

Sept. 4, 1941.

Geological Report on

LITTLE POOSE CREEK DOME, Rio Blance County, Colo.

LOCATION.

The Little Poose Creek Dome is situated in T3N, R88W in the north east corner of Rio Blance County. It lies on the west side of Poose Creek about a mile above its junction with the East Fork of the Williams River.

The nearest railroad point ^{is} Hayden, twenty seven miles to the north.

The surface of the ground is rugged in character, rising rapidly from the drainage of Poose Creek and the East Fork to the Beaver Flat Top Mesa on the high divide between Poose Creek and Beaver Creek.

SURFACE GEOLOGY.

The lowest beds exposed on the crest of the dome are the Dakota sandstones of Cretaceous age. The Dakota sandstone is completely surrounded by Mowry shale and the black concretionary shales of the Benton Formation. Above this latter formation may be found a zone 20-30 feet of fossiliferous, limey sandstone in thin layers interbedded with thin layers of black shale.. This zone has been correlated with the Frontier Sandstone, sometimes called Wall Creek, of Moffat County, Colorado and of Wyoming.

This Frontier sandstone zone has been followed from a point directly north of the crest of the dome, around the east end of the fold, along the south east flank to and across the axis to the south west.

It could not be traced, due to lack of exposures, for about a mile on the north west side of the structure. But since the dip in the north west direction is more or less the regional or normal dip into the deep structural basin in northern Moffat County, this lack of exposures is not vital to the structure.

The Colorado State Geological Map shows much igneous rock in the immediate area of this structure. It is true that all the high ridges in this area are covered with basalt. This igneous rock was extruded in the form of lava flows. The time of this igneous activity was probably in late Tertiary and has no bearing on the possibility of finding oil or gas in the structure under discussion.

STRUCTURE.

The dome is an asymmetrical structure extending in a northeast-southwest direction with the steepest dips on the southeast flank. Dips range from 9 to 50 degrees. The structure has a closure of between 800 and 900 feet., with the critical side on the southwest in the direction of the main Poose Creek anticline..

No faulting was observed in the area. However it is possible that some faulting does occur on the north flank of the dome, in the east half of section 21.

The interval between the top of the Frontier and the top of the Dakota sandstone is 420 feet as measured on the southeast flank in two localities. In the east half of Sec. 21, using the dips on the Frontier and Dakota as shown on the map, the interval between these two horizons is twice as much as it should be. This suggests the possibility of faulting with subsequent duplication of shales in the Benton series.

PREVIOUS DEVELOPMENT.

Three wells have been drilled within a radius of 25 miles which are of interest.

1. Beaver Creek test.
2. Poose Creek test
3. Deep test on Tow Creek structure.

1. The Beaver Creek test was drilled on dome of the same name. The structure had adequate closure. Water was found in the Dakota sandstone. The Morrison sands were tested, but contained no oil or gas. It is not known whether the Sundance sand has been tested on this dome. It is located eight miles northwest of the Little Poose Creek dome.

2. In 1928 The Union Oil Co of California drilled a well on the Poose Creek anticline. The location was in Sec. 10, T2N-R88W, or about four miles southeast from the Little Poose Creek dome. This well tested the Morrison sands and the Sundance and was abandoned at a depth of 1017 feet. All sands were reported dry with no oil, gas or water. In my judgment this was a doubtful test of the structure.

3. Deep test of The Texas Co. on the Tow Creek anticline was located in Sec. 7, T6N--R86W, about twenty five miles northeast of the Little Poose Creek dome. This well tested the Sundance zone from 4220-4349. It found hot water with a showing of oil and gas. In the next 680 feet of depth, several showings of oil and gas were found and the well was abandoned at a depth of 5029 feet.

HORIZONS TO BE TESTED.

A test of the Little Poose Creek Dome would start at approximately the top of the Dakota sandstone. The Sundance sand should be found

at a depth of approximately 700 feet. In the Morrison formation between the Dakota and Sundance sands, there are two lenticular sandstones which have produced oil farther to the west, namely, in the Moffat, Iles and Wilson Creek Fields. Also in a test of the Fish Creek structure, a few miles east of the Little Poose Creek Dome, numerous showings of oil have been reported from the Morrison sands. And too, the amount of closure on the Fish Creek structure is probably very small.

The horizons below the Sundance in this general area have not been tested at many points. Yet it is believed that these lower horizons offer splendid possibilities for oil and gas if they can be tested in the right structure at the right location.

RECOMMENDATION.

It is recommended that a test well be drilled at the location shown on the map to a depth of 2000 feet unless igneous or basement rocks are encountered at a shallower depth.

Respectfully submitted,

E. S. Shaw

Geological Report on

LITTLE POOSE CREEK DOME, Rio Blanco County, Colo.

LOCATION.

The Little Poose Creek Dome is situated in T 3 N, R 88 W in the north east corner of Rio Blanco County. It lies on the west side of Poose Creek about a mile above its junction with the East Fork of the Williams River.

The nearest railroad point is Hayden, twenty seven miles to the north.

The surface of the ground is rugged in character, rising rapidly from the drainage of Poose Creek and the East Fork to the Beaver Flat Top Mesa on the high divide between Poose Creek and Beaver Creek.

SURFACE GEOLOGY.

The lowest beds exposed on the crest of the dome are the Dakota sandstones of Cretaceous age. The Dakota sandstone is completely surrounded by Mowry shale and the black concretionary shales of the Berto Formation. Above this latter formation may be found a zone of 20-30 feet of fossiliferous, limey sandstone in thin layers interbedded with thin layers of black shale. This zone has been correlated with the Frontier sandstone, sometimes called Wall Creek, of Moffat County, Colorado, and of Wyoming.

This Frontier sandstone has been followed from a point directly north of the crest of the dome, around the east end of the fold, along the south east flank to and across the axis to the south west. It could not be traced, due to lack of exposures, for about a mile on the north west side of the structure. But, since the dip to the north west direction is more or less the regional or normal dip into the deep structural basin of northern Moffat County, this lack of exposures is not vital to the structure.

The Colorado State Geological Map shows much igneous rock in the immediate area of this structure. It is true that all the high ridges in this area are covered with basalt. This igneous rock was extruded in the form of lava flows. The time of this igneous activity was probably in late Tertiary and has no bearing on the possibility of finding oil or gas in the structure under discussion.

STRUCTURE.

The dome is an asymmetrical structure extending in a north east-south west direction with the steepest dips on the south east flank. Dips range from 9 to 50 degrees. The structure has a closure of between 800 and 900 feet, with the critical side on the south west in the ~~direct~~ direction of the main Poose Creek anticline. No faulting was observed in the area. *However it is possible that some faulting does occur on the north flank of the dome,* in the east half of Section 21. The interval between the top of the Frontier and the top of the Dakota sandstone is 420 feet as measured on the south east flank in two localities. In the east half of Sec. 21, using the dips on the Frontier and Dakota ss as shown on the map., the interval between these two horizons is twice as much as it should be. This suggests the possibility of faulting with duplicating of shales in the Benton series.

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