



ICORR ABERDEEN BRANCH 2021/2022 PROV. PROGRAMME OF EVENTS

REV 3. 09/02/2022



Date	Event Type	Company / Speaker (s)	Topic (s)	Time	Location
August 2021	ACF 2021	TRAC – Various speakers	Annual Corrosion Forum Agenda to be announced later but will include Corrosion Awareness Talks and Practical Demonstrations in TRAC Workshops.	Socially distanced All day event. Prog.	TRAC office – PPE will be supplied. See link for the slides
Tuesday 28/09/2021	Joint Meeting with TWI	Sonomic Ian Daniel / Matthew Beatty	In-Service Ultrasonic Tank Floor Inspections This paper will outline selected recent highlights from the Semonic Storage Tank Division: <ul style="list-style-type: none"> Introduction to Robotic systems used in Storage Tanks while still in service. Explanation of safety systems used to safely deploy robots in Above ground Storage Tanks (AST) while they remain online and full of product. A summary of Ultrasonic data collected, and software developed to assist with analysis and reporting activity. Case study of a Storage Tank that required in service inspection 	18:00: Finish* at 19:30	Zoom Event (YouTube Link)
Tuesday 26/10/2021	ICorr Technical Event	University of Calgary Professor Y. Frank Cheng	Internal Corrosion of Pipelines: Mechanisms, Modelling and Management Internal corrosion of pipelines is a complex phenomenon, and the complexity arises from the fact that multiple chemical and electrochemical reactions occur simultaneously in the environment where numerous factors affecting the corrosion processes have interrelated each other. A fundamental understanding of the phenomenon is essential to modelling, prediction and management of the corrosion processes, providing recommendations to industry for improved pipeline integrity management. This talk includes contents which are based the author's extensive research experiences and interactions with industry in the last decades. A thermodynamic model was developed to determine the electrochemical anodic and cathodic reactions occurring during internal corrosion of pipelines under given conditions. Parametric effects such as solution pH, CO ₂ partial pressure, temperature, etc. were considered. The corrosion kinetics is quantified by considering the synergism of mass transfer, charge transfer and film formation in the corrosion processes. In addition to uniform corrosion, localized corrosion under deposit is paid much attention. The unique role of microorganism, particularly sulphate-reducing bacteria, in initiation and growth of corrosion pits was investigated. Numerical models were developed by integration of electrochemical corrosion with fluid hydrodynamics in the pipeline, enabling prediction of the location of corrosion occurrence and the corrosion rate over a long-term period of service. In addition to the multi-physics field coupling model for corrosion process simulation, conventional solution chemistry model and fluid mechanics-based model were also proposed for quick evaluation and prediction of internal corrosion rate.	18:00: Finish* at 19:30	Zoom Event (YouTube Link)
Tuesday 30/11/2021	Joint Meeting with IOM3/MIS	Aberdeen Foundries Dr Nigel Owen, B.Sc., D.I.C, PhD, MIMMM, MICorr Operations Manager	Sacrificial Anodes: Material Specifications, Manufacturing and Anode Design for Effective Cathodic Protection systems The materials used for Sacrificial Anode materials are High Purity based metals with very specific alloying requirements and final properties. The base materials, properties & costs of modern sacrificial alloys will be discussed along with the conditions and applications for which they are generally used. Typical process for manufacturing anodes is presented from a metallurgical standpoint, the alloying, testing poring and finishing of various product types used for a multitude of applications. The presentation will move to discuss design of Sacrificial Anode Cathodic Protection systems for a Marine Environment which involves selection of anode configuration, a detailed calculation process, rules of thumb and practical experience to design an effective working system.	18:00: Finish* at 19:30	Zoom Event
December 2021 – No Meeting / Christmas Break					



