TETRA TECH RPS ENERGY | TRAINING

N684: Coastal and Shallow Marine Clastic Reservoir Facies *(East Yorkshire, UK)*

Instructor(s): John Howell and Adrian Hartley

Format and Duration

Field - 3 Days
Moderate Physical Demand

Summary

The Jurassic of the east coast of Yorkshire provide analogues for elements of the Brent Group fields of the North Sea. In particular, facies that resemble the Ness and Tarbet Formations are exposed in cliff sections and wave cut platforms near the town of Whitby. These include shoreline, deltaic and bay-head depositional units formed in a wave-dominated coastal setting which can be used as a basis for exploring the understanding units in the N Sea. The coastal exposures are complemented by data from boreholes drilled inland of the cliff line. In addition, 3D models of the cliff sections provide opportunities to further investigate the geometries and relationships between the facies units. The emphasis of the course is on assisting the creation of reservoir models by considering facies relationships, heterogeneities, compartmentalisation and pathways of fluid flow.

Learning Outcomes

Participants of this course will

1. Interpret the deposits of coastal, deltaic and shallow marine depositional systems.
2. Assess the controls on shoreline-shelf depositional systems and be able to predict reservoir presence and understand reservoir heterogeneities in the sandstone bodies.
3. Interpret the deposits of clastic depositional systems in terms of their sandstone body characteristics, dimensions and architecture.
4. Assess the impact of depositional architectures, flow zones; and sedimentary heterogeneity on; potential recovery in different hydrocarbon fluid and development scenarios.
5. Evaluate and rate different modelling options for different architectures, fluids and development scenarios.

Training Method

The focus of this course is on taking the opportunity to see a variety of clastic sedimentary units at field locations and considering them in terms of reservoir properties. Core and wireline log data from nearby boreholes is integrated into the course as are 3DS outcrop models of the coastal localities.

Physical Demand

The physical demands for this field course are MODERATE according to the Tetra Tech RPS field course grading system. Fieldwork take place on costal sections, typically involving walks of up to 1 km (0.6 miles) on most days. The longest walk is approximately 2.3 km (1.4 miles) with an descent and ascent of 100 m (328 feet). Localities are accessed via paths down from the cliffs and the shoreline is rocky and uneven in places. East Yorkshire has a temperate climate, but weather conditions can vary throughout the day. Transport will be by coach on paved roads.

TETRA TECH RPS ENERGY | TRAINING

N684: Coastal and Shallow Marine Clastic Reservoir Facies *(East Yorkshire, UK)*

Instructor(s): John Howell and Adrian Hartley

Format and Duration

Field - 3 Days
Moderate Physical Demand

Course Content

Itinerary

Day 1

- AM (1.1) Staithes - offshore and shoreface deposits (Cook equivalent)
- PM (1.2) Whitby East - offshore to very thin shoreface (Dogger Fm) overlain by very muddy dominated coastal plain
- PM (1.3) Whitby West - stacked fluvial channels in the Saltwick, discussion on the role of faulting in controlling channel positions

Day 2

- AM (2.1) Scarborough - large tidally influenced point bars (Scalby Fm)
- AM (2.2) Cloughton Wyke - coastal plain with marine transgression and bayfills - Ness equivalents
- PM (2.3) Scalby Beach - large point bars in the Moor Grit

Day 3

- AM (3.1) Ravenscar and Peak Fault - major growth fault in shallow marine and coastal plain section of the Saltwick Formation
- PM (3.2) Beacon Hill/High Hawksbury - coastal plain, bayfills, overbank and large fluvial channels
- PM (3.3) Saltwick Bay - overview of the course