Boolara Bauxite Test Surveys

L.A. Richardson

Geological Branch,
Census Building,
CITY, A.C.T.
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MEMORANDUM FOR:

J.M. Rayner,
Chief Geophysicist,
Census Building,
CANBERRA, A.C.T.

RE BOOLARRA BAUXITE TEST SURVEYS.

Report No. 1942/14A.

Plans Nos. 617, 618 and 619 are submitted herewith.

Plan No. 617 shows surface and sub-surface information on the Open Cut deposit. The information from test shafts was obtained from old records and placed on the plan after the test shafts had been identified with the aid of Mr. R.E. Cochrane. By combining this information with that obtained by mapping of the bauxite exposures in the Open Cut, structure contours on the top and bottom of the bauxite, as shown, are obtained.

Plan No. 618, shows lines of equal ore thickness, based on the structure contours.

Plan No. 619 shows surface and sub-surface information on Orgill's deposit. In this case the available information is too scattered to allow any satisfactory structure contours be drawn.

These plans show no geophysical results. The resistivity curves have been examined and it is considered that certain conclusions can be drawn regarding the behaviour of the clay bedrock.

A preliminary structural interpretation has been made on the basis of depth determinations to an interface, assumed to be the top of the clay bedrock. This involves the analyses of three and four layer curves.

It is assumed that the top of the clay bedrock represents the bottom of the bauxite. Thus, the levels obtained from the depth determinations can be used for the purpose of extending the structure contours on the bottom of the bauxite. This has been done, but at this stage it is preferred that no plan of same be submitted.

Regarding this interpretation and the geophysical work in general on the Open Cut deposit the following comments are submitted:-

(1) There is a tolerable agreement between the depth determinations and known conditions on the southern part of traverse zero and on the greater part of traverse 55W.

(2) The depth determinations on traverse A provide, what seems to be, a satisfactory extension of the structure contours in that vicinity.

(3) The depth determination made at 97W/150N does not agree at all well with known conditions in shaft No. 42, distant 10 feet from the point.

(4) The principal feature shown by the extended structure contours is the deep ground in the vicinity of 0/50N, 0/100N, and 0/150N. The presence of this deep ground necessitates an alteration of the structure contours shown on plan No. 617, between shafts 50 and 49, and the matter is of some significance in connection with ore occurrence in this part.

Should the "nose" in the clay bedrock, as depicted by contours 0-10 continue rising easterly, the bauxite is likely to thin out on the flanks of the "nose" as it is doing on the front of the "nose". The presence of deep ground at the point mentioned above would, on the other hand, allow for a considerable thickness of bauxite to be present in the vicinity of this point.

(5) It is possible that an analysis of the resistivity curves will yield some direct information on the bauxite on the following lines:-

The clay bedrock has more or less uniform resistivity of 10,000 ohms. cm. The bauxite, as far as is known, has resistivity of about 40,000 or 50,000 ohms cm. Where the bed overlying the clay bedrock does not exhibit resistivity of this order it might be assumed that the bed is not bauxite. This is illustrated by curves on 0/100N, 0/150N; it being assumed that bauxite may overlay the clay bedrock at 0/100N but might not at 0/150N.

(6) It is considered that field work is insufficient to enable definite conclusions to be drawn.

(7) It is suggested that the interpretation outlined above not be submitted as a survey report at this stage on account of the indefinite nature of the results and the small amount of field work completed to date.

(8) It is further suggested that:

a. Copies of plans No. 617, 618 and 619 be forwarded to Sulphates Pty. Limited emphasizing that no geophysical results are shown on them.

b. Sulphates Pty. Limited be asked to explore at greater depth in shaft No. 44 by deepening the shaft or by boring, or by both.

c. Sulphates Pty. Limited be asked to explore by boring or shaft-sinking at 0/50N.

(Exploration might have to extend to a depth of 40 feet in each of these cases to reach clay bedrock).

(9) Knowledge regarding the behaviour of clay bedrock at this point will aid geophysical interpretations of work already completed and will furnish sub-surface information on desirable positions for the purpose of proving ore reserves.

With your approval of the foregoing, I will draft a letter for Sulphates Pty. Limited to accompany plans No. 617, 618 and 619.

I desire to gratefully acknowledge the willing and useful assistance during field operations, rendered by Mr. R.E. Cochrane, Manager of Sulphates Pty. Limited.

(L.A. Richardson)
Geophysicist.