MAR 19570014: CENTRAL ALBERTA

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LETTER OF PRIVILEGE TO EXPLORE FOR
BENTONITE
issued to
BAROID OF CANADA, LTD.
operating under
PERMIT NO. 198

October 25, 1957

R. Keith Collins

This report covers certain lands located in Township 56, Range 2, West of the 5th Meridian as shown on the accompanying plats.
FINAL REPORT

All lands held under this reservation are shown on the accompanying plat.

Exploration for bentonite on these lands was conducted with a Parmanco drill. Samples of bentonite obtained by drilling were sent to our laboratory in Colony, Wyoming and tested by standard industry methods.

The accompanying maps of those quarter-sections upon which drilling was conducted show the location of each hole and its identifying number. Above the number we have shown first, the inches of bentonite and secondly, the depth of overburden in feet and inches. Below the hole number we have shown the initial yield of the various samples from that hole. The yield is expressed in barrels of drilling fluid per ton.

Those areas which have been drilled out and for which test results have been returned from the laboratory indicate bentonite deposits totaling 230,000 tons. Of this amount, it is estimated that approximately 120,000 tons may be used as drilling mud.

Bentonite in this area occurs in the Edmonton Formation which occurs in the Montana Epoch, Upper Cretaceous Period of the Mesozoic Era. This formation was laid down as a delta along a shoreward zone of the Fox Hills sea at a time of extensive volcanic activity to the west. Among the conditions of delta sedimentation are foreset bedding, lensed arrangements, local thin cross-bedding and interlamination of strata of different mechanical composition.

The geologic history of the Edmonton formation indicates the type of bentonite deposits we could expect to find. The field work we have done has shown this to be true. The overburden and bentonite deposits have followed closely the delta deposition patterns. The bentonite deposits are found as small, scattered lenses at no fixed horizon in the formation. Bentonite deposits clearly show that their deposition was by foreset bedding in brackish waters from a few feet deep to depths of over thirty feet. Typically the
deposits in this area are small and scattered and show evidence of typical foreset bedding.

This entire area has not been drilled and laboratory results are not complete for all of the drilling that has been done, however, the completed areas appear to be typical of much of the permit area.

The enclosed maps of the following lands cover all drilling under this Letter of Privilege:

- #1 NE\(\frac{1}{4}\) of Section 7, T56, R2, W5
- #2 NW\(\frac{1}{4}\) of Section 7, T56, R2, W5
- #3 SE\(\frac{1}{4}\) of Section 7, T56, R2, W5
- #4 SW\(\frac{1}{2}\) of Section 7, T56, R2, W5
- #5 NW\(\frac{1}{2}\) of Section 8, T56, R2, W5
- #6 SW\(\frac{1}{4}\) of Section 8, T56, R2, W5.