REPT. BK. NO. 74/202

A REGIONAL SOIL SAMPLING OF THE KANMANTOO GROUP METASEDIMENTS.

MOUNT BARKER TO CAPE JERVIS.

B.J. MORRIS

Department of Mines
South Australia —

DEPARTMENT OF MINES
SOUTH AUSTRALIA

GEOLOGICAL SURVEY
METALLIC RESOURCES DIVISION

A REGIONAL SOIL SAMPLING OF THE KANMANTOO GROUP METASEDIMENTS, MT. BARKER TO CAPE JERVIS

BY

B. J. MORRIS
GEOLOGIST
METALLIC MINERALS SECTION

Rpt. Bk.No.74/202
G.S. No.5517
D.M. No.1165/69

CONTENTS

PLANS

Figure No.	Title	Drawing No.
11	Frequency Distribution Histograms Inman Hill Formation	74-659
12	Sample Results of Traverse 1	74-808
13	Sample Results of Traverse 2	74-809
14	Sample Results of Traverse 3	74-810
15	Sample Results of Traverse 4	74-811
16	Sample Results of Traverse 5	74-812
17	Sample Results of Traverse 6 & 5A	74-813
18	Sample Results of Traverse 7 & 8	74-814
19	Sample Results of Traverse 9 & 11	74-815
20	Sample Results of Traverse 10	74-816
21	Sample Results of Traverse 12	74-817
22	Sample Results of Traverse 13	74-818
23	Sample Results of Traverse 14 & 15	74-819

DEPARTMENT OF MINES
SOUTH AUSTRALIA

A REGIONAL SOIL SAMPLING OF THE KANMANTOO GROUP METASEDIMENTS, MT. BARKER TO CAPE JERVIS

ABSTRACT

A regional soil sampling programme across the Kanmantoo Group metasediments between Mt. Barker and Cape Jervis has been completed. One thousand two hundred samples were collected and analysed for Cu, Pb, Zn and As. Twenty-five Cu, thirty-one Pb, seven Zn and thirty-four As values were found to be anomalous.

It would appear that there has been a migration of metals, probably during the Delamerian Orogeny, to the syncline-anticline structure near Strathalbyn and this area would appear to offer the most potential for metal deposits within the area sampled.

The statistical distribution of metals in the pyritic phyllites and schists of the Brukunga Formation appear to be similar to the Inman Hill Formation.

INTRODUCTION

As part of the geochemical investigations of the BARKER 1:250 000 sheet it was decided to do a series of regional soil sampling traverses across the Kanmantoo Group metasediments.

Fifteen east-west traverses about 12 km long were completed between Mt. Barker and Cape Jervis (Fig. 1). For ease of access the traverses were along existing roads. The traverses were about 10 km apart but the actual spacing varied, depending upon the position of suitable roads that cut across a broad section of the Kanmantoo Group metasediments and avoided Tertiary and Permian cover. Soil samples were collected at 100 m intervals from the 'c' horizon of the soil profile where possible. Twelve

hundred samples were collected and the -80 mesh fraction analysed for copper (Cu) lead (Pb) zinc (Zn) and arsenic (As). Selected samples were also analysed for gold (Au).

For lithological control on the interpretation of the results, the soil samples were divided into four groups, based on the four major subdivisions of the Kanmantoo Group used on the BARKER (Thomson 1962).

GEOLOGY

The Kanmantoo Trough first took shape with the collapse of the sea floor along submarine fault lines in the southern and eastern portion of the Adelaide Geosyncline during early Cambrian time. The lack of sorting, sudden thickening across fault hinge zones and abundant submarine slump structures point to rapid sedimentary transport and violent downward movements of the sea floor during sedimentation. This tectonic event is named the Waitpingan Subsidence. Compensating upward movements occurred in the basement areas to the north and west from which the Kanmantoo sediments were probably derived. The Cassian Uplift influenced the region far to the northeast and connected with the positive area of the Willyama Block, which was also a source region for Kanmantoo Group sediments (Thomson 1969). The trough structure filled by about 18300m of sediments, extends over 300 km through Kangaroo Island and along the eastern flank of the Mt. Lofty Ranges, and probably farther northeast under the Tertiary Murray Basin (Thomson 1961). The Kanmantoo Group sediments are geosynclinal greywackes and arkoses with interbedded black pyritic shales and rare limestones.

