

# MAR 19520003: GEORGE LAKE

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George C. ...

# 19520003

P-A-6

BNT-AF-0 (2)

2136 - 29th Ave. S.W.  
Calgary, Alta.  
November 12, 1952

Mr. Robt. Seaton  
Deputy Minister  
Dept. of Mines and Minerals  
Administration Bldg.,  
EDMONTON, Alta.

ECONOMIC MINERALS  
FILE REPORT No.  
BNT-AF-02(2)

Dear Sir:

The following brief report is a summary of an investigation carried out by the writer on a bentonite quarry lease consisting of the following land parcels:

- S $\frac{1}{2}$  17-57-1-W5
- 18-57-1-W5
- 19-57-1-W5
- E $\frac{1}{2}$  20-57-1-W5

This investigation constitutes the work obligations for the first six months term of the lease which expires December 31, 1952.

The work done consisted entirely of a core drilling operation in which seven holes were drilled. Detailed results of this drilling are described in an appended report by Mr. G.C. Beard, of Beard Drilling Company who supervised the actual drilling. An outline of the core hole locations with respect to the land survey at a scale of 4 inches to 1 mile is also attached.

It was the purpose of work the results of which are reported herein to obtain the following information, considered essential before subsequent development work is seriously contemplated:

- (a) The thickness of the bentonite bed.
- (b) The areal extent of the bed.
- (c) The thickness of the overburden.
- (d) The quality of the bentonite by comparison with bentonites of other areas which meet industrial requirements.

Previous Work

In October of 1924 Mr. S.C. Ells, recently an officer of the Ottawa Mines Branch dug a number of pits in Lsd. 1-30-57-1-W5, in order

to obtain a supply of bentonite for use in tests being run at the time in connection with the McClave process for separating oil from the McMurray oil sands. The purpose of the bentonite was to provide a dissolving agent. While it is recorded that the samples were satisfactory for this purpose he did not to the writer's knowledge, analyze the bentonite for any other purpose. The pits dug by Mr. Ells were only deep enough to go through the overburden so provided no information on the total thickness of the bed.

During the spring of 1948 the writer visited the locality on several occasions with the purpose of determining the thickness and quality of the bentonite by means of hand augur sampling. Samples taken by this method were somewhat contaminated but were nevertheless assayed and found to be below industrial specification standards. At the time the low grade was believed to be due to the fact that the samples were taken from a point near the outcrop face where surface weathering could have deteriorated the quality.

### Geology

The bentonite bed revealed in the above described drilling program occurs in the Edmonton formation which is of Upper Cretaceous age and of continental origin. While it is known from regional geological considerations that the bed occurs in the upper part of the formation, it is not possible since erosion has removed a part of the formation in this locality, to state the exact interval below the top at which it occurs. It is known that some beds in the Edmonton formation have a very great horizontal extent (Kneehills tuff bed) but for the most part the beds are of a lenticular nature and of limited horizontal extent. This appears to be the case with this bentonite bed.

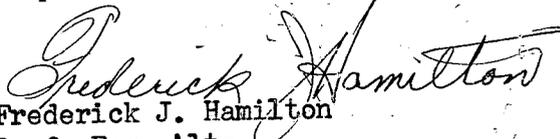
Outcrop, augur and drilling data indicate a fairly rapid dip to the southeast for the bentonite bed.

### Results and Conclusions.

While the drilling undertaken thus far has not fully outlined the workable limits of the bentonite deposit, results do indicate the main part of it to be located in the NE  $\frac{1}{4}$  of 19-57-1-W5. Additional drilling to define the limits was not carried out as that parcel was under crop at the time. Rather than meet the crop damage costs, it was decided to delay until the analyses indicated such a course to be worth while.

Analyses of samples taken by core drill indicate a bentonite which is below the minimum acceptable standard for high grade drilling mud. The deposit is therefore considered unworkable so far as this market is concerned. However, since there is an increasing demand for low yield muds, the economics of this market are under active consideration.

Respectfully submitted,

  
Frederick J. Hamilton  
Prof. Eng. Alta.