# WORKSHOPS

## Thursday – 21st March 2013
## 9.00 – 11.00, Sala Verde (1st floor)

## WORKSHOP: *Facing the new Oil & Gas challenges: Automation Industry today is able to provide solid technologies to enable Oil Companies in improving production optimization, energy management, process control, and safe operations in conventional and unconventional Fields*

1. Empowering critical operations decisions getting more data visibility: collaboration environment from wells to decision room
2. Production Optimization and Energy management through sophisticated modeling technologies and KPIs monitoring
3. Enabling operators efficiency: Alarm Management systems
4. Safety starts from people attitude to safety: Operator Training simulators and 3D field virtualization to simulate operations in critical conditions
5. New frontiers of shale gas: automation answers to unconventional resources and unconventional projects execution (from drill to operations)

**Coordinated by ANIMP – Associazione Nazionale Impiantistica Industriale**

SHAPING PROJECT LOGISTICS IN THE OIL & GAS INDUSTRY THROUGH SIMULATION

Abstract
Offshore oil/gas industry is relevant from the economic perspective, and complex from the construction viewpoint. A challenging task within the construction of drilling plants and pipelines is in properly shaping project logistics (in sizing barge fleets and pipe-laying ships).
Literature and practitioners state that Linear Programming models and spreadsheets are the most conspicuous decision support systems to define e.g. the number and type of barges, and the size of pipe-laying ships. Neither tool above involves any dynamic variable, e.g. tide and the fact that – while laying a pipeline – the pipe-laying ship moves forward along the pipeline route.
Simulation allows to consider dynamic variables, to build scenarios and to perform sensitivity analysis; however, it is not widely applied to project logistics in the oil/gas industry. Therefore, this paper aims at showing the benefits of simulation against static tools.
The case of the logistics system for pipeline laying from a drilling plant in the Barents sea to the Russian coast has been analyzed by a simulation model.
Barges and the pipe-laying ship sized through simulation have been compared to the ones dimensioned by practitioners through spreadsheets: results outline strengths and weaknesses of either approach.

Authors:
Tommaso Rossi (a), Roberto Cigolini (b), Margherita Pero (b), Rossella Pozzi (a)
(a) Institute of Technology, Carlo Cattaneo University – LIUC, Italy
(b) Department of Management, Economics and Industrial Engineering, Politecnico di Milano, Italy

open to all registered delegates
single Workshop registration is also available
please contact registration@omc.it by 10th March

# WORKSHOPS

## THE BENEFITS OF MODERN INTEGRATED CONTROL AND SAFETY SYSTEM ARCHITECTURES FOR FPSO FACILITIES

Abstract:
In the Oil&Gas world, the time to "first oil" in the offshore production, is very critical for all Oil Companies. The request of the current projects timescales is continually decreasing, at same time, the reduction of Capex and Opex.
Nowadays, in the offshore fields, the modern solutions of Control & Safety Systems, completely involved in all plant management operations as well as in the accommodation buildings, are becoming a crucial point to reduce costs. First of all, those concerning the electrical-instrumental installation activities, then those of commissioning & start-up and at last, but not least, those related to maintenance and operation.
The presentation will describe a modern solution of Integrated Control & Safety System architecture and its main characteristics implemented on a FPSO Unit.
In each phase of the FPSO project, the high-priority for End Users, EPC contractors and also for System Integrators, is to understand how to implement and take advantage of the new technologies offered by Control & Safety systems, keeping in mind to conciliate environment standard, safety standard, Offshore and, in case of FPSO, Naval industries requirements as well.
Nowadays, the features of Integrated Control & Safety System, combined with certified safety buses and addressable F&G systems, are able to contribute to engineering & installation cost saving, commissioning time reduction, operation & maintenance interfacing without jeopardize the control & safety requirements.

Authors:
Pasquale Troianiello - Fores Engineering Srl – Rosetti Marino Group - Italy
Angelo Gariboldi - Siemens Spa –Industry Sector IA/DT – Italy

---

Graduated in Electronic Engineering at University "Federico II" – Naples (Italy), he enjoined Fores Engineering Srl in 1995 as Automation Engineer. After holding various company positions as Project Manager, Engineering Manager and Automation Unit Manager, since 2011 he is in charge of Automation and Telecom System Unit. His main technical skills cover the Operation Management, Control & Safety & Telecom Systems and Functional Safety. In 2003 he obtained the abilitation of Certified Firefighting Engineer from the Italian Ministry of Internal Affairs and in 2008 he was abilitated as TUV Certified Functional Safety Engineer.