During the Delamerian Orogeny the sediments were strongly folded, faulted, regionally metamorphosed, in places granitised and intruded by granite plutons, basic dykes and plugs. The dominant regional feature in the area sampled is the southerly plunging anticline-syncline structure near Strathalbyn. The Kanmantoo Copper Mine also occurs in an area of regional folding of the Kanmantoo Group metasediments, about 7 km north of the Strathalbyn anticline-syncline structure.

In the area studied the BARKER (Thomson 1962) shows a change from a higher grade of metamorphism north of Strathalbyn to a lower grade to the south. An increase in metamorphism is also shown around the granite outcrops near Victor Harbor. Offler and Fleming (1968) have broadly classified the rocks, within the area studied, as belonging to an andalusite-staurolite zone of metamorphism.

On the BARKER (Thomson 1962) the Kanmantoo Group metasediments have been subdivided into four groups; the Brown Hill Greywacke Member, pyritic phyllites and schists including the Nairne Pyrite Member, the Inman Hill Formation and the Strangway Hill Formation (Table 1).

TABLE 1.

CAMBRIAN PERIOD

- Brukunga Fm.
  - Brown Hill Greywacke Member (greywacke)
  - Pyritic phyllites including the Nairne Pyrite Member
- Inman Hill Fm. (coarse grained impure arkose)
- Strangway Hill Fm. (greywackes, phyllites, quartzites and marble).

PREVIOUS WORK IN THE AREA

A regional geochemical sampling programme over the Kanmantoo Group sediments, concentrated mainly on the Nairne Pyrite Member, was carried out by Thomson (1961). Samples were analysed for Pb, Zn, Cu, Ag, Cr, V, Co and Ni. This regional study showed that a relatively high base metal background is present within the metasediments in an area between Strathalbyn, Brukunga and Callington. The metasediments, although including pyritic black shales equivalent to the Nairne Pyrite Member are low in heavy metals between Strathalbyn and the south coast.

The Wheal Ellen Mine lies about 8 km. north of Strathalbyn (Fig.2) and was worked about 1860. About two thousand tonnes of lead ore were raised yielding some 2 550 000 grammes of silver. The ore also contained zinc, copper and gold (Brown 1908a).

The Strathalbyn Mine is situated about 3 km north of Strathalbyn. Wright and Hatcher (1971) report that there were three groups of workings lying on a north-south trend separated by approximately 1km. The southern shaft passed into a pyritic lead-zinc lode with traces of silver and gold. To the north the lode contains copper carbonates. The South Australian Department of Mines investigated the area south of the old workings with two diamond drill holes and geophysics (Barnes 1956). The drill holes did not intersect any economic sulphides. The geophysics (self potential and conductivity measurements) indicated that there was little chance of extending the lode to the south.

The Glenalbyn Mine is situated about 1½ km northwest of Strathalbyn; it was opened in 1850 and closed in 1863. Brown (1908 b) reports that at 30 m below the surface a fine lode

of galena was found and was said to contain 18½% Pb and 16½%Ag per tonne. A shaft was sunk to 55 m and the galena was found to be impregnated with yellow copper ore. Several hundred tonnes of ore were reportedly sent to England.

The Talisker Mine situated about 5½ km east of Cape Jervis was opened in 1862 and worked till 1872. Several shafts up to 130 m deep were sunk and £29,885 worth of Ag-Pb ore was sold (Brown 1908). The lodes were essentially quartz veins carrying sulphides including lead, arsenic, zinc, iron and silver, enclosed in bleached zones of country rock. Nixon (1959) reports that six diamond drill holes totalling 395 m were drilled to test the main lode at depth, one geophysical anomaly and two outcropping bleached zones. The main lode was intersected with two holes at a depth of about 150 m but results were not encouraging and it was concluded that the lodes intersected at depth could not be mined profitably.

A stream sediment sampling programme was carried out in the Cape Jervis area and samples were analysed for Pb, Zn, Cu, Ni, Co, Mn, Ag, Mo, and As (Kostlin 1969). It was concluded that since only minor anomalies were detected, the areas under consideration may be discarded from a point of view of yielding economically important zinc silicate deposits.

A stream sediment sampling programme covering the area along the bottom of Fleurieu Peninsula from Victor Harbour to Cape Jervis was carried out and the samples were analysed for Cu, Pb, and Zn (Lynch and Boydell 1961). The sampling failed to locate any anomalies that might be related to a significant base metal deposit and no further work was recommended.

