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First of all, let me say it is a great honor to lead the INTECSEA organization. Our team is known throughout the industry for its technical leadership and strong engineering talent. I am really looking forward to driving our company forward over the next few years in what is an increasingly competitive business environment.

When I was first asked to write down my thoughts in a letter, I was surprised how difficult this was, considering that most corporate communication in 2014 is by email and PowerPoint with occasional forays into the social media world of Facebook, Twitter and Instagram. However, after working on this for some time I realized that there is still a lot to be said for the written word to convey thoughts and ideas. The work that we do is increasingly complicated and sophisticated. We are performing detailed engineering analysis and solving complex problems. At the same time, we are providing a service to our customers, and, as a service organization, we need to always focus on our customers’ wants and needs. I would like to see INTECSEA continue to develop strong customer relationships and form strong bonds with our customers, built on mutual trust and respect. The best way to build good relationships with customers is to continuously deliver a quality product.

Quality excellence has to be at the heart of everything we do as an organization. Our customers expect our work to meet their requirements and provide accurate data on which they can make decisions. But it is not just our project deliverables that need to be a quality product. This needs to pervade through our organization, whether we are providing project planning, cost control, financial information or human resource services.

Another key tenet of both the INTECSEA group as well as our parent WorleyParsons, is ensuring the health, safety and welfare of all our employees and contractors. I will be very active in this field and will be working hard to make sure that the operating environment and the over arching culture of the organization is one that demands and actively supports HSE compliance. It is often easy when we work in an office environment to think that everything is safe and nothing can ever go wrong. However, fatalities and accidents can happen at any time unless we are continuously alert and provide the right leadership.

Over the next few weeks I will be traveling to all the global INTECSEA locations to listen to what our customers, stakeholders and global team members have to say. This exchange of ideas and experiences will help me better understand our position in the marketplace and to see where we can take the organization over the long term. I am certain that we have great ideas in all of our locations that can help improve the way we do our business. I will be curious, inquisitive and interested in understanding your thoughts on how we can become a stronger and more dynamic organization.

I am very fortunate to be taking over from Uri Nooteboom who will start his well earned retirement in August. I would like to take this opportunity to thank Uri for his leadership over the last few years. He has been with INTECSEA a long time and has made a massive contribution to the company over 20 plus years.

I will continue to communicate my thoughts via these quarterly letters. For those of you who prefer to digest information in less than 140 characters, you can follow me on Twitter @neilmacintecsea. Please feel free to connect with me on OilPro as well as on LinkedIn.

In the meantime, let me finish by saying it is a real thrill for me to join this great company and I am looking forward to working with a very talented group of people.

Neil Mackintosh
Husky Oil China Limited (HOCL) with their partner, China National Offshore Oil Corporation (CNOOC), has begun producing from the Liwan Area in the South China Sea offshore China. The Liwan Area Development currently comprises the Liwan 3-1 and Liuhua 34-2 gas fields. The development is located 300 km south of Hong Kong in approximately 1,450m of water.

In 2008 concept screening studies completed by INTECSEA concluded that a long-distance subsea tieback to a fixed shelf platform was the best alternative for development. In early 2009, WorleyParsons/INTECSEA were awarded the FEED for the development of Liwan 3-1 by HOCL. The FEED work scope was extensive, extending from the subsea wells to a new offshore platform and onshore gas plant, and also included the sales gas pipelines. The development plan required a multi-entity approach for FEED and was divided into four segments designated “Deepwater” (INTECSEA Perth and Kuala Lumpur), “Shallow Water” (Ranhill WorleyParsons Kuala Lumpur and INTECSEA Kuala Lumpur), “Onshore” (Maison WorleyParsons Beijing) and “Downstream” (INTECSEA Kuala Lumpur).

A Feasibility Study was also completed, parallel with FEED, by INTECSEA (Houston, Perth and Kuala Lumpur) for a Deepwater Host Option as a contingency. The Liwan 3-1 FEED was completed in early 2010. WorleyParsons/INTECSEA continued to provide post-FEED support to HOCL on the Deepwater Segment. WorleyParsons/INTECSEA’s role during project execution included:

- Working with HOCL as part of an Integrated Project Team (IPT)
- Provision of central engineering team in support of all deepwater activities including flow assurance and MEG recovery unit module
- Package engineering support/EPC contract management for supply of subsea equipment including PLEM and two manifolds
- Package engineering and construction support for MEG recovery unit module
- Package engineering supervision for umbilicals
- Package engineering support for supply of carbon steel and CRA line pipe
- Construction management support
- Interface management support
- Materials and welding engineering support
- Pre-commissioning and commissioning support
- QC management services
- Project controls support services

Spotlight on Success
Liwan Area Development - China’s Deepest Subsea Project Moves Ahead
Overall Development Concept

Liwan 3-1 produces through a subsea development comprising an East Manifold, West Manifold, and Pipeline End Manifold (PLEM). From the PLEM in 1,400m of water, dual 22-inch flowlines are routed 79 km from Liwan 3-1 to the Liwan Central Platform or CEP. The Liwan CEP is a new build platform in 190m of water west of the existing Panyu Central Platform.

