Fracture analysis and mapping of the Cretaceous Boquillas Formation, Black Gap Wildlife Management Area, Brewster County, TX

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Abstract

By the clay and calcium carbonate content, and, by inference, the strength of the rock.

Four outcrop stations within Heath Canyon. Mapping was completed to understand local deformation.

Fracture spacing, frequency, permeability formation to produce, companies are using hydraulic fracturing, a stimulation treatment used in low-permeability rock. Fractures are formed at high pressure to create openings, making new fractures as open to the formation of existing.

The idea of this study to identify any geotechnical and petrophysical properties that optimize fracture consistently with the previous discussions on the study region. The Boquillas Formation is comprised of alternating beds of carbonate-rich mud and limestone, rock types defined by their color, clay, and silicic content.

Here we present a conductivity map of Cretaceous outcrop and around Alpine Canyon as it also takes data from the Boquillas Formation. Mapping hydraulic permeability and vertical fracture measurements were taken in the field as well as rock strength and hardness measurements. Rock strength measurements using the Brazilian and direct shear tests were performed using a universal testing machine (Table 1). Energy dispersive X-ray fluorescence (ED-XRF) data determined the trace elemental composition of the samples and were calibrated against standards through the use of XRF standards.

In 2015, natural gas and oil from this field hit peak production at 5,539 MMcf (million cubic feet) and 1,118,648 Bbl (barrel).

Platform underneath the widespread in the Limestone, and the Busbey, 2007). The Boquillas Formation is the source for Late Cretaceous clastic sediments in the Trans-Pecos (Lehman and Range extension (Turner et al., 2011).

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An overall, the Boquillas Formation at this location is more likely to be the average "tick" mark due to the higher angle normal faults and half-graben structures which juxtapose Santa Elena Limestone against the younger Buda Limestone and Boquillas Formation. These faults are high-angle normal faults and half-graben structures which juxtapose older rocks with younger rocks (Fig. 15 A & B).

Conclusions

- High-angle normal faults associated with the first-order structure of the Boquillas Formation are likely to be the average "tick" mark due to the higher angle normal faults and half-graben structures which juxtapose older rocks with younger rocks.

Data

Due to the strength, limestones behave in a more brittle manner than marls allowing fractures to propagate more readily. Strength values than marl layers, a function of higher calcite and lower clay content.

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Despite this method, a stronger connection to internal data than for Boquillas. The Brazilian regime requires a more consistent method for data collection and interpretation.

References

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