Can mudstone be used as a reservoir

How do mudstone reservoirs work?

Some of these methods employ reflected beams while others utilize energy transmitted through the rock. Mudstone reservoirs comprise fine-grained sedimentary rocks,also known as shales or mudrocks,that are typically rich in organic matter and have other properties conducive to storage and extraction of hydrocarbons.

What is mudstone diversity?

Download Citation |Mudstone diversity: Origin and implications for source,seal,and reservoir properties in petroleum systems |Mudstone is the most abundant sedimentary rockand variously acts as sources,seals,and shale gas reservoirs in petroleum systems.

How to evaluate mudstone reservoirs in different depth?

It is a fast and effective method to qualitatively evaluate the relative gas content of mudstone reservoir in different depth by using resistivity and neutron or uranium and neutron overlap. The method is to find a depth that makes its overlapping area relatively minimum.

Where are mudstones found?

Mudstones are the most abundant sedimentary rock and are commonly found in low-energy environments such as deep sea or quiet lake or river basins. They are important in the petroleum industry as source rocks and reservoir seals,and have become important unconventional shale gas and oil reservoirs (Aplin and Macquaker 2011).

Are mudstone reservoirs heterogeneous?

Mudstone reservoirs are heterogeneousover a wide range of scales (Ma et al. 2017). With pores visible in SEM down to a few nanometers but lithologic units and fractures ranging up to centimeters and beyond,length scales of many orders of magnitude are relevant to mudstone characterization by imaging.

What is the gas reservoir space in mudstone?

The gas reservoir space in mudstone is mainly composed of mineral matrix pore and micro-fracture. Figure 6 shows the SEM images of the intergranular pore,intragranular pore and micro-fracture in the core samples of the A2 well mudstone reservoir.

Short-term and creep tests were performed on saturated silty mudstone obtained from the Three Gorges Reservoir area. Based on the triaxial creep test results, the variations of creep strain and ...

This is a "conventional" reservoir - meaning that the oil and gas can flow through the pore space of the sandstone and be produced from the well. ... If undisturbed and buried, this accumulation of mud might be transformed into a sedimentary rock known as ...

A mudstone in which the silt predominates over clay. Mudrock A synonym of mudstone. Lutite A synonym of mudstone although rarely used independently. Usually in combination with some modifier (calcilutite is a very ...

The results yield improved estimates of effective permeability in heterolithic, cross-bedded sandstones, which can be used to populate reservoir-scale model grid blocks using estimates of mudstone fraction and geometrical parameters obtained from core and outcrop-analog data.

In this study, the delta-front-facies, low-permeability sand-mudstone interbedded reservoir of the Ansai district, Ordos Basin, is used as a case study. The reservoir ...

These are the type of sedimentary rock that acts as a source, cap, and storage reservoir for hydrocarbon generation to accumulation. Mudstone lithology contains sweet spots ...

Mudstone is the most abundant sedimentary rock and variously acts as sources, seals, and shale gas reservoirs in petroleum systems. Many important physicochemical properties of mudstones are strongly influenced by the mineralogy and size of deposited grains, and by diagenetic changes (precompaction and postcompaction); these are commonly predictable.

The chart can be used for reservoir predictions of other blocks in the work area. This part is explained in the Discussion. 4. Results 4.1. Log analysis (logging characteristics of rocks) ... BW can recognize calcareous oil mudstone. The low value (<2.0 Hz) represents calcareous oil mudstone. The Curv can distinguish between calcareous oil ...

By analogy with the widespread adoption of 3-D seismic as a fundamental risk management tool, an argument can be made that a reservoir characterization workflow incorporating technologies ...

Claystone is relatively soft and can be easily scratched. Claystone vs. Mudstone: Generalization: The terms "claystone" and "mudstone" are sometimes used interchangeably. However, mudstone is a broader term that includes rocks with a mix of clay, silt, and other fine-grained particles.

Mudstone reservoirs are the new key research objectives of oilfield exploration and development. As a source rock solidified by mud, clay and gypsum, the mudstone minerals in the reservoir are microcrystalline, with a complex internal structure and a wide distribution of micropores and fissures and are rich in organic matter [1,2].Under the action of deep high ...

Experimental reactions were performed with supercritical CO2 containing 50 ppm NO and reservoir sandstones and mudstone. The solution pH decreased to between 3.2 and 4.8, with an initial increase ...

