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Energy - Oil and Gas Research; Researchers from University of Texas Austin Report Recent Findings in Oil and Gas Research (Matrix Reservoir Quality of the Upper Cretaceous Austin Chalk Group and Evaluation of Reservoir-quality Analysis Methods; Northern Onshore Gulf of ...)

601 words
3 December 2021
Energy Weekly News
ENRGWK
1732
English

2021 DEC 10 (VerticalNews) -- By a News Reporter-Staff News Editor at Energy Weekly News -- New research on Energy - Oil and Gas Research is the subject of a report. According to news originating from Austin, Texas, by VerticalNews correspondents, research stated, "Production from the argillaceous Austin Chalk reservoirs from the Gulf of Mexico Basin is predominately from natural fractures, with some production from tight matrix. To understand Austin Chalk matrix reservoir quality, a database containing 1492 porosity and permeability analyses from 21 wells ranging from South Texas to central Louisiana was constructed."

Funders for this research include State of Texas Advanced Reservoir Research (STARR) program at **Bureau of Economic Geology** at The University of Texas at Austin, Carbonate Reservoir Characteriza-tion Research Laboratory (RCRL) at the **Bureau of Economic Geology**.

Our news journalists obtained a quote from the research from the University of Texas Austin, "The depositional environment of the chalk is interpreted to have been a deeper-water (below storm wave base) setting on a drowned shelf where bottom waters and sediments varied between oxic and anoxic. Five lithofacies were reviewed where the in-place lithofacies are shown to have a strong effect on reservoir quality. Burrowed marly chalk (lithofacies 1) has the best reservoir quality, with a mean porosity of 6.2% and a geometric mean permeability of 351 nd. Burrowed chalky marl to marly chalk (lithofacies 2) has the second-best reservoir quality, with mean porosity being 5.5% and geometric mean permeability being 214 nd. Slightly burrowed laminated marly chalk (lithofacies 3) has a mean porosity of 4.5% and a geometric mean permeability of 101 nd. Well-laminated chalky marl to marly chalk (lithofacies 4) has the poorest reservoir quality, with a mean porosity of 3.5% and geometric mean permeability of 25 nd. Three measurement methods were used to calculate porosity and permeability: (1) routine core plug (RCP) analysis, (2) Gas Research Institute crushed rock (GRI) analysis, and (3) modified gas expansion (MGE) analysis. Comparison among these methods showed that the RCP method provided anomalously high permeabilities and relatively low porosities. The GRI method yielded moderately high permeabilities but expected porosity measurements. The MGE method appears to produce the best results, giving permeabilities measured down to low-single-digit nanodarcy values and the expected range of porosity. The MGE method also displayed the best correlation between porosity and permeability."

According to the news editors, the research concluded: "The concepts from this study can be applied to other chalks worldwide."

This research has been peer-reviewed.

For more information on this research see: Matrix Reservoir Quality of the Upper Cretaceous Austin Chalk Group and Evaluation of Reservoir-quality Analysis Methods; Northern Onshore Gulf of Mexico, Usa. Marine and Petroleum Geology, 2021;134. Marine and Petroleum Geology can be contacted at: Elsevier Sci Ltd, The Boulevard, Langford Lane, Kidlington, Oxford OX5 1GB, Oxon, England. (Elsevier - www.elsevier.com; Marine and Petroleum Geology - www.journals.elsevier.com/marine-and-petroleum-geology/)

The news correspondents report that additional information may be obtained from Robert G. Loucks, University of Texas Austin, Jackson School of Geosciences, Bur Econ Geol, Austin, TX 78713, United States.

Keywords for this news article include: Austin, Texas, United States, North and Central America, Oil and Gas Research, Energy, University of Texas Austin.

Document ENRGWK0020211203ehc3000xa