Liuhua 34-2 will connect to the Liwan 3-1 East Manifold in approximately 1,350m of water via a single 23 km long 12-inch flowline.

The Liwan CEP provides gas processing and compression facilities in addition to providing chemical injection, power and controls to the subsea facilities.

Gas and gas condensate are transported from Liwan CEP to the onshore gas processing plant via a new 30-inch multiphase shallow water pipeline over a distance of approximately 260 km. This 30-inch pipeline makes landfall at the onshore gas plant on Gaolan Island.

Downstream sales gas pipelines will extend over land and under sea from the onshore gas plant on Gaolan Island to supply sales gas to customers.

Deepwater Development Concept

East and West manifolds and a central PLEM using conventional 8-inch production jumpers, dual 12-inch infield flowlines and dual 22-inch main flowlines were identified as the most efficient means of delivering production to the CEP. This also provides operating and hydrate management flexibility. Rigid steel line pipe was installed in all cases.

Flow assurance engineers validated system operability for the 79 km long tieback. Normal operation, pigging, slugging, turn-down and system start-up were all assessed. Early, mid- and late-field life operating envelope, liquids management, hydrate avoidance and hydrate remediation were addressed. Lean and rich Mono-ethylene Glycol (MEG) storage requirements on the CEP based on continuous MEG injection at the subsea trees, slug arrivals at the CEP during ramp-up and slug arrival delays during turndown were also evaluated.

An integrated model is being used to further validate a unique feature of the Liwan Area Development - use of Gas Recycle to manage liquid inventory in the 22-inch flowlines during production turndown.

Early on during FEED, deepwater host feasibility was assessed. The purpose was to understand whether a deepwater host could be made to work in the extreme environmental conditions found in the South China Sea. Various configurations were evaluated including use of a Deep Draft Semi-Submersible (DDSS) with SCRs.

A Risk Assessment was performed on merits and relative risks between a long-distance tieback to a fixed platform, a subsea tieback to a stand-alone deepwater floating platform, and a hybrid solution using both a deepwater (floating) and a shallow water (fixed) platform.

Key design features of the selected deepwater concept include:

- Dual 22-inch diameter main flowlines between the PLEM and Liwan 3-1 CEP to provide maximum operating flexibility with regard to production turndown. The system is configured for round trip intelligent pigging from the CEP

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OPPOSITE PAGE: LIWAN 3-1 INSTALLATION OF WEST MANIFOLD
PICTURED BELOW: FIELD LAYOUT

CONTINUED ON PAGE 8
This year’s workshop included 30 engineers selected across the globe to bring a wide cross-section of technical experts and thought leaders together with the express intention of sharing knowledge, developing ideas and innovation, and building strong relationships.

At INTECSEA, we make it clear technology is our business and nowhere was that more apparent than at the second annual INTECSEA Global Technology Workshop (GTW) held at Houston’s Northwest Forest Conference Center, which came to a close on Friday, May 2nd. The timing of the workshop was perfect, as many participants used the opportunity to stay on the following week for the 2014 Offshore Technology Conference (OTC) in Houston.

Building on the success of the inaugural workshop held in Woking in February of 2013, this year’s workshop again included 30 engineers selected from across the global offices, to bring a wide cross-section of technical experts and thought leaders together with the express intention of sharing knowledge, developing ideas and innovation, and building strong relationships. The INTECSEA group was joined by Chris Mole, Technical Director of Hydrocarbons for WorleyParsons, in an effort to better leverage technology synergies across the wider WorleyParsons organization. Each participant presented on an emerging capability or technology, with topics ranging from the application of our Enhanced Field Development Solutions (EFDS), to determination of design metocean conditions by Response Based Analysis (RBA).

