

SPE/NACE WORKSHOP:

# Corrosion Management in Oil & Gas Production Assets

30 SEPTEMBER – 1 OCTOBER 2019

DOUBLETREE BY HILTON SUKHUMVIT BANGKOK, THAILAND



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 presence in the flow stream, be it CO<sub>2</sub>, H<sub>2</sub>S, water or chloride. Every operator in the world today is facing the challenges of extending the life of their aging assets which are often degraded by corrosion which poses well integrity risks. Meanwhile, new green field development tapping hydrocarbon are confronted by highly corrosive contaminants as the 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 hydrocarbon in place via enhanced oil recovery while the cost pressure to give the go-ahead for new project development with limited budget while ensuring long term well integrity remains obvious. Corrosion assessment, its management, the use of mitigation and monitoring techniques, non-conservative material selection, availability of new, cost effective material to substitute exotic, expensive materials play a vital role in keeping the operational costs at optimum level.

## Session Highlights

Asset Integrity Lessons Learnt - Part 1: Role of Corrosion and Erosion-Corrosion in Downhole and Surface Facilities in Upstream Installations

Asset Integrity Lessons Learnt - Part 2: Role of Corrosion Issues in Gathering and Transmission Pipelines

Practicality on the Use of Corrosion Resistant Alternate Materials and Issues Affecting its Use: Are They Really Immune to Corrosion?

Innovative Chemical Treatment for Corrosion Protection

Advanced Coating /Painting for Internal and External Corrosion Protection

New Industry Approaches and Standards in Corrosion and Integrity Management

Corrosion Monitoring and Inspection Tools for Downhole and Pipelines

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FOR SUPER EARLY BIRD DISCOUNT!**

## Who Should Attend

Professionals involved in:

- Completion Engineering
- Corrosion Engineering
- Corrosion Management and Assessment
- Corrosion Monitoring Techniques and Tools
- Drilling Engineering
- Integrity Management
- Metallurgical Engineering
- Material Engineering
- Petroleum Engineering
- Production Engineering
- Production Technology
- Project Management
- Steel Mills (downhole technologies)
- Well Intervention Engineering
- Wellhead/Well Services

## Technical Programme Committee

### CO-CHAIRS

**Suchada Punpruk**  
Team Leader,  
Metallurgy and Corrosion  
PTT Exploration and Production  
Public Company Limited (PTTEP)

**Wardi Othman**  
Principal Well Intervention  
PETRONAS Carigali Sdn Bhd

**Carlos A. Palacios T.**  
President  
CIMA-TQ, LLC

### COMMITTEE MEMBERS

**Yuttanant Boonyongmaneerat**  
Deputy Director - Metallurgy and  
Materials Science Research Institute  
(MMRI)  
Chulalongkorn University

**Matina Thammachart**  
Senior Engineer - Corrosion,  
Maintenance & Inspection  
Department  
PTT Exploration and Production  
Public Company Limited  
(PTTEP)

**Tom Pickthall Jr**  
President  
EnhanceCo Inc

**Sith Kumseranee**  
Senior Corrosion Engineer -  
Facility Engineering Department  
PTT Exploration and Production  
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(PTTEP)

**Douglas Bennet**  
Manager - Microbiology SE Asia  
Intertek

**Siriporn Daopiset**  
Production Engineering  
Department, Faculty of Engineering  
King Mongkut's University of  
Technology North Bangkok

**Songsak Klamklang**  
New Product Development and  
Technology Commercialisation  
Manager  
SCG Chemicals Co., Ltd

**Chua Hing Leong**  
Staff Engineer  
PETRONAS Carigali Sdn Bhd

**Alyn Jenkins**  
Global Asset Integrity Manager  
Schlumberger

**Robin Kueh Jing Zhi**  
Production Technologist  
PETRONAS Carigali Sdn Bhd

**Jane Lim**  
Technical Solutions Engineer  
Shawcor

**Steven Huang Chii Seen**  
Well Intervention Engineer  
PETRONAS Carigali Sdn Bhd

**Dumrong Chuachawna**  
ASEAN Industry Manager - E&P  
Suez Water Technologies and  
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**Kosin Pongsupamongkon**  
Manager - Inspection and Corrosion  
Section, Maintenance  
& Inspection Department  
PTT Exploration and Production  
Public Company Limited (PTTEP)

### WORKSHOP ADVISOR

**Gary Ong Swee Hong**  
Subject Matter Expert (SME) - OCTG  
PETRONAS Carigali Sdn Bhd  
Member, SPE Asia Pacific Regional Technical Advisory Committee

## Workshop Objectives

The second edition of this joint workshop features collaborative efforts and strengths of both SPE and NACE in addressing key issues and advancement in the field as we uncover new best practices and industry standards across multiple disciplines as well as new materials and digital technologies to solve corrosion-related challenges that will ultimately maximise recovery and achieve long-term cost reduction.