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Tuesday 25/01/2022	Joint Meeting with EI	University of Leeds Trevor Hughes (Schlumberger Cambridge Research), Evgeny Barmatov (Schlumberger Cambridge Research) and Richard Barker (University of Leeds)	Advanced once-through flow cell methodology for validation of a new 'staged' inhibition approach for matrix acidizing treatments Schlumberger recently introduced and patented a new staged acid corrosion inhibitor (ACI) treatment concept for application in matrix acidizing treatments. The staged treatment concept recognises that treatments which employ a fixed dosage of corrosion inhibitor may not be optimal in terms of their efficiency. The concept proposes staged pumping of a first fluid composition designed to establish a persistent inhibitor film (Stage 1) and a second fluid composition to maintain the film and its associated inhibited corrosion rate (Stage 2). The staged ACI concept has the potential to provide enhanced corrosion protection of wellbore casing and coiled tubing (CT) materials whilst using the same total quantity of inhibitor compared to conventional treatments. In the present paper, a bespoke, electrochemical, millifluidic once-through flow cell was used for validation of the staged ACI concept. A once-through flow cell enables testing in a continuously flowing environment whilst maintaining a fresh acid solution, a controllable supply of inhibitor, and eliminating any contact of the electrode with the atmosphere. The system was used to quantify changes in corrosion behaviour during continuous flow and during transitions from the first to second stage inhibitor dosages, to find optimal inhibitor concentration for film-forming and film maintenance stages and to investigate the effect of metal pre-corrosion on inhibitor performance for carbon steel used as wellbore casing and CT materials.	18:00: Finish* at 19:30	Zoom Event
Tuesday 22/02/2022	ICorr Technical Event	Intertek Production & Integrity Assurance Leo Richards	Implementation of Plan-Do-Check-Act review of an Onshore Oil and Gas Operator's Corrosion Management Policy and Actions HSG-65 alongside the Energy Institutes Corrosion Management Guidelines were used as the basis for the audit of a large onshore Middle Eastern oil field. The purpose of the Study was to perform a detailed review of the corrosion monitoring and mitigation systems and to propose any required upgrades to ensure world class / excellent asset integrity performance. The approach taken to the Study was to follow the UK Health & Safety Executive's guidance for "Managing Health and Safety", HSG65 (2013), of PLAN-DO-CHECK-ACT, which considers both Technical and Systems approaches associated with managing assets safely. This is a closed loop planetary model commencing with a high-level Corporate Policy for health and safety, under which there is a Policy and Plan for managing corrosion and integrity. The model ends with lessons learned which feeds back into the corrosion and integrity Policy and Plan to ensure risks are managed to As Low As Reasonably Practicable (ALARP). The study highlighted a distinct pattern in the working practices of the operator with virtually all of the sections of the corrosion management system being shown to have some form of Plan and Do however the implementation of a Check and Act stage was missing from virtually all aspects.	18:00: Finish* at 19:50	Zoom Event
Tuesday 29/03/2022	ICorr Technical Event	University of Manchester Dr. Robert Lindsay	Corrosion Inhibition: Separating Fact from Fiction For more than a century, surface-active organic species have been employed to control the corrosion of metals/alloys. Given suitable selection, such corrosion inhibitors have proven to be highly effective, preventing significant degradation of metallic substrates even in highly aggressive environments. Nevertheless, there are still considerable gaps in fundamental knowledge of corrosion inhibitor functionality, severely restricting further innovation. For example, corrosion inhibition in acidic solutions is widely reported to be the result of the adsorption of a monolayer of surface-actives. This description, however, can be considered to be largely a cartoon, as there is a significant lack of supporting experimental evidence. Many key details remain uncertain, including the surface chemistry of the inhibited substrate, the structure of the adsorbed layer, and even its surface coverage. Such information is key input for researchers attempting to predict corrosion inhibitor functionality through atomic scale interfacial modelling, and so identify next generation chemistries In this presentation, following an introduction to corrosion inhibition in acidic solutions, I will discuss effort to reveal details of corrosion inhibitor-substrate interactions through detailed interface characterisation. For example, I will discuss recent X-ray photoelectron spectroscopy (XPS) results, indicating that the chemistry of the inhibited interface is dependent on both inhibitor concentration and acid identity. In addition, I will present data demonstrating that surface adsorption is not always sufficient for achieving the target corrosion inhibition efficiency, i.e. it will be shown that a surface-active can be bound to the surface, but not lead to sufficient reduction in corrosion rate. Moreover, I will use XPS data to argue that the widely adopted approach of determining the standard Gibbs energy of adsorption of a corrosion inhibitor from measured inhibitor efficiencies is flawed, and so should not be relied upon as a tool for corrosion inhibitor selection.	18:00: Finish* at 19:50	Zoom Event