The week was intense, including day-long highly focused sessions, where each presentation was followed with discussion about the technology and how best to bring it forward and maximize its value. The week required extra effort from all involved: the preparation, the travel, and interaction among the participants, many of whom were meeting for the first time. The time spent away from the office routine, in an environment especially tailored for collaboration, started to pay off immediately. New solutions, along with new relationships, developed during the week, and the participants once again left with fresh inspiration and innovative solutions that can be shared amongst offices and applied directly to projects across the globe. Additional Houston personnel attended selected parts of the workshop, and the workshop participants had informative tours of each of the two Houston offices as part of their overall experience for the week. As with last year’s workshop, we look forward to the benefits of the week’s discussion spreading to all the global technical staff, as the participants bring their enthusiasm and spirit of collaboration to their respective offices. Lunch & Learns based on the workshop presentations are planned in the months to come.

There was an exciting addition to this year’s agenda on Friday, as a group of customers joined the INTECSEA team for a Technology Open House at the ECII office in Houston. The idea behind this Open House was to share some of the highlights of the workshop to a group of technical personnel from BP, Chevron, Shell, BG Group, Anadarko and Total, among others. The session kicked off with a welcome from INTECSEA President, Uri Nooteboom; Senior Vice President (Americas), Brian McShane; and Global Technology Director, Phil Cooper. The program was tailored to the specific interests of the customers who attended, determined by polling in advance, and also adapting while the program was underway. The result was a highly engaging and interactive session, where the technology previewed earlier in the week was brought straight-away to the potential users, who look to Houston as the source of oil and gas technology.

The networking which started in the morning at ECII continued during the afternoon over an extended lunch at the unique Top Golf driving range, only minutes away from the ECII offices. The relaxed and also festive atmosphere not only made it easy to talk future business, but also presented an ideal place to bring the workshop to a close with the presentation of the Best Paper Award to Yuriy Drobyshevski from the Perth office, in recognition of his excellent technical content and overall engagement throughout the week.

We look forward to engaging more of our talented people from across the globe in the future, and making next year’s event an even greater success!
In May of 2013 INTECSEA, together with WorleyParsons, joined the PRCI Design, Materials and Construction (DMC) committee as a Technical Program Associate Member. Since that time INTECSEA has participated in three committee meeting sessions and related workshops, various project teams, and is a contractor for the Submarine Pipeline On-bottom Stability Program (SPDA-1-3). Through this participation INTECSEA has identified and shared ways offshore experience can be brought to the onshore pipeline challenges and how the offshore industry can leverage the work being done for onshore pipelines.

The SPDA-1-3 team is upgrading the Submarine Pipeline On-bottom Stability Program, f.k.a. AGA LSTAB, to a modern software platform and making technical improvements. The technical improvements include:

- JONSWAP spectrum
- Verley & Lund clay model
- Current dominant cases
- Low angle lift investigation
- DNV RP F109 absolute stability method
- Additional technical guidance

INTECSEA is meeting the challenges of the project scope and schedule by leveraging the right skills and expertise from an international team based in INTECSEA’s Perth office with support from our Woking, Singapore, Hyderabad and Houston offices. At the 2014 PRCI Research Exchange Meeting held in February INTECSEA presented the status of the SPDA-1-3 project and it was well received by the attendees. INTECSEA is honored to be able to help the industry by keeping this core software modern in all aspects.

Moving forward INTECSEA is looking for ways to grow our contributions to the industry through PRCI participation in projects as team members and contractors, additional committees and taking on committee leadership roles. As a member company of PRCI, INTECSEA has access to a vast amount of resources which can be explored by registering on the PRCI PRIME website http://prci.org/index.php/site/register/.

The next PRCI event INTECSEA will participate in is the Pipeline Technical Committees Meetings in Banff, Alberta, Canada May 21-23, 2014. Our participation in PRCI will be coordinated through Phil Cooper, our Global Technology Director.
The Liwan 3-1 FEED work truly has been an international collaboration among multiple INTECSEA and WorleyParsons offices. The Liwan 3-1 FEED was conducted by 5 corporate entities, spread out over 4 countries and located on 3 separate continents during a ‘fast track’ 10 month period.