### WORKSHOP STATISTICS



**10+**  
hours of peer-to-peer  
networking opportunities



**20+**  
hours of knowledge sharing  
and technical discussion



**30**  
expert-led technical  
discussion topics



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## Technical Programme Preview

### MONDAY, 30 SEPTEMBER 2019

0800 – 0850 Arrival of Delegates and Registration

0850 – 0900 Safety Announcement by Hotel

0900 – 1000 **Session 1: Welcome and Introduction and Keynote Address**

Co-Chairs: Suchada Punpruk, **PTT Exploration and Production Public Company Limited (PTTEP)**; Wardi Othman, **PETRONAS Carigali Sdn Bhd**; Carlos A. Palacios, **CIMA-TQ, LLC**

1000 – 1030 Group Photo / Coffee and Tea Break

1030 – 1230 **Session 2: Asset Integrity Lessons Learnt - Part 1: Role of Corrosion and Erosion-Corrosion in Downhole and Surface Facilities in Upstream Installations**

Session Managers: Carlos A. Palacios, **CIMA-TQ, LLC**; Alyn Jenkins, **Schlumberger**

Corrosion downhole in oil and gas wells and surface equipment constructed from carbon steel, generally occurs due to the presence of acidic gases (H<sub>2</sub>S and CO<sub>2</sub>) or organic acids in the production streams. In addition, solids can cause erosion-corrosion of downhole tubulars and surface pipework if sufficient gas or liquid velocity exists. Surface or topsides pipework and separation equipment can also suffer from corrosion due to bacteria activity. To control downhole and surface corrosion, several technologies are available including corrosion resistant alloys, coatings, biocides, H<sub>2</sub>S scavengers, and corrosion inhibitors. This session will discuss key lessons learnt in mitigating corrosion and erosion-corrosion downhole in oil and gas wells as well as surface facilities.

1230 – 1330 Networking Luncheon

1330 – 1530 **Session 3: Asset Integrity Lessons Learnt - Part 2: Role of Corrosion Issues in Gathering and Transmission Pipelines**

Session Managers: Matina Thammachart, Sith Kumseranee, **PTT Exploration and Production Public Company Limited (PTTEP)**

The gathering and transmission pipeline businesses today have gained years of operational experience.

This, combined with access to advanced in-line inspection tools, improved chemical treatment effectiveness, using CRA material and systematic pipeline integrity management system, is key to ensure all corrosion threats are effectively mitigated and pipelines are in good operational conditions. However, pipeline failure due to sand erosion and corrosion have continued to occur around the world. What lessons can we learn from these incidents with the use of CRA material?

This session will discuss lessons learnt from field experiences and failures, and concludes with some guidance for all engineers in the pipeline business.

1530 – 1545 Coffee and Tea Break

1545 – 1745 **Session 4: Practicality on the Use of Corrosion Resistant Alternate Materials and Issues Affecting its Use: Are They Really Immune to Corrosion?**

Session Managers: Robin Kueh Jing Zhi, **PETRONAS Carigali Sdn Bhd**; Siriporn Daopiset, **King Mongkut's University of Technology North Bangkok**

The oil and gas industry always strives for longevity in their assets, by using corrosion resistant alloys and alternative materials like fibre-reinforced plastics. However, the results from the usage are mixed, and is not as successful as expected. This session will focus on the practicality of these materials' usage in corrosive environment, and the conditions where the materials fail to serve its purposes.

1745 – 1845 **Session 5: Poster Session**

1845 onwards Welcome Dinner

### 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 name
- 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 **Renee Wong** at [rwong@spe.org](mailto:rwong@spe.org) by **Friday, 26 July 2019**.

The Society of Petroleum Engineers (SPE) is a not-for-profit organisation. Income from this event will be invested back into SPE to support many other Society programmes. When you attend an SPE event, you help provide even more opportunities for industry professionals to enhance their technical and professional competence. Scholarships, certification, the Distinguished Lecturer programmes, and SPE's energy education programmes Energy4me are just a few examples of programmes that are supported by SPE.

