

# Developing the Mental Picture of Reservoir Quality and Completion Quality for Tight Shales

Second Annual Shale Science Conference



16 – 17 May 2012

Copernicus Science Centre, Warsaw, Poland

## ORGANIZERS



## REGISTRATION JUST OPENED! BOOK YOUR PLACE!

### AGENDA

#### May 16 (Reservoir Quality)

- 09:00 Opening Introduction and Welcome
- 09:15 Opening from Hosts
- 09:30 Session 1 – Review of the 1<sup>st</sup> annual ShaleScience conference
- 10:15 Break
- 10:30 Session 2 – The importance of shale gas development in Poland
- 11:15 Session 3 – (TBA)
- 12:00 Lunch
- 13:00 Session 4 – Shale Gas sedimentology
- 13:45 Session 5 – Quantitative geology for better reservoir characterization and completion design
- 14:30 Session 6 – Reservoir quality assessment with Research-quality measurements
- 15:15 Break
- 15:30 Session 7 – State of the Shale Gas development in Poland
- 16:15 Session 8 – First Day Closing Questions / Discussion
- 18:30 Reception

#### May 17 (Completion Quality)

- 08:30 Session 9 – Welcome and Review of Second Day
- 09:00 Session 10 – Perforation in tight shales for better completions
- 09:45 Session 11 – Fluid imbibition during hydraulic fracturing
- 10:30 Break
- 10:45 Session 12 – Completion Quality I
- 11:30 Session 13 – Completion Quality II
- 12:30 Lunch
- 13:30 Session 14 – The role of rock fabric on fracture complexity
- 14:15 Session 15 – Seismic log integration for early exploration and effective development
- 15:30 Panel Session 16
- 16:15 Mental Picture of RQ and CQ
- 16:45 Closing Comments
- 17:00 Adjourn

*Program can be subject of change, we will keep you informed.*

### OVERVIEW

**Venue:**  
Copernicus Science Centre,  
Warsaw, Poland

**Date:**  
16 – 17 may 2012

**Conference Committee:**  
Wiesław Prugar  
Sidney Green  
Ray Levey  
Roberto Suarez-Rivera

**Conference Chair:**  
Roberto Suarez-Rivera

### CONFERENCE FEE

- 2200 PLN – regular participants
- 440 PLN – EGI Consortium Members and University Professors
- Free to – Officials and Honored Guests
- Free to – Students

### CONTACT

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Production of gas and oil from tight shale formations continues to be of high priority. The First Annual Shale Science Conference, in March 2011, focused on developing a better mental picture of the tight shale rock. The Conference noted the dominant geologic overprint in tight shale plays, including deposition and diagenesis, which promote local changes in rock texture and composition and substantial vertical and lateral variability in mechanical and reservoir properties. This heterogeneity in rock properties affects all aspects of tight shale exploration and production. Tight shales were defined as heterogeneous systems at all scales, containing abundant mineralized fractures and other planes of weakness that facilitate the development of complex fractures.

Furthermore, tight shales have extremely low permeability and low porosity. Thus, economic production from them depends on the creation of extensive surface area by hydraulic fracturing, using adequate volumes of water and proppant and closely-spaced wells. This requirement has led to the current emphasis on increasing lateral lengths, increasing the number of perforation and fracturing stages, and increasing the volume of water and proppants pumped. This trend is likely to

be unsustainable. However, there are reasons to expect much improvement. For example, production logs suggest that 15 to 20% of the stages, or 38% of the perforation clusters, do not contribute significantly to well production. The low completion efficiency may be due to heterogeneity in reservoir quality or ineffective completion quality and provides a considerable opportunity for improvement. Similarly, numeric simulations of production per unit surface area, compared to the calculated surface area created during hydraulic fracturing, suggests that as much as 80 to 90% of the created surface area is ineffective for production. This inefficient use of resources provides another opportunity for improvement and cost reduction.

The goal of the 2012 Shale Science Conference is to continue improving the mental picture of tight shale plays. After focusing on the rock, this time we focus on the variability in Reservoir Quality (RQ) and Completion Quality (CQ), to better understand the sources of production inefficiency and to define possible solutions. We believe that solutions to current inefficiencies in completion and production require a better conceptualization of these plays, and developing a better mental picture of tight shales is a necessary first step.