## PRODUCTION OPTIMIZATION THROUGH INTEGRATED SIMULATION BETWEEN RESERVOIR AND GAS GATHERING NETWORK IN ZAPOLYARNOE GAS FIELD

Abstract:
It will be shown that it's crucial to consider joint model of field which contains reservoir model and model of product-gathering system during simulation and it's even more important when you are working with highly-productive gas fields, because gas gathering facilities have their own technological constraints and usual task is to find the best possible work schedule for the ground equipment in order to optimize production.
The main attention is paid to the integrated simulation of the most productive Russian gas field Zapolyarnoe. History-matching issues for the reservoir model of Zapolyarnoe gas field are discussed in a few words. It's also considered the process of constructing of the gas-gathering system model, with focus on the algorithms of conversion and procedures aimed on the verification of the simulation model.
Some theoretical aspects of integrated modeling are also considered. The case study is presented showing a brief overview of the SW tools implemented for reservoir simulator (TimeZYX MKT) and the steady-state gathering network simulator (SimSci-Pipephase) with more detailed description of

the integration aspects. The solution has been successfully applied during the work on Zapolyarnoe gas field project and some results of this project are also presented. In particular, the problem of estimation of optimal time for putting compressors into operation is considered.

Authors:
Ivan Polekhin – NATIONAL CENTRE FOR DEVELOPMENT OF INNOVATIVE TECHNOLOGIES 'DELTA' – SENIOR RESEARCHER
Born in Samara, Russia, in 1986. In 2003 moved to Moscow to start education at Lomonosov Moscow State University, Faculty of Mechanics and Mathematics. Graduated from it in 2008, but still stay in touch with my alma mater finishing my Ph.D. in physics and mathematics. Work in industry since 2009 applying theoretical knowledge in wide range of new scientific areas from reservoir modeling to seismic data processing and electromagnetic exploration methods.
---
ANDREY LEPIKHIN – INVENSYS – EURA REGIONAL MANAGER FOR UPSTREAM
Since 2009, Andrey is responsible for developing business campaigns for Upstream Oil&Gas solutions in the core EURA industrial markets Invensys serves. Andrey has 25+ years of Petroleum Engineering experience on the Exploration and Production side of Oil and Gas operations with various companies. Prior to Invensys, Andrey was responsible for International E&P Business Development at ITERA Oil&Gas Company producing of 15 BcM of natural gas. Before ITERA in 2004, Andrey has been working as Operation Manager at TNK-BP company with daily production of 1 500 000 bbl\d. Prior to TNK-BP, Andrey spent 13 years with the YUKOS Company producing at that time 1 600 000 bbl\d in various positions of field operations and reservoir engineering. Andrey obtained his BS degree in Petroleum Geology at Moscow Oil and Gas University, in 1987.

## AUTOMATION PILOT PROJECT FOR "SHALE GAS FACTORY"

Abstract
The advent of natural gas production from unconventional reservoirs like shale formations recently affected natural gas prices and focused a great deal of attention on new technologies employed for extracting that gas. However, as shale gas industry moves to a mature phase, it's important to bring attention to another technology innovation now appearing in the industry: the application of lean manufacturing methods, sometimes called the "Shale Gas Factory." There are several key differences between a typical gas field and a shale gas field development, driven primarily by the characteristics of the wells: high "flush flow" at startup followed by a quick drop in flow to a very long "tail" of low but significant cumulative production, requiring continuous drilling to sustain production rates. The numbers of wells can range in 1,000's per field , but the gas production can be improved using methods and techniques correlating drilling and well productivity data, including flush rate peak, initial decline rate and ultimate tail production rates. A continuous drilling campaign means constant change, like new automation, new gathering lines, new monitoring and reporting, on a daily basis. Multiple drilling rigs, multiple fracking teams, numerous operations and maintenance personal means constant activity in the field. All wastes must be removed and sites restored to near natural conditions, and every action requires proper permitting and reporting.
While all gas producers seek to improve their processes, the high well count and repetitive nature of shale gas development provides the opportunity for a continuous improvement process: exploration & appraisal, drilling, infrastructure build, production, reclamation, abandonment and remediation.
This new approach is the "Shale Gas Factory" that manufactures gas wells and it measures its success by high production, predictable performance, low cost and highly reliable equipment that are easy to operate and maintain. "The Shale Gas Factory", uses the principles of lean manufacturing to eliminate the wastes of people, time, resources and assets while improving the quality of the final product, and to generate a profitable business.

