

001

P2-2-3C

180002

STATUS OF AIRPORT ANOMALY

NEAR QUEENSTOWN, TASMANIA

MARCH, 1967

5th March 1967

Mr. B.E. Kennedy
Pickands Mather & Co.
2000 Union Commerce Building,
Cleveland, Ohio

Dear Sir,

The three attached maps incorporate the results of investigations completed under the direction of Mr. Vic Wuerch on the Airport Anomaly situated near the Queenstown airport:-

1. Geological Map: Scale 1" = 400'
2. Copper concentrations in soils: Scale 1" = 400'
3. Lead concentrations in soils: Scale 1" = 400'

*No maps
attached
disappeared*

Appended also is a geological report written by Mr. Murray Hodges (December 1966) who mapped the area.


Initial reconnaissance stream sediment surveys showed the Airport Cu-Pb anomaly as the most extensive in the Queenstown district. In this respect it would appear to be important. However, investigations to date have been discouraging in that no evidence for the cause of the geochemical highs could be observed. The anomaly is unique because its geological setting in Devonian Bell Shales sets it aside from the typical Mt. Lyell settings of the other geochemical anomalies of the district. Although results of investigations including several EM lines, have been

disappointing the importance of shales as host rocks for sulphides should be borne in mind. It is significant also, that copper dispersion haloes superimpose those of lead, in addition to which a copper anomaly on line 44+00W north of the Queenstown-Strahan highway contains significant amounts of arsenic in the soils.

At this time it is felt that further EM surveys are required in areas of geochemical anomalies. Limited IP measurements were made over copper trends on line 44+00W. It is hoped that results may provide some explanation as to the possible course of the anomalies.

The shales underlying the geochemical highs are light coloured due to the same intense leaching processes as encountered in other parts of the district. This phenomenon would, therefore, tend to obliterate all evidence at surface of mineralization. For this reason the Airport Anomaly should not be under-rated and perhaps subjected to a further critical analysis before final abandonment.

Yours very truly,
PICKANDS MATHER & CO. INTERNATIONAL



R.C. Schmidt

RCS/gmm

AIRPORT ANOMALY
NORTHWEST TASMANIA

INTRODUCTION

The Airport Anomaly lies approximately $1\frac{1}{2}$ miles northwest of Queenstown. To detail the anomaly, 46,000 ft. of line was cut, chained, soil sampled and mapped. Ground magnetics were run over the majority of the lines and electromagnetics over one line.

GEOLOGY

The Airport Anomaly is located principally over Devonian Bell Shales; Silurian sediments underlie the remainder of the anomaly. To the north of the anomaly the Devonian and Silurian sediments are brought into contact with Cambrian volcanics by a major E-W fault.

The Devonian Bell Shales are grey or black finely banded and in some areas they are sheared. From field observations, the shales conformably overlie Silurian sandstones and calcareous sandstones. The Cambrian volcanics are composed of tuffs and siltstones with minor areas of gabbro.

STRUCTURE

A simple structure underlies the Airport Anomaly. The Devonian and Silurian sediments form a shallow syncline which plunges

at a shallow angle to the west. A major E-W fault forms the northern boundary of ^{the} Devonian and Silurian. This fault has involved a north block up movement bringing Cambrian volcanics into contact with the Devonian and Silurian sediments.

RESULTS OF THE GEOCHEMICAL SURVEY

A series of lead and copper geochemical anomalies trending approximately E-W were established near to and south of the base line. Values associated with these anomalies were in the order of four to eight times the average background value.

CONCLUSIONS

The results of investigations carried out on the Airport Anomaly are not encouraging. Ground magnetic surveys over the area did not indicate any magnetic features. Detailed geochemical and ground magnetic investigations of the E-W fault zone did not reveal any anomalous areas. It is probable that the geochemical anomalies detected are due to shale zones which carry minor amounts of lead and copper minerals. A final appraisal of the anomaly will be possible after an electromagnetic survey has been completed.

M. Hodges

006

P2-2-3E

180007

STATUS OF LYNCH CREEK ANOMALY

NEAR QUEENSTOWN, TASMANIA

MARCH, 1967

5th March 1967

Mr. B.E. Kennedy,
Pickands Mather & Co.
2000 Union Commerce Building,
Cleveland, Ohio

Dear Sir,

Attached please find the following maps which incorporate results of geological mapping and geochemical surveys under the supervision of Mr. Vic Wuerch in the Lynch Creek area located south of the Roaring Meg Prospect:-

1. Geological Map: Scale 1" = 400'
2. Copper concentrations in soils: Scale 1" = 400'
3. Lead concentrations in soils: Scale 1" = 400'
4. Zinc concentrations in soils: Scale 1" = 400'

(All maps missing - not on microfiche)

Appended also is a geological report by Mr. Murray Hodges dated December 1966.