From a study of the Kanmantoo Group metasediments Kleeman and Skinner (1958) said that "mineralization in the Kanmantoo Group, other than the Nairne Pyritic Formation is always assoc-

iated with the andalusite and andalusite-staurolite schists and is localized by shearing or extreme contortion within the incompetent andalusite and staurolite-andalusite schists". They also mention that the mineralization at the Wheal Ellen Mine" is confined to a thin band of garnet-staurolite and andalusite-mica schists enclosed in a massive series of fine grained quartz-mica-feldspar schists. Although the silicate minerals here are the same as those found in the Kanmantoo Mines area, there is no spectacular development of large crystals since the Wheal Ellen is on the limb of a large syncline."

GEOCHEMICAL RESULTS

A full list of assay results is shown in Appendix A, and a graph of the results for each traverse is shown on Figures 12 to 23.

Samples from the four geological divisions of the Kanmantoo Group, as shown on the BARKER (Thomson 1962) were each treated separately so that the metal distribution of the four divisions could be compared. Cumulative frequency curves, frequency distribution curves, median (Me) and the lower limit of an anomaly ("A") were determined for each element. The Me and "A" values, determined by the method of Yufa and Gurvich (1964) are shown on Table 2. Any samples above the "A" value were taken as anomalous, resulting in twenty-five Cu, thirty-one Pb, seven Zn, and thirty-four As anomalies. Fifty-seven of these are single element anomalies and because of the proximity of the samples to roads, fences, and cultivated land many of these anomalies could represent contamination. Consequently the multi-element anomalies are considered to have more significance. The localities of anomalous samples are shown on Figures 2,3 and 4.

TABLE 2

BROWN HILL GREYWACKE MEMBER

	Cu(ppm)	Pb(ppm)	Zn(ppm)	As(ppm)
Median	13	12	35	5
"A"	61	72	143	17

PYRITIC PHYLLITES AND SCHISTS OF BRUKUNGA FORMATION

	Cu(ppm)	Pb(ppm)	Zn(ppm)	As(ppm)
Median	12	13	30	6
"A"	54	61	126	36

INMAN HILL FORMATION

	Cu(ppm)	Pb(ppm)	Zn(ppm)	As(ppm)
Median	12	11	27	5
"A"	54	71	159	35

STRANGWAY HILL FORMATION

	Cu(ppm)	Pb(ppm)	Zn(ppm)	As(ppm)
Median	15	9	30	3
"A"	87	45	156	15

The distribution of the anomalous values show that there is a concentration of anomalies around the syncline-anticline structure near Strathalbyn. There is a large number of copper anomalies near the top of the Inman Hill Formation and Pb - Zn anomalies are associated with the pyritic phyllite horizons of the Brukunga Formation. High Pb and Zn values occur at Rapid Bay in the Lower Cambrian marbles where several small Pb - Zn deposits have been prospected in the past. Some high copper values are also associated with the increase in metamorphic grade adjacent to the granite outcrops near Victor Harbor.

Anomalous As samples were also analysed for Au but none was detected.

Cumulative Frequency Curves (Figs. 5, 6, 7 and 8).

There is a fair scatter of points on the curves which is probably due to the variation of the lithology within each of the four groups considered. The copper curves for the pyritic phyllite-schist group and the Inman Hill Formation are almost identical and this is reflected in the similarity of the median and "A" values for these two groups. There is also some similarity between the Pb, Zn and As curves for the pyritic phyllite-schist and Inman Hill groups. The Strangway Hill Formation and Brown Hill Greywacke Member groups are consistently different to the above and to eachother.

Frequency Distribution Curves (Figs. 9, 10 and 11).

All curves show log normal distributions with bimodal distributions occurring for Cu in the Inman Hill group of samples, Zn in the Brown Hill group of samples, Pb in the Strangway Hill group of samples and Pb and Zn in the pyritic phyllite-schist group of samples. The bimodal curves are due to a secondary population with a high metal content. The secondary population

of Pb and Zn in the pyritic phyllite schist group are probably due to the Mairne Pyrite Member. The secondary population of Cu in the Inman Hill set of results probably represents the concentration of Cu in the upper part of this Formation. The secondary population of Zn in the Brown Hill set of results could represent a Zn rich horizon or possible contamination. The secondary population of Pb in the Strangway Hill set of results could reflect the high lead content of the marble horizon.

