Discover Advancements in Nonmetallic Applications

NACE® INTERNATIONAL

Nonmetallics Conference 2018

15 - 18 October 2018 | Muscat, Oman | Oman Convention and Exhibition Centre

nonmetallics.nace.org

NACE Nonmetallics Conference Director
Husam Al Jahdhami
Engineering Function Director
Petroleum Development Oman (PDO)

Seen to many as a cost-effective solution to corrosion problems in oil and gas, nonmetallics have grown in popularity as an essential resource for combating corrosion. The new **NACE Nonmetallics Conference** will give a unique look at the expanded use, advancements in technology, and potential applications of nonmetallics for corrosion mitigation.

The conference will feature technical presentations from formal papers on the following topics:

Qualification, Testing, Inspection and Service Life Estimation

- Qualification and testing
- Nonmetallic system revalidation methods
- Life expansion of old nonmetallic
- Inspection techniques and challenges

Design, Installation and Construction

- Nonmetallic systems design challenges
- Construction challenges and limitations
- Composite repairs
- Nonmetallic product degradation mechanisms
- General mode of failures in non-metallic materials and solutions

Emerging Technologies

- Advancement in the technology for the use of nonmetallic in high temperature and high-pressure applications
- Use of nonmetallic in sour media and gas

Committee Members

Conference Committee

Conference Director: Mr. Husam Al Jahdhami, Engineering Function Director, PDO
Conference Chairman: Mr. Nasser Al Behlani, Materials and Integrity Manager, PDO

Technical Program Committee

Chairman: Mr. Vincenzo Savino, ConocoPhillips
Vice Chair: Dr. Adel Badghaish, Saudi Aramco
Members: Dr. Talal Al Nabhani, PDO
Mr. Rama Ramanahalli, PDO
Dr. Gasem Fallatah, NACE International

Keynote Speakers

The Technical Program is now available. Join the NACE Nonmetallics Conference in the Middle East to hear from the keynote speakers as they present on:

Nasser Al Behlani
Materials and Integrity Manager
Petroleum Development Oman (PDO)
Topic: PDO Journey for the Use of Non-metallic Materials

An engineering graduate with over 30 years' experience in the world of material engineering and corrosion management. Mr. Al Behlani was involved in the early stages of development and deployments of non-metallic materials in oil and gas facilities. He was also involved in and oversaw the step changes in the utilization of non-metallic material overcoming applications challenges. He is an authority in transforming the use of non-metallic materials whether it is GRE, HDPE or CFP, from the standards application to highly aggressive environments with high temperature, high pressure sour services. Nasser is the author and co-author of numerous papers and presented the topic in a number of international symposiums and forums.

Ahmed Al Khowaiter
Chief Technology Officer
Saudi Aramco
Topic: Non-metallics for Oil & Gas and Beyond

Mr. Al Khowaiter is Saudi Aramco's Chief Technology Officer. He held the position of Saudi Aramco Chief Engineer from 2011 to 2014, and Executive Director of Power Systems in 2014 before assuming his present role. Mr Al Khowaiter holds a B.S. degree in Chemical Engineering from the King Fahd University of Petroleum & Minerals (KFUPM), an M.S. degree in Chemical Engineering from the University of California at Santa Barbara, and an MBA degree as a Sloan Fellow from the Massachusetts Institute of Technology.

David Reid
Chief Marketing Officer
NOV – Fiber Glass System
Topic: Motivations for Material Change

Mr. Reid is the Chief Marketing Officer for NOV, where he develops the global market and strategic engine. David joined Varco International in 1992 and has lived in Scotland, California, and Houston covering roles in service, operations, design, business and product development, leadership, and management. He serves on the NOV and Schlumberger IntelliServ Joint Venture Board and in IADC and SPE leadership positions. David has influenced modern rig and equipment design and the pioneering of drilling automation and oilfield digitization.

