization and sensor unit capable of negotiating the 1.5D elbows was successfully tested in the 3P Services' test loops at its plant in Lingen, Germany. ❖

The continuous-loop valve actuator drive from Smith Flow Control.

Continuous-loop flexi-drive for hard-to-reach valves

AN ENHANCED version of its *Flexi-Drive* cable-driven remote valve operator has been launched by **Smith Flow Control**. The new 'continuous-loop' version has the same versatility as the original model, but can transmit drive to valves through much-shorter cable runs, even if a large number of handwheel turns is required.

With the old system, the number of handwheel turns determined the length of the drive cable: the greater the number of turns, the longer the cable. The new system dispenses with this requirement by circulating the drive cable through a gear mechanism, eliminating the need for a long cable. Like its predecessor, the new unit has the capacity to transmit drive as far as 60m, accommodating 540° of bends in the cable run.

The cable allows high valve operating torques to be transferred through walls, bulkheads, floors, tunnels, and other obstacles between the handwheel and the valve. Designed to be suitable for any size or type of valve, regardless of torque or turn requirements, the drive is available in a range of reduction ratios, including 4:1, 2:1, and 1:1, with no danger of delivering over-torque. It is completely sealed and permanently lubricated, and designed never to require maintenance.❖

Pictures of 3P Services' pigs in action.

Safe pig location-pulse transmitter

CANADIAN PPSA member **Crostek Corp**. has undertaken considerable research

and development, engineering studies, and field testing, in order to produce a pipeline transmitter and housing unit with an 'internal pressure-relief' system, thereby eliminating what has been a major potential hazard to pipeline operational staff.

Most operators have experienced cases where pressure builds-up inside pipeline pig transmitter housings while in the pipeline, and yet no safe system was incorporated to depressure the housings during routine disassembly. Crostek's new *CT-TH* safety system is designed to provide a safe work environment. The system can be attached to any pig, and with a battery life of 14 to 16 days, the pipeline operator can rapidly locate the problem in the event that the pig becomes lost or stuck. Many pipeline operators have found that it is good business and cheap insurance to run the company's transmitter in most, if not all, routine pigging maintenance runs.❖

OPS name change and new appointment

ABERDEEN-based **OPS (North Sea) Ltd**, a leading provider of highly-qualified, specialist personnel to the international oil and gas industry, will now operate under the name **OPS Group Ltd**.

At the same time, and in an effort to increase awareness of the company's capabilities, the company has promoted Cerys Johns to the newly-created post of head of marketing and media relations. Currently, Johns' primary focus is on the company's new and upgraded website at www.opsgrp.com.

Born in Brunei, Johns has lived in Holland and England before settling in Aberdeen in 1983. She is based at the company's headquarters in Aberdeen, and reports to managing director Steve Pryor.❖

Halliburton wins 2003 PIG award for pig tracking

THE 2003 Subsea Pipeline Technology Award from the **Pipeline Industries Guild** has been won by **Halliburton's** Energy Services Group for the development and successful application of its new *Hal-AT* acoustic telemetry system. The award, introduced by the Guild in 1993, highlights the significant contribution Halliburton has made to subsea pipeline technology around the world.

John Banyard, president of the Guild, presented the award to Halliburton at the Guild's annual dinner, held at the Grosvenor House in London on 11 March.

The *Hal-AT* system is a real-time, remote, subsea system which provides accurate predictions of pig location by using the pressure-monitoring function at the launch point, or the pig-tracking/signalling function further along the pipeline. The system can also be of benefit during offshore precommissioning and hydrotesting activities by allowing the support vessel to move off-station and continue its work elsewhere whilst still monitoring the pressure trend within the pipeline under test. It uses an acoustic transponder as the link between a subsea location and a vessel-based monitoring station. The transponder can be deployed in water depths of up to 2,000m.