CONCLUSIONS

Within the limits of this regional soil sampling programme it can be concluded that:

1. Within the area studied the Inman Hill Formation appears to have a similar metal distribution, particularly in copper content, to the pyritic schists and phyllites of the Brukunga Formation.
2. There appears to have been a migration of metals in the Kanmantoo Group metasediments to the syncline - anticline structure near Strathalbyn, and subsequently could offer the most potential for metal deposits within the area sampled, particularly near the Glenalbyn, Strathalbyn and Wheal Ellen Mines.
3. The Wheal Ellen, Strathalbyn and Kanmantoo mines occur at the same stratigraphic position (near an andalusite schist horizon) in the pyritic schists of the Brukunga Formation and a detailed investigation of this horizon is recommended.
4. Follow up sampling around the more promising anomalies, particularly the multi-element ones is warranted.

17.10.74

B.J. MORRIS, GEOLOGIST,
METALLIC MINERALS SECTION

REFERENCES

Barnes, T.A., 1956. The Strathalbyn Mine, block 36 Hd. of Strathalbyn, South Aust. Dept. of Mines Mining Review No. 99 pp. 32-33.

Brown, H.Y.L., 1908 (a) Record of the Mines of South. Aust. 4th ed. p. 191.

_____ 1908 (b) Record of the Mines of South Aust. 4th Ed. p. 178

_____ 1908 (c) Record of the Mines of South Aust. 4th Ed. p. 189.

Kleeman, A.W., and Skinner, B.J., 1958. The Kanmantoo Group in the Strathalbyn - Harrogate Region, South Australia. Trans.Roy. Soc. S. Aust., Vol. 82 pp. 61-71.

Kostlin, E.C., 1969. C.R.A. Exploration Pty.Ltd. Geochemical Prospecting for Zinc Silicate Deposits in Special Mining Leases 238, 239 and 246. (South Aust. Dept. of Mines open file Env. 1011 - unpublished).

Lynch, G.H., and Boydell M.C., 1961. Comstock Minerals Ltd. Final Report on S.M.L. 542. Fleurieu Peninsula South. Aust. (S. Aust. Dept. of Mines open file Env. No. 1642 - unpublished).

Nixon, L.G., 1959. Second Report on Talisker Lead - Arsenic Mine Mineral Sec. 1554. Land Sec. 339 and 340. S. Aust. Dept.of Mines. Unpublished Report R.B. No.48/59.

Offler, R., andFleming, P.D., 1968. A Synthesis of Folding and Metamorphism In the Mt. Lofty Ranges, South Australia. J. Geol. Soc. Aust. Vol. 15, p.p. 245-266.

Thomson, B.P., 1961. Report on Regional Geochemical Sampling in the Cambrian and Upper Proterozoic Rocks of South Australia, S. Aust., Dept. of Mines, unpublished report R.B. No. 58/21.

_____ 1969 The Kanmantoo Group and Early Palaeozoic Tectonics. In L.W. Parkin's (Editor) Handbook of South Aust. Geology. Geological Survey of S.Aust. p. 99.

Thomson, B.P., and Horwitz, R.C., 1962. BARKER Sheet Geol. Atlas of S. Aust., 1: 250 000 series, Geol. Surv. of S. Aust.

Wright, D.J., and Hatcher, M.I., 1971. Bridge Minerals Pty.Ltd. Annual Report on S.M.L. 423 (S. Aust. Dept. of Mines open file Env. 1448 - unpublished)

Yufa, B. Ya., and Gurvich, Yu.M. 1964. The use of the median and quartiles in estimating normal and anomalous values of a geochemical field. Geochem. Internat. pp. 801 - 807.

Appendix A

Assay Results (A.M.D.E.L. reports An 1778/74, 1821/74, 1977/74, 2055/74 and 2154/74.

