Energy - Oil and Gas Research; Findings from U.S. Geological Survey (USGS) in Oil and Gas Research Reported [Organic Petrography of Leonardian (Wolfcamp A) Mudrocks and Carbonates, Midland Basin, Texas: the Fate of Oil-prone Sedimentary Organic Matter In the Oil Window]

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2020 FEB 21 (VerticalNews) -- By a News Reporter-Staff News Editor at Energy Weekly News -- Investigators publish new report on Energy - Oil and Gas Research. According to news reporting originating in Reston, Virginia, by VerticalNews journalists, research stated, "To better understand evolution of oil-prone sedimentary organic matter to petroleum and expulsion from source rock, we evaluated organic petrographic features of Leonardian Wolfcamp A repetitive siliceous and calcareous mudrock and fine-grained carbonate lithofacies cycles occurring in the R. Ricker #1 core from Reagan County, Midland Basin, Texas. The objectives of the petrographic investigation were to estimate thermal maturity, identify organic matter types and abundances, and identify the presence or absence of migrated hydrocarbons in organic-lean carbonate layers."

Funders for this research include U.S. Geological Survey (USGS) Energy Resources Program, Bureau of Economic Geology, The University of Texas at Austin.

The news reporters obtained a quote from the research from U.S. Geological Survey (USGS), "An integrated analytical program included geochemical screening [total organic carbon (TOC) content by LECO, programmed pyrolysis by hydrocarbon analyzer with kinetics (HAWK) including analysis of solvent-extracted samples], X-ray diffraction mineralogy, organic petrography, scanning electron microscopy with energy dispersive spectroscopy (SEM-EDS) including correlative light and electron microscopy (CLEM), and micro-Fourier transform infrared spectroscopy (mu-FTIR) analyses of solid bitumen. The data indicate all samples are early to middle oil window thermal maturity with solid bitumen reflectance (BRo) values of 0.55-0.86% and T-max of 440-455 degrees C. Organic matter is predominantly solid bitumen (as identified by optical microscopy) in all lithofacies with minor contributions from inertinite. Solid bitumen abundance decreases from siliceous mudrock (TOC >3.0 wt%) to calcareous mudrock (TOC 1.0 to 3.0 wt%) to fine-grained carbonate (TOC <1.0 wt%) lithofacies. Interpretations of petrographic data suggest siliceous and calcareous mudrocks are source rock lithofacies and contain solid bitumen (with petroleum generation potential) that is residual (what remains) from conversion of an original Type II sedimentary organic matter. In turn, fine-grained carbonates are interpreted as reservoir lithofacies which contained little or no original oil-prone sedimentary organic matter and at present-day contain only a minor component of migrated solid petroleum sourced from adjacent siliceous and calcareous mudrock lithofacies."

According to the news reporters, the research concluded: "This work helps to document petroleum generation and migration processes, improve unconventional reservoir characterization and better define areas of oil window thermal maturity in an area critical to United States hydrocarbon production."

For more information on this research see: Organic Petrography of Leonardian (Wolfcamp A) Mudrocks and Carbonates, Midland Basin, Texas: the Fate of Oil-prone Sedimentary Organic Matter In the Oil Window. Marine and Petroleum Geology, 2020;112():. 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/)

Our news correspondents report that additional information may be obtained by contacting P.C. Hackley, USA. Geological Survey (USGS), 959 Natl Ctr, Reston, VA 22092, United States. Additional authors for this research include A.M. Jubb, B.J. Valentine, F.T. Dulong, J.J. Hatcherian and T.W. Zhang.

Keywords for this news article include: Reston, Virginia, United States, North and Central America, Oil and Gas Research, Energy, Alkalies, Anions, Carbonates, Carbonic Acid, U.S. Geological Survey (USGS).

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