The Lynch Creek anomaly is a well-defined lead high. Since completing the initial geological-geochemical surveys, additional lines have been cut to assist in defining more accurately the anomaly. No magnetometer or EM surveys have been carried out so far, but this work is to commence almost immediately in the most promising areas.

Because the IP unit was located last week in Queenstown,

- 2 -

IP measurements were made over lead highs on line 144+003. Results of this work should be on hand soon.

Old workings (gold?) occur frequently in the area. This fact alone would tend to enhance the significance of this already well-defined geochemical anomaly.

I shall keep you informed of results of work being carried out on this interesting prospect.

Yours very truly,
PICKANDS MATHER & CO. INTERNATIONAL



R.C. Schmidt

RCS/gmm

LYNCH CREEK ANOMALYNORTHWEST TASMANIAINTRODUCTION

The Lynch Creek Anomaly lies approximately $1\frac{1}{2}$ miles south-southwest of the Roaring Meg Anomaly. Preliminary investigations involving a geochemical soil survey over a grid system have been completed. These investigations indicate the existence of a lead and copper geochemical anomaly similar to Roaring Meg. The grid consists of 37,000 ft. of line upon which soil sampling and preliminary mapping has been completed.

GEOLOGY

Cambrian Mt. Read Volcanics underlie the Lynch Creek Anomaly. Basically the volcanics are composed of alternating lavas, tuffs and agglomerates with interbedded shales and greywackes. Regional metamorphism similar to that apparent at Roaring Meg has affected the rocks resulting in the development of a tract of schist.

There are four main rock types outcropping in the area. A rock which is possibly a lava or a pyroclastic outcrops on the western 1600 ft. of the cross lines forming a band running approximately N-S. In hand specimen the rock is grey-green in color, consisting of pink or grey feldspar phenocrysts and elongate pyroxene phenocrysts in a grey or green chloritic feldspar groundmass, included rock and shale fragments are common. Field outcrop and macro textures suggest the rock is a

tuff; Solomon (1963) suggests the rock is an augite trachyte.

Grey Cambrian lava outcrops in the northeast quarter of the anomaly and in two other small isolated areas. This lava is a grey or green rock composed of large green pyroxene and minor mica phenocrysts set in a fine grained grey feldspar groundmass. Amygdules containing chalcedony and feldspar are present in some outcrop suggesting that the rock is a lava.

Areas of interbedded greywackes and siltstone outcrop in the northeast and southwest sections of the anomaly. The greywackes are grey, medium to coarse grained, and contain grains of ferromagnesian, feldspar, quartz and minor pyrite. This rock unit is bedded, the beds generally strike in a north or northeast direction and dip steeply to the east.

Schist outcrops in the southeast corner of the grid and extends as a 1200 ft. wide band in a northwest direction. The schists are variable and include feldspar-sericite, feldspar-chlorite and sericite-chlorite-quartz schist. This variation may reflect the mineral composition of the rock from which the schist was formed. The schistosity is somewhat inconsistent, but generally strikes from $150^{\circ}M$ to $180^{\circ}M$.

STRUCTURE AND ORIGIN

No definite structure can be inferred in the area. The rocks form a complex with individual rock types lensing out or merging along their strikes. This fact, combined with the lithology of the rocks suggest that the area represents a sequence of interbedded igneous and sedimentary rocks which were deposited under a eugeosynclinal environment.

RESULTS OF THE GEOCHEMICAL SOIL SURVEY

A well defined lead and copper anomaly centred over the western half of lines 136+00S, 128+00S and 128+00S was established. Soil values of lead and copper exceed by sixteen to twenty times the average background value. No relationship can be established between anomalous areas and geology, in fact the anomaly extends over all rock types.

CONCLUSIONS

Initial investigations of the Lynch Creek Anomaly have shown the existence of a high order lead and copper geochemical anomaly over what represents favorable host rocks in the area. No traces of mineralization are apparent on surface and further work involving electromagnetic, ground magnetic and possibly induced polarization surveys is necessary.

M. Hodges