A case study from a pilot project for a Large Gas Producer in Australia, focused on comprehensive Automation solutions to address Shale Gas Factory key issues in five primary areas:

- Scalability and Flexibility
- Large data volume handling
- Asset Performance
- Early Alerts for potential problems while monitoring progress toward resolving those problems & Workflow management
- Collaborative Environment & Remote Operation

Author:
JOHN GILMORE –INVENSYS - Director, Upstream Oil & Gas, Global Industry Solutions

## ADVANCED PROCESS CONTROL APPLICATIONS TO IMPROVE INDUSTRIAL PRODUCTIVITY AND OPERATIONAL EFFECTIVENESS IN THE OIL & GAS INDUSTRY

Abstract
Oil & Gas processing is one of the largest industrial user of energy resources. From a process and control point of view perspective, O&G plants are challenging from several points of view: material and energy quantities handled by these plants are quite large and even a small improvement overall process efficiency has an associated large economic benefit. At the same time O&G processing units are composed by multiple separate units, highly interconnected and integrated, often organized into multiple parallel trains with common utility sections. Variable feed composition, tight emission limits come together with the need to provide reliable and efficient power and steam supply. All this requires carefully design coordinated control strategies to simultaneously satisfy production, operation and environmental objectives. Implementation of multivariable process control systems is a key technology in tackling these challenges, both at unit and plant coordinated control level.
This presentation describes the overall results of a few key Advanced Process Control projects at a various sites in the Mediterranean region and aims to share design considerations, implementation details and overall results.

Author:
RICCARDO MARTINI – ABB

# WORKSHOPS

## Thursday 21st March
## 14.30 – 16.00, Sala Verde, 1st floor

## WORKSHOP : *Offshore Service Vessels : Features, Technology, Innovation*

The operations of offshore installations are deeply depending on technical offshore service vessels with characteristics and features that have to meet the continuously increasing demand of the offshore oil&gas industry.
Designers, shipyards, owners of offshore service craft are committed to provide the market with highly sophisticated and performing vessels, which take into account operability under heavy conditions, featuring comfort and safety for the crew on-board, and environmental-friendly equipment.
In this workshop the progress made to date in the design and operational features of new offshore service vessels will be highlighted and discussed, as well as the most recent requests from the offshore operators for the supply operations and assistance to their installations.
This workshop will consist of presentations from speakers representing designers, shipyards, operators, class societies, researchers, followed by a panel session that will take questions from the floor.

Chaired by Kimon Ardavanis – SAIPEM

Speakers and Panelists :
*Finn Essendrop – Maersk Broker K/S - (to be confirmed)*
*Yrjar Garshol – Rolls Royce Marine*
*Robert Dadini – Kongsberg Maritime Srl*
*Mario Mattioli – Augusta Offshore SpA*

**Coordinated by Atena and Rosetti Marino Group**

open to all registered delegates
single Workshop registration is also available
please contact registration@omc.it by 10th March

# WORKSHOPS

## FRIDAY 22nd MARCH
## 9.00 – 10.40, Sala Verde, 1st floor

## MARExMED
## OWEMES Welcome by Domenico Borello

MxM_01
Deep Waters Offshore Wind Energy
Gaetano Gaudiosi, OWEMES Association

MxM_02
Wave Energy
Alessandro Corsini , University La Sapienza - DIMA, Rome

MxM_03
Tide, Current Energies
Gianmaria Sannino, ENEA

MxM_04
Offshore Wind Projects in Italy,
Andrea Lazzari, Ministry of Environment-ENEA

## 11.05 – 12.45
## MARE x MED Round Table

Chairman: Sergio Garribba

Invited Speakers

Claudio Borri, DICeA University of Florence
Giovanni Grasso, Columbus
Andrea Lazzari, ENEA – Ministry of Environment
Piergiorgio Liberati, GSE Journalist
Francesco Matteucci, TRE -Tozzi Renewable Energy R&D
Leonardo Perini, WPD Italia
Chiara Pocaterra, APRE
Franco Rispoli, DIMA Univ. La Sapienza, Rome
Francesco Salvatore, CNR-INSEAN
Laura Serri , RES
Luigi Severini, Beleolico Taranto
Carlo Tricoli , ENEA

open to all registered delegates
single Workshop registration is also available
please contact registration@omc.it by 10th March