**TUESDAY, 1 OCTOBER 2019**

0830 – 1030

**Session 6: Innovative Chemical Treatment for Corrosion Protection**

Session Managers: Douglas Bennet, **Intertek**; Songsak Klamklang, **SCG Chemicals Co., Ltd**; Dumrong Chuachawna, **Suez Water Technologies and Solutions**

This session will discuss innovative chemical treatment in the oil and gas industry for corrosion protection. The session will review chemicals used in the industry which are essential for a safe and continued operations of oil and gas production. The application of chemicals covers multiple parameters and conditions (temperature, pressure, shear stress, pH, water cut, volatility, storage, handling, compatibility and so on) which can be very challenging. Innovative approaches in the utilisation of chemicals within challenging environments to mitigate corrosion will also be discussed. This session will focus on the two main groups of chemicals in upstream oil and gas, which include:

- Production – demulsifiers, defoamers, water clarifiers, hydrate inhibitors, paraffin/ashphaltene inhibitors, scale inhibitors, surfactants
- Integrity – corrosion inhibitors, biocides, H2S and oxygen scavengers

1030 – 1045

**Coffee and Tea Break**

1045 – 1245

**Session 7: Advanced Coating / Painting for Internal and External Corrosion Protection**

Session Managers: Jane Lim, **Shawcor**; Yuttanant Boonyongmaneerat, **Chulalongkorn University**

There is greater focus and demand for coatings to withstand extreme environments and protect pipelines from corrosion and wear. New oil and gas developments are seeing higher temperature environments. The operating conditions introduce new challenges and require increasingly advanced and innovative coating technologies for internal and external corrosion protection, and resistance to erosion. Another key challenge faced by operators is the performance and longevity of the coating system. As pipelines age over time, the coating will age and deteriorate as a natural consequence due to exposure to different environments. To ensure good coating performance, an adequate (and optimal) level of surface preparation and application of the coating is required, taking into consideration the current best practices and lessons learnt.

This session will focus on:

- Innovative external pipeline coating / painting of surface facilities / Oil Country Tubular Goods (OCTG)
- Innovative internal coating of well tubing, flowlines and gathering lines
- Advanced techniques for internal / external coating inspection
- Best practices from petrochemical plants (processed steel – high temperature)
- Best practices and lessons learned for application of external pipeline coating, internal coating for corrosion control of well tubing, flowlines and gathering lines
- Coating failure investigation
- Coating life extension and review life cycle costs

1245 – 1345

**Networking Luncheon**

1345 – 1545

**Session 8: New Industry Approaches and Standards in Corrosion and Integrity Management**

Session Managers: Muzdalifah Zakaria, **PETRONAS Research Sdn Bhd**; Mohamed Abouzour, **Suez Water Technologies and Solutions**

With ageing assets and facilities, innovative solutions and out of the box approaches are required in order to improve the way integrity assessment and management is being implemented. Adoption of new technologies that can reduce operating cost is critical for the industry to survive in the current challenging environment. Furthermore, artificial intelligent and data analytics are seen as potential game changers for asset integrity management as this digital revolution allows process automation, generation, integration and interpretation of big data that can assist in decision-making and thus reduce business risks.

In line with this theme, this session will cover the following topics:

- Direct assessment methodologies for risk-based inspection and integrity assessment
- Roles of corrosion prediction models vs actual corrosion rate
- Integrity assessment and management for pipeline, downhole, process facilities
- Artificial intelligence, machine learning, data science and analytics
  - New approaches for pipeline cathodic protection monitoring such as online tools/programming
  - Corrosion prediction
- Integrity assessment of non-metallic pipeline/structure

1545 – 1600

**Coffee and Tea Break**

1600 – 1800

**Session 9: Corrosion Monitoring and Inspection Tools for Downhole and Pipelines**

Session Managers: Tom Pickthall Jr, **EnhanceCo Inc**; Chua Hing Leong, **PETRONAS Carigali Sdn Bhd**; Huang Chii Seen, **PETRONAS Carigali Sdn Bhd**; Kosin Pongsupamongkon, **PTT Exploration and Production Public Company Limited (PTTEP)**

Monitoring is the primary and most critical element in corrosion management. In addition to mitigating direct costs, corrosion monitoring also reduce risks to safety and environment by detecting weak spots before they fail or leak. This session will discuss current corrosion evaluation methods and its monitoring of internal and external corrosion phenomena in the tubing and distribution pipelines with the objective of detecting quantitative metal loss or penetration.