Due to the stable lithology on the plane of the reservoir in Sebei Gas Field, the ratio of mudstone thickness on the profile of a single well in the reservoir is relatively representative, which can better reflect the ratio of

mudstone on the plane area and can be used as an important expression of source rocks index.

Mudstone is widely used as the host rock medium in oil and gas reservoir. The creep behavior is extremely complex and directly influences the failure of casing under high temperature and high ...

natural gas reservoir of Taiyuan formation in Ordos Basin has good reservoir performance, and its porosity is up to 28.7% with an average of 14.67% and permeability is in the range of 0.01 to 38:55×10-3 mm2 with an average of 5:57 ×10-3 mm2, belonging to the pore type reservoir [25]. At the same time, the pore segments of bauxite reservoir

The disintegration of red-bed mudstone is likely affected by the environment. Acid rain can significantly influence the disintegration process, but the corresponding mechanism remains to be studied.

Mudstone, composed of clay and silt, is not to be confused with carbonate mudstone. In this classification, mud and clay are terms used to indicate size, not mineralogy. ... Most modern sands are reservoir-quality rock. Modern claystones and mudstones, which are composed primarily of clay minerals, have little permeability and are not reservoir ...

The results can provide an insight into the fracturing mechanisms and oer a guideline for fracturing design and treatment optimization in tight sandstone-mudstone interbedded reservoirs. Keywords Sandstone-mudstone interbedded reservoir · hydraulic fracturing · operation procedures · treatment parameters · stimulated reservoir volume

microporous mudstone-dominated lithologies. By analogy with the widespread adoption of 3-D seismic as a fundamental risk management tool, an argument can be made that a reservoir characterization workflow incorporating technologies designed to image the unique scale and geometry of mudstone reservoirs has the

Kuqa Depression in Tarim Basin where Kela-2 gas field is located belongs to a Meso-Cenozoic sedimentary foreland basin [],which can be divided into 3 secondary structural units, including Kelasu thrust belt, Qiulitage thrust belt and Baicheng sag [].The Kelasu thrust belt is a thrust fold belt, where folds and fault block structures controlled by a series of imbricated ...

32 petrographic methods that can be used to examine sedi-mentary rocks. This entry presents the basics of the common petrographic methods that currently find application in char-acterization of fine-grained unconventional reservoir rocks. Petrographic imaging of ...

Mudstone hydrocarbon generation capacity and gas content . Vitrinite is a type of kerogen. Vitrinite reflectance (R o) can be used as an indicator of maturity and thermal evolution of organic matter. When R o > 2.0%, the mudstone reservoir belongs to the organic overmature phase, and the kerogen releases dry gas 31, 32.

Can mudstone be used as a reservoir

Based on the principles of rock naming, sandstone and mudstone can be distinguished by the apparent shale content cut-off value of 50%. ... In pioneering papers, the high GR sandstone reservoir can be recognized in two ways: (1) unconventional logs such as GR spectrum logs and elemental capture spectroscopy (ECS) logs can be used to recognize ...

Mudstone is a type of sedimentary rock that is composed of fine-grained minerals, specifically silt and clay-sized grains, and accounts for two-thirds of all sedimentary rocks. It is typically ...

The relationship between the porosity and lamination of the Montney Formation can be used to estimate reservoir properties. Our results show that an increased silt lamina in ...

At present, in horizontal well fracturing of tight sandstone reservoirs, artificial fractures can not cross through the mudstone barrier layer vertically and fracturing fluid can pass through mudstone barrier layer, but proppant cannot, which make effective placement of proppant only in sandstone layer at horizontal well section, and reduce the fracturing effect.

The movement of different reservoir fluids via different geological systems is mainly controlled by capillary pressure within the rock unit. The pore volume and pore throat size that relate to displacement pressure are the main components that control the reservoir characteristics (mainly permeability) of reservoir rock, and they can be evaluated by mercury ...

These disparities in wave impedance values can be used to perform reservoir inversion. After first eliminating the influence of igneous rocks, geophysical methods can be used to distinguish between sandstone and mudstone, thus achieving the prediction of sandstone and mudstone, as well as the igneous rocks.

Mudstone/sandstone ratio can be used to predict intensity of carbonate cementation. Abstract The eolian-fluvial sandstones of the Upper Permian Rotliegend formation, which were deposited in the Southern Permian Basin, are today deeply buried (~3-4 km) and constitute important gas reservoirs in the Netherlands and the southern North Sea.