ASSAY RESULTS. AMDEL REPORT NUMBER AN1/15/2/0-1778/74

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/74	Cu	Pb	Zn	As
9601	8	-5	12	-2
9602	8	-5	20	-2
9603	5	-5	12	-2
9604	8	-5	22	-2
9605	5	-5	12	-2
9606	8	8	18	4
9607	2	-5	12	-2
9608	5	-5	15	-2
9609	8	5	18	2
9610	10	8	32	-2
9611	12	5	38	2
9612	20	10	40	4
9613	12	-5	32	4
9614	5	-5	15	-2
9615	10	-5	30	-2
9616	18	-5	40	-2
9617	8	-5	25	-2
9618	45	32	45	-2
9619	25	5	20	-2
9620	12	8	25	-2
9621	25	12	28	-2
9622	5	5	10	-2
9623	5	5	10	-2
9624	2	-5	8	-2
9625	10	-5	12	2
9626	5	10	10	-2
9627	2	-5	8	-2
9628	2	-5	8	-2
9629	2	-5	8	-2
9630	5	-5	5	5
9631	10	8	10	5
9632	5	-5	5	2
9633	2	-5	5	-2
9634	2	-5	10	-2
9635	5	-5	8	-2
9636	8	-5	10	2
9637	5	5	5	8
9638	2	-5	5	-2
9639	2	-5	5	-2
9640	5	-5	5	-2
9641	15	5	28	3
9642	8	-5	8	2
9643	80	8	95	10
9644	8	-5	15	-2
9645	38	12	20	15
9646	35	25	30	25
9647	20	25	18	15
9648	12	38	18	15
9649	30	5	55	10
9650	28	-5	38	8
9651	42	10	70	5
9652	20	5	15	4

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/74	Cu	Pb	Zn	As
9653	5	-5	5	-2
9654	5	-5	12	-2
9655	5	-5	20	-2
9656	340	-5	40	8
9657	18	-5	10	-2
9658	12	5	28	5
9659	10	5	20	2
9660	12	-5	28	2
9661	5	-5	18	3
9662	5	-5	15	-2
9663	5	-5	18	-2
9664	10	-5	20	-2
9665	8	5	20	-2
9666	20	-5	60	5
9667	15	-5	25	-2
9668	15	-5	25	-2
9669	15	-5	20	2
9670	5	-5	10	-2
9671	10	-5	18	-2
9672	12	-5	20	5
9673	15	8	65	4
9674	18	8	42	4
9675	18	8	32	5
9676	15	-5	30	3
9677	15	8	28	2
9678	32	20	80	5
9679	18	8	100	3
9680	15	8	32	3
9681	15	8	28	2
9682	15	8	25	2
9683	15	10	28	3
9684	12	8	18	2
9685	35	-5	18	4
9686	32	10	35	8
9687	12	-5	22	3
9688	20	12	38	5
9689	12	12	40	3
9690	15	5	28	3
9691	12	8	25	2
9692	12	-5	30	3
9693	15	-5	30	3
9694	15	8	35	5
9695	22	12	40	8
9696	18	10	32	4
9697	20	12	45	10
9698	20	12	28	25
9699	15	-5	35	8
9700	18	5	42	8
9701	18	8	35	8
9702	15	8	30	10
9703	18	8	25	10
9704	15	5	28	5
9705	15	5	70	4
9706	12	5	22	4
9707	8	-5	20	3
9708	12	-5	32	5

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
9709	10	-5	25	5
9710	15	10	38	8
9711	15	10	38	4
9712	15	5	35	4
9713	18	5	42	5
9714	28	5	80	10
9715	25	5	45	8
9716	18	-5	28	12
9717	15	8	48	4
9718	15	8	32	8
9719	15	8	35	8
9720	15	5	32	8
9721	12	10	35	12
9722	15	8	38	8
9723	15	5	22	12
9724	25	10	42	12
9725	15	8	38	5
9726	18	5	75	4
9727	5	8	22	-2
9728	10	-5	40	2
9729	12	-5	32	3
9730	18	-5	30	4
9731	15	15	28	2
9732	12	12	20	5
9733	15	20	30	4
9734	10	10	28	2
9735	22	40	50	4
9736	10	5	32	2
9737	20	8	85	5
9738	8	5	22	-2
9739	22	8	18	3
9740	15	5	35	3
9741	10	-5	18	3
9742	20	8	22	3
9743	28	5	35	10
9744	10	-5	25	-2
9745	25	10	55	8
9746	22	8	38	4
9747	8	-5	22	2
9748	8	10	40	5
9749	10	-5	28	2
9750	5	-5	20	-2
9751	5	5	25	2
9752	12	5	22	2
9753	120	640	210	5
9754	10	5	32	4
9755	10	-5	18	2
9756	8	8	25	5
9757	10	5	32	12
9758	25	5	25	2
9759	15	8	35	2
9760	35	10	28	2
9761	8	5	20	-2
9762	20	12	50	5
9763	15	8	65	3
9764	10	-5	30	2
9765	22	5	70	3

