Corrosion management is a key concern in all oil and gas assets due to the nature of fluids produced and injected throughout their life cycle. This is applicable for all asset types, regardless of their age and the level of corrosive agents present in the flow stream, be it CO2, H2S, water, chloride and others. Every operator in the world today is facing the challenge of extending the life of their aging assets which are often degraded by corrosion and pose well integrity risks.

In the meantime, new green field development tapping hydrocarbons are confronted by highly corrosive contaminants as low lying, easy wells have been mostly exploited.

In the current low oil price environment where budget has been slashed substantially and CAPEX/OPEX is limited, the industry is facing uphill challenges on how to keep the cost reasonably low in order to execute projects. More activities are being performed to conserve the integrity of production assets in lieu of replacements. Idling wells are resurrected to extract the last remaining hydrocarbons via Enhanced Oil Recovery (EOR), while the cost pressure to give the go-ahead for new project development with limited budget to ensure long-term well integrity remains obvious. Corrosion assessment, its management, the use of mitigation and monitoring techniques, non-conservative material selection, and the availability of new, cost-effective materials to substitute exotic, expensive materials play a vital role in keeping operational costs at an optimum level.

Session Highlights
This inaugural joint-workshop combines the strength and networking prowess of both SPE and NACE, and is targeted at the following focal areas to explore new practices, find new materials to solve corrosion related problems and to put more cost-effective solutions across the table by sharing best practices and lessons learnt across the industry.

- Upstream corrosion assessment (Production/Injection wells and surface production assets)
- Wells downhole causes of corrosion and mitigation practices
- Performance of Corrosion Resistant Alloy (CRA) tubulars
- Internal coatings for upstream assets
- Corrosion inhibitors for downhole applications
- Downhole corrosion monitoring and assessment tools
- Water injectors material selection while keeping the cost low
- Corrosion management – Risk-based assessment

Who Should Attend
- Well Integrity Engineer
- Completion Engineer
- Drilling Engineer
- Production Engineer/Technologist
- Well Intervention Engineer
- Petroleum Engineer
- Corrosion Engineer
- Material Engineer
- Metallurgical Engineer
- Project Manager
- Wellhead/Wel Services Companies
- Service Companies providing Corrosion Management and Assessment/Monitoring techniques/tools
- Steel Mills producing materials for downhole application

www.spe.org/go/18WM03
Workshop Objectives
This is a first and unique opportunity to leverage the strength and networks of both associations. This workshop serves as an avenue for attendees of diverse backgrounds to meet and discuss wide-ranging subjects related to corrosion management, focusing on wells downhole applications and upstream production assets. This is your opportunity to have face-to-face discussions using the workshop format provided by SPE/NACE with experts from both of these internationally recognised organisations.

Preliminary Workshop Schedule

**MONDAY, 30 OCTOBER 2017**

0800 – 0850
Arrival of Delegates and Registration

0800 – 0900
Safety Announcement by Hotel

0900 – 1000
Group Photo/ Coffee Break

1000 – 1030
Session 1: Welcome, Introduction and Keynote Address
Co-Chairpersons: Gary Ong Swee Hong, PETRONAS Carigali Sdn Bhd; Dr. Carlos A. Palacios T., CIMA-TQ, LLC

1030 – 1230
Preliminary Workshop Schedule

1230 – 1330
Session 3: Integrity Assessment For Wells – Considerations based on the Injection & Production System (Gas/Water Injector, CCS, EOR, Producers with High Contaminants)
Session Chairs: Nural Asyikin Mohd Radzuan, PETRONAS; Khlefa A. Esakul, Occidental Oil and Gas Corporation

1330 – 1530
This session will focus on well corrosion assessment methodologies and experiences in corrosion prediction and mitigation during production stage. In increasing the confidence level for corrosion assessment, the advancement of reliable prediction methods and mitigation are important to enhance the life of the asset and the decision-making process for future cost-effective investment.

1530 – 1545
Coffee and Tea Break

1545 – 1745
Session 4: Experiences in the use of Corrosion Monitoring Techniques/New Advances
Session Managers: Khlefa A. Esakul, PETRONAS; Szakel C. Marais, Statoil ASA

1745 – 1845
Session 5: Open Discussion Forum of the Day
Session Chairs: Pedro Rincon, GE Water and Process Technologies; Daniel Sandana, R森欧洲 BV