Technical Program

	MONDAY, 15 OCTOBER	
7 a.m. - Onward	**Registration**	
8:30 –11:30 a.m.	**Workshop 1** **Spoolable Reinforced Thermoplastic Pipeline Systems** Presented by Andrew Ethridge, FlexSteel Pipeline Technologies, Inc.	**Workshop 2** **Thermoplastic Liner System Adaptations for Sour Service Hydrocarbon Applications** Presented by Derek Lowth, United Special Technical Services LLC
1:00 – 4:00 p.m.	**Workshop 3** **Design and Construction of GRE Piping** Presented by Jereon van Brakel, NOV Fiber Glass Systems	**Workshop 4** **Composite Repair Technology** Presented by Buddy Powers, Clock Spring Company, INC
7:30 – 9:30 p.m.	**Conference Opening Reception**	
	TUESDAY, 16 OCTOBER	
7 a.m. - Onward	**Registration**	
8:00 – 8:10 a.m.	**Welcome Remarks, Introduction, Conference Background**	
8:10 – 8:55 a.m.	**KEYNOTE SPEAKER** **PDO Journey for the use of Non-metallic Material** Presented by Nasser Al Behlani, Materials and Integrity Manager, Petroleum Development Oman (PDO)	
8:55 – 9:20 a.m.	**Comparative Life Cycle Analysis of Reinforced Thermoplastic and Carbon Steel Pipes for Crude Flowline Applications** Presented by Abdullah Alzubail, Saudi Aramco	
9:20 – 9:45 a.m.	**Life Extension Study of High Pressure GRE Pipes** Presented by Imran Al Kharusi, Petroleum Development Oman (PDO)	
9:45 – 10:20 a.m.	**Opening of the Exhibit & Exhibition Visit and Morning Coffee Break**	
10:20 – 10:45 a.m.	**Best Practices for Successful Application of Composites in Process Piping and Tanks** Presented by Michael Yee, RTConsults PLLC	
10:45 – 11:10 a.m.	**Long Term Testing Designed to Predict Long Term Performance of Glass Reinforced Epoxy (GRE) Pipe** Presented by David Granderson, NOV – Fiber Glass System	
11:10 – 11:35 a.m.	**Permeation Resistant Flexible Composite Pipes** Presented by Robbert Laan, SoluForce	
11:35 a.m. – noon	**HDPE, RTP & RTR Non-Metallic Piping** Presented by Faisal Al-Harbi, Saudi Aramco	
noon – 1:15 p.m.	**Lunch/ Prayer and Exhibition Visit**	
1:15 – 1:40 p.m.	**Innovative Solutions for Middle East Flexible Pipe** Presented by Hayrani CIFTCI, Arkema	
1:40 – 2:05 p.m.	**Integrity Assessment of GRE Piping** Presented by Mossab Al Ahmad, Petroleum Development Oman (PDO)	
2:05 – 2:30 p.m.	**Technologies for Inspection under Nonmetallic Field Repairs** Presented by Fadhel Al Asfoor, Saudi Aramco	
2:30 – 2:55 p.m.	**Phased Array Ultrasonic Pipe Inspection of Polyethylene (PE) Welded Joints** Presented by Amir Khamsehnezhad, TWI Ltd	
2:55 – 3:20 p.m.	**Microwave Testing Technology: An Emerging Non-Destructive Tool for Examination and Evaluation of Fiber Reinforced Materials** Presented by Shantanu Saha, Intertek - Inspect	