Spotlight on Success

Continued from page 5

- An East and West manifolds arrangement incorporating well clusters and a central PLEM. The PLEM will accommodate a limited number of wells
- Dual 12-inch infield flowlines between West Manifold and PLEM, and between East Manifold and PLEM to provide maximum operating flexibility with regard to production turndown
- Traditional rigid production jumpers between trees and subsea structures (manifolds and PLEMs)
- Corrosion Resistant Alloy (CRA) materials in high temperature areas to mitigate effects of aggressive internal corrosion
- Corrosion monitoring spools at key locations in carbon steel production flowlines
- Gas recirculation (gas recycle) within the 22-inch main flowline loop to “recirculate” dry gas from the CEP through the 22-inch flow loop during periods of turndown to further enhance flowline liquid inventory management
- A piggable infield flowline system for added flexibility during commissioning and future operations
- Vent points and dual flowlines for subsea system vent purposes to remediate hydrates
- MEG at each well distributed from the CEP via main and infield MEG flowlines for hydrate prevention
- MEG reclamation system on CEP to recover and recycle MEG
- Methanol injection at subsea wells to facilitate well start-up
- Expandable subsea control system
- Main and infield umbilicals including fiber optics
- A subsea wet gas flowmeter at each subsea well
- Spare connector hubs at PLEM, and East and West Manifolds to accommodate new wells and allow expansion to new fields
- Consideration to accommodate future subsea compression in the event the need arises
- Design for solitons that frequent the Luzon Strait and propagate across the South China Sea
- Subsea isolation valves (SSIVs) at the CEP to contain main flowline inventory
- Horizontal subsea trees with sand detection
- Downhole pressure and temperature transmitters at all wells

Project Staffing

The Liwan 3-1 FEED work truly has been an international collaboration among multiple INTECSEA and WorleyParsons offices. The Liwan 3-1 FEED was conducted by 5 corporate entities, spread out over 4 countries (China, Malaysia, Australia and USA), located on 3 separate continents during a ‘fast track’ 10 month period.

Subsea production systems and infield flowlines during the Liwan 3-1 FEED were led by INTECSEA’s Karl Purchase and Peter Brownlie (Perth). Subsequent Liuhua 34-2 FEED and follow-on Liwan 3-1 execution phase support was led by Peter Brownlie with support from INTECSEA’s Kuala Lumpur office.

The deepwater tieback flowlines, shallow water pipeline and downstream “sales” gas pipeline FEED was executed by INTECSEA’s Kuala Lumpur office led by Tengku Salehudin. The Liuhua 34-2 FEED and follow-on Liwan 3-1 execution phase support was led by Ilangovan Karupiah (Kuala Lumpur).

INTECSEA’s Deepwater Host Feasibility Study was led by Bill Greiner (Houston) working in Kuala Lumpur. The extensive Flow Assurance effort during FEED and continuing through post-FEED support was led by Dr. Joe Tan (Kuala Lumpur) and assisted by Ms. Nurhikmah Hanifiah (Kuala Lumpur).

Interface Management was led by INTECSEA’s Abdul Qadir Abu Bakar (Kuala Lumpur). INTECSEA’s Rudy Pesek and David Reeves (Kuala Lumpur) are supporting construction. Overall project leadership was provided by John Stearns in Kuala Lumpur.
Every year, INTECSEA produces an Arctic and Cold Climate Technology Poster for Offshore Magazine to showcase our knowledge of Arctic and cold climate technologies and challenges to the Oil and Gas Industry. The poster is also a very popular item for INTECSEA at the Arctic Technology Conference, the last of which was held in Houston, TX in February of 2014.

The centerpiece of the poster is an ArcGIS map of the Arctic and surrounding cold climate regions along with various types of geospatial data, most importantly of which are locations of existing or future-planned oil and gas development projects that are cross referenced to technology tables in the remainder of the poster. All of the data in the map comes from public sources, is spatially referenced and is compiled into a single Geodatabase.

INTECSEA’s Arctic Map was selected by Esri to be included in their 29th Map Book, a collection of digital, GIS-based maps that ESRI considers to be both visually stunning and an excellent utilization of the GIS platform. Along with the Map itself, the Map Book also allows for a description of INTECSEA and how the Map is used. The following will be included with the Map in Esri’s latest Map Book:

“INTECSEA, with experience in the Canadian, United States and Russian Arctic, has advanced hostile, cold-climate engineering technology for the safe development of both existing and future oil and gas fields in the Arctic. The company developed this map to assist Arctic technology innovation by establishing a geospatial database of engineering technologies used at existing Arctic project locations. The map uses ArcGIS to gather, collate and associate Arctic geographic, environmental and sea ice data to the engineering technologies required to safely develop and transport produced hydrocarbons from these existing Arctic projects to market. The map also supports Arctic engineering specialists in performing pipeline, production and hydrocarbon transportation technology assessments in Arctic lease areas to identify what new technologies will be required to safely develop future projects in the Arctic region.”