1845 onwards
Welcome Dinner

**TUESDAY, 31 OCTOBER 2017**

0830 – 1030
Session 6: Experiences in the use of Internal Coatings/Linings for Corrosion Control
Session Chairs: Mark O’Sullivan, Chevron Australia Pty Ltd; Suchada Punpruk, PTTEP
Most project managers and corrosion professionals are aware that very few flow lines and transfer pipelines are operating in identical environments. However, we often use a standard checklist and approved coating systems expecting that it will all “be fine”. There is definitely a gap between everybody’s understanding of “being fine”. This ranges from construction personnel having a cosmetic view and saying it’s all good to competent QA inspectors undertaking all the appropriate tests fully supported by the project manager. There is also a considerable knowledge gap as to how the product really performed over years of service. The paint companies and contractors are inherently unlikely to publicize bad news. This session is about how a newly built project (no name) undertakes all the right processes and still reach monumental failure – a situation which was only identified when someone started asking the right questions. We will also discuss flow assurance coatings, their original design criteria and expectations that many companies have. Needless to say, there are some considerable gaps:

- Well tubing
- Flow lines
- Gathering lines
- Innovative coating systems for internal coating of well tubing, flow lines and gathering lines
- Advanced techniques for internal coating inspection
- Lessons learnt from application of internal coating for corrosion control of well tubing, flow lines and gathering lines

This session covers the use of the various grades of carbon and alloy steel tubing and casing, their characteristics and history in oil and gas production. This will include a review of the various grades in use both seamless and electric resistance welded (ERW) types, their properties, performance in corrosive environments in CO2 and/or H2S and the effect of operating condition such as gas rate, water cut, type of production, etc. Chemical composition, metallurgical condition and manufacturing process play a role in the performance of the tubing and casing. Including:

- Tubing and casing grades evolution and where they have been used
- Effect of corrosion and factors that contribute to increase in corrosion tendency
- Common mitigation measures
- Material selection of tubing and casing and the factors that impact their selection
- Development in casing and tubing materials
- Case histories and past performance of the various grades

Coffee and Tea Break

1630 – 1745

Session 7: Fit for Purpose Material Selection – Advances and Experiences in the Use of Corrosion Resistance Alloys
Session Chairs: Pedro Rincón, Petroleum Development Oman; M Faizalatulzudiin (hakah, PETRONAS Carigali Sdn Bhd)
This session will cover the application of various grades of CRAs used for wells completion, flow lines and gathering lines, and the challenges of selecting and using CRAs to ensure long-term asset integrity. Corrosion management by using CRAs is defined during design stage and thus affects CAPEX. Every CRA has a specific Integrity Operating Window (IOW) within which they perform very well against the hardships of corrosion. However when CRAs are not properly specified or operated outside IOW they susceptible to degradation mechanisms that are non-age related and the failures can be rapid. This session will address field experiences, lessons learnt and advances in the applications of CRA to meet to objective of long-term asset integrity, including:

- Role of design input/uncertainties/assumptions – boundary conditions for the selection of cost-effective CRAs
- Material selection/standards – extension of CRAs application limits and requirements
- Fit-for-purpose selection of CRAs
- Key role of quality and fabrication
- Current limit/experiences of using 15Cr, Super13Cr, 15Cr, 17Cr, 22Cr-25Cr Duplex, Ni-based alloys
- Variation/severity of testing methods for CRA Material Qualification (C-Ring, 4 Point Bent Beam, NACE Method A and etc.)

1745 – 1845

Session 8: Fit for Purpose Material Selection – Experiences in the Use of Carbon & Alloy Steels
Session Managers: Khlefa A. Esakul, Occidental Oil and Gas Corporation; Anas Mohamad Sotian, PETRONAS Carigali Sdn Bhd
This session will describe the processes and practices related to prevention of integrity failure (loss on containment, loss of production) themselves and also corrosion on the tubing and casing. Including:

- Corrosion tendency
- Common mitigation measures
- Effect of corrosion and factors that contribute to increase in corrosion tendency
- Development in casing and tubing materials
- Case histories and past performance of the various grades

Session 9: Fit for Purpose Material Selection – Fit-for-purpose Selection of CRAs
Session Manager: Fouzi Yunus, Acme Chemicals (Malaysia) Sdn Bhd; Mohamed Abou Zour, GE Water and Process Technologies
Chemical corrosion inhibitors have been used extensively in the oil and gas production industry. In the current downturn, the industry sees the need to reduce CAPEX investments and improve in measures to allow the use of more cost-effective materials and extend the facilities’ lives. The use of effective corrosion inhibitors that have been identified as one of the areas where OCTG materials could be used and asset’s lives could be extended while maintaining integrity. The session will:

- Share recent and current development works on improvement of corrosion inhibition effectiveness for upstream assets
- Share existing laboratory tests to screen corrosion inhibitors and experiences on their representativeness
- Discuss flow lines’ top of line corrosion and the laboratory testing method to effectively determine suitable corrosion inhibitor

Poster Solicitation & Information

All participants are encouraged to prepare a poster for the Workshop. Presentations on both research and field experience are welcomed. Posters, including unconfirmed/partial results, are to be presented at an assigned time and are open for discussion. Posters will be on display for the entire Workshop period.