Technical Program

3:20 – 3:40 p.m.	**Afternoon Coffee Break/ Prayer and Exhibition Visit**
3:40 – 4:05 p.m.	**Advancement in Technology of Engineered Elastomers for High Temperature Enhanced Oil Recovery** Presented by Stuart Rothnie and Himanshu Verma, Rubber Atkins
4:05 – 4:30 p.m.	**Advanced Polymeric Materials for Upstream Applications** Presented by Wael Badeghaish, Saudi Aramco
	WEDNESDAY, 17 OCTOBER
7 a.m. - Onward	**Registration**
8:00 – 8:45 a.m.	**KEYNOTE SPEAKER** **Non-metallics for Oil & Gas and Beyond** Presented by Ahmed Khowaiter, Chief Technology Officer, Saudi Aramco
8:45 – 9:10 a.m.	**Composite Repairs Qualification and Application in Oil & Gas Industry Piping and Pipelines** Presented by Ramachandrappa Ramanahalli, Petroleum Development Oman (PDO)
9:10 – 9:35 a.m.	**A Compliant Solution for Repairing Corroded High Temperature Piping with Composite Material** Presented by Matt Green, NRI
9:35 – 10:00 a.m.	**Rigless Repair of Outer Surface Casing of Landing Base Using a Non-Metallic Repair Solutions - An Innovative** Presented by Shaj Manjalivalapil, Saudi Aramco
10:00 – 10:20 a.m.	**Exhibition Visit and Morning Coffee Break**
10:20 – 10:45 a.m.	**Developments in Non-metallic Reinforcement of Structures Utilizing Composite Materials** Presented by Stuart Mckay, IMG Composites Ltd
10:45 – 11:10 a.m.	**Delivering a Compliant Repair in a Non-Compliant Situation** Presented by Peter Johnson, Belzona
11:10 – 11:35 a.m.	**Composite Repair** Presented by Faheem Ullah, Safari Oil & Gas
11:35 a.m. – noon	**The Right System for the Right Application** Omar Eid, Safe & Shield
12:10 – 1:15 p.m.	**Lunch/Prayer and Exhibition Visit**
1:15 – 1:40 p.m.	**Nonmetallic Distilled Water Underground Pipeline Inspection Challenges** Presented by Ali Meshaikhis, Saudi Aramco
1:40 – 2:05 p.m.	**Use Polyethylene Liner as Corrosion Barrier for Carbon Steel Pipelines and Flowlines** Presented by Eivind Fagerli, Petroleum Development Oman (PDO)
2:05 – 2:30	**Breathing New Life into Aging Infrastructure; Development and Installation of a First-of-its Kind Polyamide 12 (PA12) Safety Liner** Presented by Daniel Demicoli, Evonik
2:30 – 2:55	**Changing Well Operating Economics with New Technical Advancements in Thermoplastic Lined Tubulars** Presented by Robert Davis, Western Falcon
2:55 – 3:20	**Deployment of Nonmetallic Piping and In-Service Inspection Challenges** Presented by Thamer Bahkly, Saudi Aramco
3:20 – 3:40	**Afternoon Coffee Break/Payer and Exhibition Visit**
3:40 – 5:00	**Panel Discussion:** **Perspective of the Use of Nonmetallic Materials Components in the Middle East Oil and Gas and Petrochemical Industries**

Technical Program

	THURSDAY, 18 OCTOBER
7 a.m. - Onward	**Registration**
8:00–8:45	**KEYNOTE SPEAKER** **Motivations for Material Change** Presented by David Reid, Chief Marketing Officer, NOV
8:45–9:10	**Overview of FRP Applications in Chlorine Plants** Presented by Guy Schneider, Ashland Technologies GmbH
9:10–9:35	**Six Types of GRP Intake and Out Fall Piping Installations in Offshore Conditions** Presented by Sadath Khan, ISECC / Amiantit
9:35–10:00	**Enhanced Jointing Techniques for High Pressure Oilfield Pipelines** Presented by Hassan Darwich, Future Pipe Industries
10:00–10:20	**Exhibition Visit and Morning Coffee Break**
10:20–10:45	**Utilization of Spoolable Composite Pipe for Steel Pipe Remediation** Presented by Otto Comin, Shawcor
10:45–11:10	**Selecting the Proper Polymers for Reinforced Thermoplastic Pipes and Tubing (RTP) And Protocol for Ongoing Integrity Assurance for More Severe Oilfield Environments** Presented by John Wright, Specialty RTP
11:10–12:25	**Panel Discussion:** **Role of Advanced Nonmetallic Materials in Oil, Gas & Petrochemical Industries s**
12:25–12:30	Closing and Awarding
12:10–1:15	**Lunch/Prayer**

Workshops

Spoolable Reinforced Thermoplastic Pipeline Systems

Presenter: Andrew Ethridge, FlexSteel Pipeline Technologies, Inc.

ABSTRACT:
Spoolable reinforced thermoplastic pipeline systems for onshore and shallow water applications were developed in the early 1990s as a response to the severe corrosion of oilfield fluids on carbon steel linepipe. Since then, multiple spoolable pipe technologies have been commercialized enabling long distances to be covered by a single continuous length of pipe. The thermoplastic inner and outer layers of the reinforced spoolable pipes provides long-term corrosion resistance. The reduced number of joints, compared to welded steel pipes, greatly minimizes the number of potential leak paths and the pipe can be installed far more quickly.