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Date	Event Type	Company / Speaker (s)	Topic (s)	Time	Location
Tuesday 26/04/2022	Joint Meeting with AMPP	Presserv Speaker: Dinko Cudic, Global Technical Authority for visco-elastic coatings for pipework and structural steel.	<p>Reducing the environmental footprint for surface preparation and coating application for onshore and offshore assets.</p> <p>Our industry is now accepting the need to find alternative technologies to reduce our waste and CO₂ emissions for steel preparation and coating application.</p> <p>Presserv, and our partner STOPAQ™, have looked at industry requirements and have developed a solution that addresses, waste reduction, the lowering of CO₂ and noise and thermal insulation properties, not previously considered in fabric maintenance and asst integrity solutions. Based on a compound containing non-crystalline, low-viscosity, noncrosslinked (fully amorphous), pure homopolymer Polyisobutene, we will discuss why this technology needs to be considered as a viable option in an industry that requires straightforward maintenance solutions to difficult corrosion problems both onshore and offshore.</p>	18:00: Finish* at 19:50	F2F meeting. Location to be announced later
Tuesday 31/05/2022	ICorr Technical Event + AGM	PIM Martin Worth (Director)	<p>SECEs: it's time for a rethink.</p> <p>The oil and gas industry was shaken to its core on 7/7/88 when 167 people perished in the Piper Alpha disaster. The Cullen inquiry led to safety case regulations being established and we moved to a goal setting safety regime; characterised by the introduction of PFEER and DCR – put in place to ensure that duty holders of offshore installations deal appropriately with the requirements to provide measures to prevent, mitigate and respond to major accidents. Performance standards based around Functionality, Availability, Reliability and Survivability became the norm. Today, these are referred to as Safety and Environmental Critical Elements (SECE) and according to the regulations, can be hardware or software, including management systems.</p> <p>Setting performance standards for certain types of hardware is challenging. A performance standard for a pipe or vessel may state that it shouldn't leak. We shouldn't be waiting for items to leak before we consider them to have failed as SECEs.</p> <p>Hardware shouldn't be the principal SECE. We claim to be carrying out assurance but are doing little more than inspection. This incorrectly leaves the assurance elements of the process to the verifier.</p> <p>Changing the emphasis of SECEs to focus on management systems and Integrity Management Systems (IMS) would deliver increased efficiency and reduced costs.</p> <p>If it can be demonstrated that the IMS is well formulated and correctly implemented this will automatically confirm that the elements it covers are inspected, their functionality confirmed, anomalies managed, repairs carried out, backlogs controlled, planning addressed, and their condition endorsed. Thus removing the need for the specific assurance of individual items.</p>	18:00: Finish* at 20:30.	F2F meeting. Location to be announced later
Tuesday 30/08/2022	ICorr Aberdeen Annual Corrosion Forum (2022)	Various speakers / companies	<p>This year's ACF theme is the role of materials selection, corrosion management and asset integrity/management in the Energy Transition and Net Zero Target.</p> <p>The list of speakers and topics will be announced closer to date.</p>	Full day event	Venue (in Aberdeen) to be confirmed



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Note: This Technical Programme is subject to Amendment / Continuous Improvement. Any changes to planned Events, will of course be advised to you.

*All Event Finish Times are estimated and may vary slightly according to Audience demand.

Should you have any queries at all

Please refer in the first instance to the Session Chair / Programme Co-ordinator: Hooman Takhtechian. htakhtechian@oceaneering.com

Thank you for your continued support of ICORR.