When preparing your poster:

- Avoid commercialism. No mention of trademarks/product names
- Poster size should be approximately 0.8m x 1.2m (w x h) or size A0 in portrait layout
- Identify topic by title, affiliation, address, and phone number
- Include a brief abstract that summarises the technology to be addressed
- Make the display as self-explanatory as possible
- Place the information in sequence: beginning with the main idea or problem, method used, results, etc. (Draw a plan keeping the size and number of illustrations in mind)
- Keep illustrations simple by using charts, graphs, drawings, and pictures to create interest and visually explain a point
- Use contrasting colours
- Use large print for narrative materials. (We suggest a minimum of 24 points or 3” high letters for the title)

Note that the Workshop Programme Committee will review all poster abstracts/materials prior to display, and reserves the right to refuse permission to display any poster considered to be commercial in nature.

If you are interested to participate, please email your proposed topic with a short abstract (between 200-300 words) to SPE Assistant Event Manager, Hanna-Rose Abdul Jalil at hjalil@spe.org by 25 August 2017.
Sponsorship support of the event helps offset the cost of producing workshops and allows SPE to keep the attendance price within reach of operation-level individuals, those who benefit most from these technical workshops. Supporters benefit both directly and indirectly by having their names associated with a specific workshop. While SPE prohibits any type of commercialism within the workshop room itself, the Society recognises that supporting companies offer valuable information to attendees outside the technical sessions.

**SPONSORSHIP CATEGORIES**
Sponsorship categories are offered on a first-come basis. Please contact SPE to enquire and verify the availability of categories. Existing supporters have the opportunity to renew the same level of support for annual workshops.

**SPONSORSHIP BENEFITS**
In addition to onsite recognition, SPE will recognise sponsors on the SPE website and in all printed materials for the workshop. Based on the category selected, supporting companies also receive logo visibility on promotional workshop items.

**FOR MORE INFORMATION**
For a detailed list of available sponsorship opportunities, including benefits and pricing, contact Hanna-Rose Abdul Jalil at hajalil@spe.org.
REGISTRATION FORM

SPE Member: [ ] Yes [ ] No  NACE Member: [ ] Yes [ ] No

Membership No. ______________________________________________
Name: ___________________________________________________________________________________________________________________
(First / Forename)   (Middle)   (Last / Family Name)
Position: __________________________________________________________________________________________________________________
Company: _________________________________________________________________________________________________________________
Address: __________________________________________________________________________________________________________________
Town/City: ______________________________ Zip/PostalCode:_______________________________ Country: _________________________________
Tel:____________________________________ Fax:________________________________________ Email: ____________________________________

Would you be willing to give a brief (10-15 minutes) presentation _______(Yes/No)? If yes, please attach the topic with a short abstract of your proposed presentation. One of the Programme Committee members will contact you to discuss your presentation.

Important: Registrants for SPE Workshops are accepted on the basis of information submitted by each registrant.

Technical Disciplines (Check One)
☐ Drilling ☐ Health, Safety, Security, Environment and Social Responsibility
☐ Completions ☐ Production and Operations
☐ Management and Information ☐ Reservoir Description and Dynamics
☐ Projects, Facilities and Construction

Primary Responsibility (Check One)
☐ Drilling ☐ Economics ☐ Geology ☐ Geophysics ☐ Management
☐ Operation ☐ Production ☐ Reservoir ☐ Surveillance ☐ Other: ____________________

List background and experience. (Use additional paper if required).

List your expectation for the Workshop, so that the committee can tailor a portion of the Workshop to answering attendees’ concerns. (Use additional paper if required).

Registration Fees
Please tick appropriate box

Super Early Bird Registration BY  25 August 2017 ☐ Early Bird Registration BY  29 September 2017 ☐ Registration AFTER  29 September 2017 ☐

Workshop (30 - 31 Oct 2017) ☐ US$1,500.00 ☐ US$1,700.00 ☐ US$1,600.00 ☐ US$1,800.00 ☐ US$1,700.00 ☐ US$1,900.00

GROUP REGISTRATIONS AVAILABLE - Please contact us at spekl@spe.org

Note: Fee includes workshop sessions, workbook, certificate, daily luncheons and coffee breaks. Registration fees do not include accommodation.

Cancellation Policy:
a) A processing fee of USD150.00 will be charged for cancellation received thirty (30) days prior to the first day of the workshop.
b) 25 % refund will be made for cancellation received between twenty nine (29) - fifteen (15) days prior to the first day of the workshop.
c) No refund on cancellation received fourteen (14) days prior to the first day of the workshop.
d) No refund will be issued if a registrant fails to show up on-site.

This form may be used as a company invoice. Mail completed registration form with remittance and any supporting material to:
Society of Petroleum Engineers
Suite 12.01, Level 12, Menara IGB, Mid Valley City
Lingkaran Syed Putra, 59200 Kuala Lumpur, Malaysia.
Tel : 60.3.2182.3000    Fax : 60.3.2182.3030
E-mail: spekl@spe.org