This workshop details different spoolable pipe technologies and how they are manufactured, transported, installed, and monitored for integrity. Standards for spoolable reinforced thermoplastic pipe are reviewed with focus on API SPEC 15S. Several case studies are presented to demonstrate the successful use of spoolable pipelines in a variety of projects worldwide: rehabilitation of steel aged pipes, gas gathering systems, oil and gas flowlines and water injection lines.

Thermoplastic Liner System Adaptations for Sour Service Hydrocarbon Applications

Presenter: Derek Lowth, United Special Technical Services LLC

ABSTRACT:
Thermoplastic liner systems for carbon steel pipelines are well known and widely used as an effective solution to internal corrosion and abrasion. In hydrocarbon service, liner usage has been limited by concerns related to gas permeation, how to deal with permeated sour gas, and requirements for additional connection points along the pipeline. If the liner system can be adapted to deal with these concerns, it becomes a cost-effective alternative to other solutions such as stainless-steel piping, corrosion resistant alloy cladding or ongoing chemical injection programs. The adaptations considered here result in a liner system that can be considered collapse resistant or collapse proof without the need for any venting of permeated gases in the annular space. One system uses a compression fit grooved liner and flangeless midpoint welded connections to provide a continuous path for permeated gases to travel to the reinjection point. The gases may then be reinjected into the flow stream creating a closed loop system and also confirming that annular gas pressures cannot approach any critical collapse pressure. Another system involves the use of advanced thermoplastics which can be designed to be collapse resistant even at full annular pressures. Characteristics of the materials, fit of the liner, and operation are key items to consider in the design. This paper details the thermoplastic liner system and these adaptations and includes some case studies illustrating their use.

Design and Construction of GRE piping Systems

Presenter: Jereon van Brakel, NOV Fiber Glass Systems

- NOV FGS Introduction
- Markets we serve
- Pipe Production methods
- Pipe design/system design
- Applications in Oil & Gas
- Products serving the Oil & Gas markets
- Joint types explained
- Applications in Marine & Offshore
- Products serving the Marine & Offshore markets
- Joint types
- Applications in Chemical & Industrial
- Products serving the Chemical & Industrial markets
- Above ground and buried installation considerations
- Installation methods include videos

Workshops

Composite Repair in Oil & Gas Industry
Presenter: Buddy Powers, Clock Spring Company, INC
ABSTRACT:
The composite repair workshop will focus on industry standards and guidelines, installation requirements, key variables, critical research on applications of composite material for wrinkle bends, crack, girth weld threats, class location upgrades and in-depth review of ASME and ISO standards, as well as upcoming innovations with composite materials.

As an industry, it is imperative that composite materials be properly designed and installed to ensure adequate performance. When composite materials do not perform as designed, the primary cause has often been associated with improper installation techniques. This workshop will review the process from developing design calculations to managing quality control at the installation of the composite materials. A review of the process from the training and development of contractor expertise to quality control systems during the installation. In addition, the industry is recognizing the lessons which are learned from a root causes failure assessment.

Additionally, with the increased use of composite materials for reinforcing anomalies other than just corrosion and dents, it is important that each repair be properly designed for the loads and conditions to which it will be subjected. Non-corrosion anomalies that has been repaired using composite materials include wrinkle bends, bends, branch connections, girth welds, and leaks.

Why Should You Attend?

- Learn from the industry leaders on the best practices and success stories when using nonmetallics.
- Make connections with materials engineers, integrity managers, facility managers, and more.
- Discover the latest products and services in nonmetallic application.

REGISTER NOW

Regular Registration	
NACE Member	$500 USD
Non-Member	$600 USD

One-Day Registration	
NACE Member	$350 USD
Non-Member	$450 USD

Registration includes:

- Attendance to 1 workshop
- Attendance to all technical presentations
- Attendance to Opening Dinner Ceremony on October 15
- Conference kits
- Morning & afternoon breaks and buffet lunch on Tuesday to Thursday

DOWNLOAD REGISTRATION FORM

Hotel Recommendations

Crowne Plaza Muscat OCEC
Al Jamah Al Akbar Street,
Madinat Al Irfan, Muscat, Oman
Tel: +968 2425 2000

Radisson Collection Hotel, Hormuz Grand Muscat
PO Box 128, Seeb, PC 111
Muscat, Oman
Tel: +968 2435 0500

Sundus Rotana
Al Maardih Street,
Seeb, PC 111
Muscat, Oman
Tel: +968 24 511 800

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