Q21 N68

105001

C8-5rH

A PROGRAM OF EXPLORATION
FOR
MAWBANNA CLAY & EXPLORATION

EL 9/68 18 NOV 1968

8-120

Q21

Exp. Programme for Mawbanna Clay E.L. 9/68
N.W. Tas.

105E

A PROGRAM OF EXPLORATION FOR MAWBANNA CLAY AND EXPLORATION LICENCE 9/68, TASMANIA

submitted to
Industrial Rock Mines Pty. Ltd.

by

E.K. Sturmfels, D.Sc.
Consulting Geologist

With 1 Plate

Diamond Creek,
Victoria, 3089

18th November, 1968

Summary

A deposit of off-white clay at Mawbanna on the north coast of Tasmania, with a substantial part of its grains in the 1 to 8 micron range, and the largest ones measuring 20-100 microns, apparently represents the decomposed surface portion of a Precambrian shale or siltstone. Reserves are likely to be very large, though possibly displaced by faulting. Reconnaissance mapping is suggested as a first step of exploration, to delineate the likely extent of clay horizons, to select drill sites, and to check for any other minerals which might be present in the area. Reconnaissance drilling, preferably with an auger drill, would be the next step, followed by detailed drilling along a regular grid.

Introduction

An Exploration Licence over an area of 40 sq.miles on Tasmania's north coast, with the Mawbanna Railway Siding as an approximate centre, is held by Desmond D'Oriel Pearson of Ulverstone for a period of six months expiring on 16th March, 1969. The Licence was issued initially for non-metallic minerals only, but I understand that an extension to cover metallic minerals as well has been granted.

An off-white clay is the only mineral commodity known so far to be present in the area. It is exposed in an old open cut and in several small pits and cuttings (see accompanying plan). I visited the occurrences on 3rd and 4th October, 1968, in the company of Mr. Pearson and Mr. W.N. Rodda. Due to the delay in obtaining the necessary air photographs it has been possible only now to complete the report.

As requested I have designed the program of exploration with two purposes in mind : firstly, and this would be the more important purpose, to locate clay reserves of adequate size to permit large-scale production and beneficiation, say at least 4 or 5 million tons, and secondly to check for indications of other minerals of possible economic value.

Location

Exploration Licence 9/68 covers a rectangular 40 sq.mile area from the Detention River in the east to the Black River in the west and south-west. Most of the area is State Forest or other Crown Land, and only a minor part, private land.

The country is generally flat or gently undulating. Hills with elevations of between 500 and 1000 ft are found in the south-eastern part.

The area is well served by transport. The narrow-gauge railway line from Burnie to Stanley cuts right across it, the Bass Highway crosses the north-eastern corner, and another main road branches off the highway and runs south through the area past Mawbanna Railway Siding. Many of the forestry roads and tracks, however, can be negotiated except in summer time by four-wheel-drive vehicles only. The port of Stanley is only 10 or 12 miles away.

General Geology

The rapid visit to the area and a preliminary interpretation of air photographs suggest two major divisions of the rocks present :

(1) Tertiary — Basalt
(2) Precambrian Cape Rock Group : Shale, siltstone and sandstone

Most of the cleared agricultural land within the area coincides with the extent of the Tertiary basalts. They form flat-lying dissected plateaus rising somewhat over the general level of the country.

The Precambrian Cape Rock Group occupies by far the greatest part of the area. In the south-eastern corner sandstones or quartzites seem to predominate ; elsewhere the sediments probably consist of interbedded shales or claystones, siltstones and sandstones. Weathering in this fairly wet climate reaches deep and surface exposures are rare. North-east seems to be the predominant direction of bedding, with dips of the order of 45° or 50°. Some faulting is present.

No granite or other intrusive igneous rocks are known. However, quartz veins have been observed.

Clay Deposits

A clay open cut half way between Mawbanna and Helyer railway sidings, which was worked between 1939 and 1943, was largely filled with water when visited. What to the feel and the tongue appears to be a clay with many very fine gritty particles proves under the microscope to consist largely of grains approaching silt-size, with diameters of between 1 and 8 microns, with individual grains in the 20 to 100 micron range. The clay lacks plasticity. The colour varies between off-white and a very light cream. Ridges in the open cut, which were left untouched when the deposit was worked, indicate that the material varies laterally in quality. Elsewhere the deposit seems to have been worked to a depth of over 12 ft. The overburden measures 5 to 6 ft.

Similar material has been found nearby, in two cuttings along the railway line and in a small clay pit which I am told was the first working in the area.

This clay is obviously the surface portion of a decomposed siltstone or shale with a strike of about 50° to 60° and a dip of about 50° to the north-west. In places, grey patches though otherwise clay to all intents and purposes still show the colour and texture of the original shale or siltstone. From the little work that has been done so far a possible extent along the strike for perhaps a mile or more may be inferred, but width and depth are as yet unknown.

The clay in the small pits some 1½ miles on the other side of Mawbanna Siding is more discoloured, though this may be due to the limited depth of the excavations. As more serious I would regard the presence of quartz veins which were seen in one of the pits and indications of which were found all over the surface. This clay is not on the same line of strike as the main deposit, but it could well represent the same bed displaced by faulting. A possible such fault was noticed on air photographs and is shown on the accompanying plan.

During the war years this clay was used without beneficiation as far as I know for paper manufacture instead of kaolin, but this was possible only because of the lack of any better material due to war conditions. At present it could hardly be sold without beneficiation. On the other hand, the clay has two distinct advantages : (1) the likelihood of large reserves without too much overburden, and (2) the proximity to the coast and the nearest harbour.

Other Minerals

No other minerals are known. However, copper has been recorded from beds of the same age only a few miles to the east of the area, and the existence of metalliferous deposits is therefore not impossible.

Exploration Program

Prelimineray investigations have indicated that the extent of the clay deposits is determined largely by geological

sequence and geological structure. To cut down drilling expenses I therefore suggest that the clay horizon be traced as far as possible by geological mapping. At the same time indications of other minerals could be looked for and parts suitable for additional prospecting could be delineated. I therefore suggest the following program of exploration :

(1) Reconnaissance mapping, incl. defining likely extent of clay, determining drill sites, searching for indications of other minerals by visual and geochemical methods, and delineating areas suitable for additional prospecting. Approx. 8-10 days for one geologist and one assistant ; approx. cost, $ 800.

(2) Reconnaissance drilling, preferably with an auger drill. Initially drilling could be confined to existing tracks. Along the strike distances between holes could be as much as 1,000 or 2,000 ft to start off with, but across the strike they should be not more than a few hundred feet. Estimates of cost can be supplied only after the likely extent of the clay has been defined by geological mapping.

(3) Detailed drilling along a regular grid to prove reserves. For this purpose it will be necessary to cut tracks through forest and scrub.

(4) Detailed prospecting of any parts with mineral prospects other than clay. Required personnel : one prospector.