1800 – 1830

**Session 10: Workshop Summary and Closing Remarks**

Co-Chairs: Suchada Punpruk, **PTT Exploration and Production Public Company Limited (PTTEP)**; Wardi Othman, **PETRONAS Carigali Sdn Bhd**; Carlos A. Palacios, **CIMA-TQ, LLC**

**SPONSORSHIP SUPPORT INFORMATION**

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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**

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**GENERAL INFORMATION****DOCUMENTATION**

- Proceedings will not be published; therefore, formal papers and handouts are not expected from speakers.
- Work-in-progress, new ideas, and interesting projects are sought.
- Note-taking by attendees is encouraged. However, to ensure free and open discussions, no formal records will be kept.

**WORKSHOP DELIVERABLES**

- The committee will prepare a full report containing highlights of the Workshop and the report will be circulated to all attendees.
- Powerpoint presentations will be posted online and provided to attendees after the Workshop. Provision of the materials by Discussion Leaders will signify their permission for SPE to do so.

**COMMERCIALISM**

In keeping with the Workshop objectives and the SPE mission, excessive commercialism in posters or presentations is not permitted. Company logos must be limited to the title slide and used only to indicate the affiliation of the presenter.

**ATTENDANCE CERTIFICATE**

All attendees will receive a Workshop attendance certificate. This certificate will be provided in exchange for a complete Attendee Survey Form.

**CONTINUING EDUCATION UNITS**

This Workshop qualifies for SPE Continuing Education Units (CEU) at the rate of 0.1 CEU per hour of the Workshop.

**TRAVEL/VISA**

Attendees are advised to book their airline tickets early. All travellers must be in possession of passports valid for at least six (6) months with proof of onward passage. Contact your local travel agent for information on visa requirements.

**DRESS CODE**

Business casual clothing is recommended. The Workshop atmosphere is informal.

**REGISTRATION FEE**

- Registration fee ONLY includes all workshop sessions, coffee breaks and luncheons for the registrant. Accommodation is NOT included.
- SPE will provide details of recommended hotels upon receipt of your registration.
- Taxes: Registration Fees are made free and clear of, and without any deduction or withholding for and on account of, any taxes, duties or other deductions. Any such deduction or withholding, if required by the laws of any country are the sole responsibility of the Participant.

**REGISTRATION POLICY**

- Registration fee MUST be paid in advance for attending the Workshop.
- Full fixed fee is charged regardless of the length of time the registrant attends the Workshop, and cannot be prorated or reduced for anyone.

# REGISTRATION FORM

SPE/NACE WORKSHOP:  
**Corrosion Management in Oil & Gas Production Assets**  
 30 September – 1 October 2019 | Bangkok, Thailand



ATTENDEE INFORMATION					
SPE/NACE Member	<input type="checkbox"/> Yes	<input type="checkbox"/> No	Membership Number		
First Name			Last Name/Family name		
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Company Name					
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**Do you wish to be considered a Discussion Leader (10-15 minutes presentation)?**  Yes  No  
 If yes, please indicate the subject/topic on which you would like to present:

**Please state your Technical Discipline (Select one ONLY):**

Completions     
  Drilling     
  Health, Safety and Environment     
  Management and Information  
 Production and Operations     
  Reservoir     
  Projects, Facilities and Construction

**Please state your expectation for the Workshop, so that we can tailor a portion for the Workshop to answer attendees' concerns**

**By registering to attend this event, you consent to allow SPE to store and process the information submitted above and to provide you with information about this event.**

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REGISTRATION CATEGORY						
Description		Fee Per Person			Tick (✓)	Amount (USD)
		Super Early Bird by 26 July	Early Bird by 30 August	Standard after 30 August		
Workshop	SPE/NACE Member	USD 1,500	USD 1,600	USD 1,700		
	Non-Member	USD 1,700	USD 1,800	USD 1,900		
<b>TOTAL AMOUNT (USD)</b>						

**TERMS & CONDITIONS**

**Registration Fee**

- Fee includes workshop sessions, workbook, certificate, daily luncheons and coffee breaks.
- Fee DOES NOT include accommodation. SPE will provide details of recommended hotels upon receipt of your registration.
- Registration of participant will only be confirmed upon registration and receipt of full payment or an acceptable employer's letter of guarantee.
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- Registration cancelled between fifteen (15) days to twenty-nine (29) days prior to the first day of the event will be refunded 25% of the registration fees.
- Registration cancelled fourteen (14) days or less prior to the first day of the workshop will not be eligible for a refund.
- Participant who failed to attend will not be eligible for a refund.
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