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TERMINATION REPORT
ON BENTONITE EXPLORATION
RESERVATION IN LAC LANONNE AREA
ALBERTA

Location:

On April 29, 1959 a reservation to explore for Bentonite was granted by the Dept. of Mines and Minerals in Section 19, 20, 21, 28, 29 and 30; Township 57; Range 3; West of the fifth meridian. Also, Section 24-57-4-W5M.

This area lies approximately 50 miles northwest of Edmonton, Alberta and directly north of Majeau Lake and adjoining the north shore. It also lies to the west of Lac LaNonne and south of the Pembina River.

Topography:

The area explored consisted of 7 sections of land on undulating and hilly surface. The elevation varied from 2,250 to 2,400 feet above sealevel and the average relief was approximately 100 feet. The area was populated only by five farm houses and small scattered fields under cultivation.

Most of the area was covered by bush and small trees. Due to poor drainage many small sloughs and marshes exist which made it difficult to travel with the drill truck.
A few second grade roads were suitable for truck travel and some trails were utilized but found to be soft and wet. On many occasions it was necessary to winch the drill truck to locations.

Geology:

The area under reservation for Bentonite exploration has been glaciated and in many places thick deposits of clay, sand, gravel, and boulders were found to a depth of 45 feet. Underlying are Edmonton Formations consisting of Bentonitic shales, sandstones, and thin coal seams interbedded.

The formations are dipping gently westerly and to the southwest at approximately 10 feet per mile.

Operations:

A truck mounted drill was used with an air compressor to drill these lands. In some cases cores were obtained and in most holes cuttings were sampled. The crew consisted of two men and a geologist in charge.

A total of 23 holes were drilled to depths of 26 - 40 feet in areas where it was thought the overburden was not excessively thick. These operations were conducted from September 22nd, to October 7th, during which time the weather was most suitable and the ground not excessively wet. As area was found to be most difficult to traverse during most of the summer months the drilling program was postponed until the fall.

A total of 693 feet were drilled on this area and Bentonitic shales sampled.

These were examined visually and tested in the field for quality. None were found suitably clean for drilling fluids and the quality too low. Only one sample was tested in the company lab to verify this and the results attached.
The total cost of this exploration program was found to be $1,840.00.

Conclusions:

It was concluded from this program that the Bentonitic shales sampled in this area were far below the quality required for Bentonite suitable for use in the drilling industry.

In short no Bentonite in the pure form was found and all samples taken proved to be very silty. For this reason operations were abandoned and it was concluded that no further drilling was necessary.

As shown on the laboratory report the yield of this Bentonitic shale was found to be 37 B/T and a Bentonite of suitable quality must, for the drilling industry, yield from 78 - 90 B/T and contain little non-gelling material such as sand and silt.

Respectfully submitted,

[Signature]

J. S. Carter
Geologist

JSC/mk
**LABORATORY REPORT**

**DESCRIPTION OF SAMPLE**

**OBJECT OF TEST**
Evaluate for use as Drilling Fluid

<table>
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<tr>
<th>SAMPLE No.</th>
<th>% 200 Mesh</th>
<th>% Solids</th>
<th>B/T Yield</th>
<th>AP. Visc.</th>
<th>FANN 600</th>
<th>FANN 300</th>
<th>PL Visc</th>
<th>Yield</th>
<th>PH</th>
<th>Water Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td>DH #4 (4.5 -12.0)</td>
<td>Too Silty</td>
<td>10%</td>
<td>37</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>-1</td>
<td>—</td>
<td>Too</td>
</tr>
</tbody>
</table>

**BY:** J. Morrison
Plan of Township 57 Range 3 West of the 5 Meridian

Scale: Two inches to one mile

SHOT HOLE SYMBOL
TEST HOLE SYMBOL

MONTH SEPTEMBER YEAR 1959

LICENSE No. 2255
PERMIT No. 253
Plan of Township 57 Range 4 West of the 5 Meridian

SCALE: TWO INCHES TO ONE MILE

SHOT HOLE SYMBOL
TEST HOLE SYMBOL

MONTH SEPTEMBER - OCTOBER YEAR 1959

LICENCE No. 2833
PERMIT No. 253

Macobar Mining Company, Limited