Halliburton began development of the first Hal-AT prototype in 1997 in response to the need to accurately determine the pressure within a pipeline during deepwater-pigging operations, and to ensure the success of pigging runs. Throughout its development the system has undergone numerous trials, and refinements to the technology have increased its ability to detect and monitor a wide range of parameters. The most recent application of the system was in early 2002 during the precommissioning activities of two infield flowlines for a deepwater project in the Gulf of Mexico, in which the system generated proven real-time accurate pressure readings and analysis of pig progress.❖

Fast action saves leaking line

IN El Segundo, California, a pipeline offloading product from a tanker to a nearby tank farm had weeps and needed to be repaired before the next shipment. An unexpected delivery forced the company in to an immediate repair mode. An overnight delivery of seven **Clock Spring** *Snap Wrap* units and leak-repair systems was sent to arrive by 10am the next morning. The leaks were approximately 0.125in diameter, and due to external corrosion. The seven repairs were completed by 2pm that same day, and the cargo was offloaded the next day.

Pipeline Pigging & Integrity Technology

Third Edition - edited by John Tiratsoo

THIS LATEST edition of the standard reference to pipeline pigging contains 41 new technical contributions from an international team of expert authors. The book provides a wide-ranging overview of the best in pipeline pigging and integrity-monitoring technology, and thus makes essential reading for all involved in these increasingly-important industries. The contents are divided into six sections, dealing with utility pigging, corrosion issues, intelligent pigging, case studies, and integrity management, and prefaced by a section on important, but general, issues.

The role of pigging in maintaining and expanding the pipeline infrastructure has become more critical due to projected increases in oil and gas consumption and thus transportation capacity. At the same time, the aging of some pipeline networks to 60+ years along with several recent catastrophic failures has resulted in stringent new regulations requiring operators to periodically inspect and maintain their pipelines with best-available technologies. These developments – together with the installation of new lines over greater distances and more hostile environments – have made the technical requirements and demand for pigging technology ever more acute.

The science of pigging is developing to provide the technology required to keep these pipelines in the best possible condition, and to ensure their continuing integrity. There are few problems that the pigging industry cannot solve nowadays, and this book includes a number of case histories showing what can be achieved in practice.

But pigging is not just about high-level inspection; rather, the basics of pipeline design and of utility pigging to accommodate the most mundane tasks are, in the long term, probably even more important. If the pipe is not designed to be "piggable", and if it is not kept clean and in good condition, the best of inspection tools will be rendered useless. Accordingly, the book also includes a number of contributions on these more-basic aspects of pigging operations.

Pipeline Pigging & Integrity Technology, 656 pages, index, hard bound, is available from Scientific Surveys Ltd for £75 (UK only) or US$125 (elsewhere) including postage. Call +44 (0)1494 675139, or e-mail dsayers@scientificsurveys.co.uk.

This application is a good illustration of a company investigating its options and responding quickly and efficiently to an unexpected change. The product is an excellent solution for this particular type of repair: a line that has been shut down with pin holes, is not considered a DOT-regulated pipeline, operating at low pressure, but a valuable asset to the company. A quick and effective installation of the repair material removed installation problems associated with temporary clamps, environmental disclosures for leaking pipelines near water, and the delay of shipment to other terminals.❖

Pig cleaning system available

AN EXCLUSIVE sales agreement has been initiated between **T.D. Williamson** and **JRI Industries**, of Springfield, Mo., USA, for TDW's solvent-free pig-cleaning system. Designed easily to clean pigs with a high-powered, industrial washing process, the system removes paraffin, oil sludge, and other contaminants with a heated water detergent solution. Its features include a swing-away top manifold for easy loading and unloading, stainless steel pressure nozzles for 360° cleaning coverage, a debris screen which keeps the tank free of large fragments and waste, and seven-day timer for programming the heating of the cleaning solution.❖

Benefits of joining the Pigging Products & Services Association

Members receive:

☆ e-mail notification of technical enquries and tender invitations received by the PPSA
☆ entries in the PPSA's Buyers' Guide and Directory, and on the PPSA's web site
☆ free copies of *An introduction to pipeline pigging*
☆ free access to the PPSA's database of pipeline pigging contacts
☆ free technical information and problem-solving
☆ free copies of the PPSA Buyers' Guide and Directory and regular copies of *Pigging Industry News*

☆ **the opportunity to present papers and/or exhibit at PPSA seminars**

☆ discounts at pipeline pigging conferences organized by *Pipes & Pipelines International* and *Clarion Technical Conferences*

To join the PPSA, please fax back the form below.

Annual membership fees:

Full member: £850 plus £50 joining fee
Associate member: £400 plus £50 joining fee
Individual member: £135

Please send me a membership application form

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