INTECSEA is honored to have the Arctic Map included in Esri’s latest Map Book edition, as well as affording the opportunity to showcase INTECSEA’s expertise and focus on Arctic and cold climate oil and gas development and transportation engineering technology.
A record-breaking year for OTC Houston

The Offshore Technology Conference set the record in 2014 with 108,300 attendees - the highest in the show’s 46-year history. Experts from the offshore energy industry around the world came together May 5–8 for the event at Reliant Park in Houston.

Attendance surpassed the 2013 total of 104,800 and the sold-out exhibition was the largest in show history at 680,025 ft², up from 652,185 ft² in 2013. The event featured 2,568 companies representing 43 countries, including 163 new exhibitors in 2014. International companies made up 44% of exhibitors.

INTECSEA and WorleyParsons once again came together to make a huge impact at the show through the exhibition, customer meetings and technical papers/presentations. The shared booth offered a great place for customers and colleagues to gather and discuss upcoming work and answer technical questions on various projects.

In total there were nine panel sessions, and more than 308 technical papers and speakers at the event. INTECSEA and WorleyParsons employees presented nine technical papers, all of which were well received by customers, academia and the industry.

We were also thrilled to again host the OTC Wine Event on the Monday of OTC. This year’s event brought a mix of senior level executives and technical specialists from our top customers together for a night of networking and discussion on key challenges and opportunities facing the offshore oil and gas industry today.

Overall, 2014 was a great year for INTECSEA and WorleyParsons at OTC.

OTC 2015 takes place May 4–7, 2015 at Reliant Park. We’ll see you there!

Inaugural OTC Asia event - a success for INTECSEA and WorleyParsons Group

INTECSEA, WorleyParsons and Ranhill WorleyParsons had a great showing at the inaugural Offshore Technology Conference Asia (OTC Asia) held March 25 - 28 in Kuala Lumpur. This was the first year for the event in Asia, which attracted an astounding 22,000 attendees from across the globe.

As a Group, we achieved great success in our technical program, with an impressive eight papers presented by our experts on a wide range of topics related to the offshore energy industry. Conference attendees also had the opportunity to see several in-booth presentations which outlined our comprehensive offering. This included Phil Cooper, Global Technology Director who presented an overview of INTECSEA at the booth.

Throughout the week, our striking exhibition booth, manned by employees from INTECSEA, WorleyParsons and Ranhill WorleyParsons, offered a great place for colleagues and key customers to gather and discuss current challenges and future direction of the industry: this included INTECSEA President Uri Nooteboom, SVP for INTECSEA AME, Steve Lee, and Suhaimi Ismail, Operations Director for KL. The booth also attracted recent graduates and talented professionals looking for career opportunities with the Group.

Overall, the WorleyParsons Group had a very strong presence at OTC Asia. Mark your calendars for the next OTC Asia event, which will be held in March 2016 in Kuala Lumpur!
INTECSEA hosts customers at Petroleum Club Annual Sailing Regatta

INTECSEA ANZ continued its support of the annual Petroleum Club Sailing Regatta in Perth by participating in the event in April 2014. The INTECSEA team hosted key customers and decision makers from Chevron and Woodside on their yacht to thank them for their continued support and discuss future work.

The event is a great opportunity to network, build relationships and get closer with our customers. Well done to the INTECSEA ANZ team!

WorleyParsons and Decision Frameworks invitation to valuable courses offered for project management

WorleyParsons and Decision Frameworks invite you and your staff to attend two very valuable decision quality courses offered for project management in the oil and gas industry – one focused on efficient decision framing and the other on helping teams value information being considered in the exploration through concept select phases.

**Decision Framing for Project Management Course**

*July 28 – 30, 2014 at WorleyParsons office in Houston, TX*

Whether you manage, facilitate or are a member of an asset or project team, you will find this course extremely helpful to get clarity of action with any group. This project management workshop focuses on quickly reaching greater understanding without the need to learn “the ropes” or the math associated with the analysis. The goal of this workshop is to enable you to facilitate an informed decision – about your exploration, appraisal, development, commercial, or operating strategy.

**Value of Information Course for the Upstream Oil and Gas Industry**

*August 25 - 27, 2014 at WorleyParsons office in Houston, TX*

*September 15 - 17, 2014 at WorleyParsons office in Calgary, Alberta Canada*

Known throughout the industry this course provides foundational knowledge key to evaluating information decisions quickly and correctly. It is highly recommended for geoscientists, engineers, business analysts, and managers responsible for upstream exploration, appraisal, development, and production information decision problems.

To register and learn more about these courses please go to: [http://www.decisionframeworks.com/events](http://www.decisionframeworks.com/events)