

WHIPSTOCK INC.

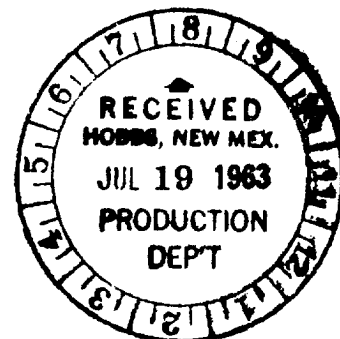
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July 17, 1963

Mr. C. D. Berland
Gulf Oil Corporation
P. O. Box 2167
Hobbs, New Mexico



Dear Mr. Berland:

With regards to your inquiry about what direction the whipstock was set on your Lea State KN #7, Midway Abo Field, I have talked with Mr. Glen Harbert, the directional supervisor on that job, and can report the following.

At 3762', where he set the whipstock and sidetracked the hole, he ran an orienting picture. From the Totco pictures and reading the orienting picture as best he could (this is made difficult because the shadowgraph needle covers up the cross hair), he concluded the hole had an angle and direction of $3\frac{3}{4}^{\circ}$ South 80 West.

He was instructed to kick the well off in the northwest quadrant, but hold the angle down as low as possible. Below I have given some examples of what would happen by turning the whipstock various degrees from the reading of $3\frac{3}{4}^{\circ}$ South 80 West.

<u>Direction of Whipstock Face</u>	<u>Turn of Whipstock</u>	<u>Resultant Turn In Hole</u>	<u>Resultant Angle</u>	<u>Resultant Direction</u>
N-50-W	50	38°	3 $\frac{5}{8}$	N-62-W
N-20-W	80	64°	3 $\frac{1}{4}$	N-36-W
N-10-E	110	96°	2 $\frac{7}{8}$	N-04-W

From the above readings it may be seen that the angle could be held to the lowest degree by sidetracking the hole by turning it, rather than by kicking the angle up in the northwest. Therefore, he faced the whipstock North 10 East and after opening the rat hole, he took a picture and it showed $2\frac{3}{4}^{\circ}$ North 6 West. In Mr. Harbert's opinion, this was exactly as desired as the angle was held to a minimum and the well was sidetracked in the northwest quadrant.

If there is any further information we can furnish, please let us know.

Yours very truly,

H. C. Harris, Jr.
H. C. Harris, Jr.,
Whipstock, Inc.