Study of Basement Rocks with Emphasis on Fractures with 3D Seismic and Well Logs in Osage County, Oklahoma

By
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Study Area

1. BIA- Wild Creek 3D
   Chevron 1995
   50 Square Miles
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2. Wah Zah Zhi #1
Spy Glass Energy LLC 2012
TVD 8093 ft
4000 ft of granite
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3. Spavinaw Granite Outcrop
   1.285 g.a. (Denison 1981)
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4. Tri State Mining District
   Lead zinc mining 1891-1967
1. BIA- Wild Creek 3D Shot by Chevron 1995 50 Square Miles

2. Wah Zah Zhi #1 Drilled by Spy Glass Energy LLC TVD 8093 ft 4000 ft of granite


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Basement Depth Structure

Contour interval = 150 ft

176 Wells
Spavinaw Granite

Contour interval = 150 ft

176 Wells

Spavinaw granite outcrop marked with red arrow
Spavinaw Granite
Spavinaw Granite
Spavinaw Granite Contact
Spavinaw Granite Contact

Arbuckle

Precambrian granite

Powell

Cotter

NE Oklahoma Names

Arkansas Names
Geologic Providences in Oklahoma
Geologic Providences in Oklahoma
Pennsylvanian
Mississippian
Devonian
Ordovician
Ordovician/Cambrian
Pre-Cambrian

200 mile Horizontal length
Stratigraphic cross section hung on Devonian period shale know as the Woodford.

200 mile Horizontal length

Pennsylvanian
Mississippian
Devonian
Ordovician
Ordovician/Cambrian
Pre-Cambrian

200 mile Horizontal length

Stratigraphic cross section hung on Devonian period shale know as the Woodford.
Wild Creek Survey

95 miles north west of the Spavinaw granite outcrop.

Basement is SSTVD 5250 ft
Wild Creek Survey

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Survey Parameters
- Bin Size = 66x66 ft
- Dominate Frequency = 48 Hz
- Time Sample Rate = 2 ms
- Granite Velocity = 19700 ft/s
- Wavelength = 410 ft
- Vertical Resolution = 103 ft
- Lateral Resolution = 205 ft
- Record Time = 2.0 s
Sediment to Granite Interface
Reagan sandstone marked in red represents the top of the basement.

The Reagan sandstone formed in the late Paleozoic consisting of weather fragments of granite.
Basement Events

Large negative amplitudes similar to Mississippian Chat
Basement Events

Mississippian Chat

Large negative amplitudes similar to Mississippian Chat
Thank You
References