SAMPLE NUMBER	ELEMENT IN PPM.				
M-/73	Cu	Pb	Zn	As	AU
9766	38	5	95	4	
9767	12	-5	35	2	
9768	10	-5	28	2	
9769	8	-5	25	-2	
9770	12	-5	22	2	
9771	12	-5	35	4	
9772	38	12	65	10	
9773	12	-5	25	4	
9774	42	10	65	5	
9775	20	8	48	5	
9776	20	5	45	5	
9777	48	12	80	12	
9778	32	10	30	8	
9779	15	8	32	8	
9780	22	10	40	8	
9781	30	45	80	10	
9782	18	22	38	20	
9783	25	22	60	20	
9784	28	10	75	20	
9785	28	12	75	15	
9786	25	15	60	12	
9787	40	8	90	15	
9788	25	-5	48	5	
9789	28	10	60	10	
9790	15	5	35	8	
9791	10	8	28	4	
9792	12	-5	28	4	
9793	25	10	55	8	
9794	12	70	90	4	
9795	22	18	48	8	
9796	18	12	45	10	
9797	22	28	60	12	
9798	20	18	60	8	
9799	15	10	42	5	
9800	30	12	85	8	
9801	22	10	70	5	
9802	22	10	55	4	
9803	22	22	65	12	
9804	12	10	32	5	
9805	12	8	35	5	
9806	15	10	32	5	
9807	15	8	35	10	
9808	18	5	40	10	
9809	15	8	32	8	
9810	28	12	50	10	
9811	20	10	38	12	
9812	30	10	70	15	
9813	20	12	50	8	
9814	25	110	70	70	<0.05
9815	22	8	38	12	
9816	12	8	32	5	
9817	15	10	45	12	
9818	20	10	32	10	
9819	20	10	40	10	
9820	18	8	25	5	
9821	22	8	50	4	
9822	25	10	45	5	

SAMPLE NUMBER	ELEMENTS IN PPM.			
M-/73	Cu	Pb	Zn	As
9823	18	8	42	5
9824	15	5	25	8
9825	10	12	35	5
9826	10	10	25	8
9827	2	5	10	2
9828	22	8	38	40
9829	12	5	35	10
9830	8	5	15	5
9831	5	10	10	3
9832	12	5	25	4
9833	12	10	38	5
9834	15	10	35	8
9835	20	5	28	10
9836	20	5	35	3
9837	28	8	55	-2
9838	30	-5	55	2
9839	25	-5	65	-2
9840	38	5	55	-2
9841	5	-5	12	-2
9842	60	5	42	2
9843	55	12	30	3
9844	50	12	45	3
9845	32	8	45	2
9846	28	8	38	3
9847	12	28	65	3
9848	35	35	70	3
9849	48	40	80	2
9850	55	15	38	4
9851	18	15	25	8
9852	18	15	10	2
9853	15	12	20	3
9854	10	10	18	4
9855	8	10	15	3
9856	12	8	22	2
9857	22	8	30	3
9858	20	8	40	8
9859	50	5	15	3
9860	22	-5	22	2
9861	28	35	60	8
9862	18	-5	10	2
9863	55	5	15	8
9864	42	-5	15	2
9865	28	8	22	2
9866	20	-5	65	5
9867	65	100	70	10
9868	5	5	20	-2
9869	60	-5	25	2
9870	25	5	85	8
9871	32	25	85	5
9872	45	-5	70	8
9873	30	5	60	8
9874	25	45	95	5
9875	38	45	100	5
9876	32	-5	25	12
9877	20	5	55	3
9878	20	5	15	4
9879	42	5	28	8

SAMPLE NUMBER	ELEMENT IN PPM.				
M-/73	Cu	Pb	Zn	As	Au
9880	15	5	25	5	
9881	55	5	65	25	
9882	42	-5	40	60	<0.05
9883	18	-5	28	3	
9884	85	10	30	12	
9885	35	5	20	4	
9886	18	-5	28	3	
9887	25	-5	18	5	

ASSAY RESULTS. AMDEL REPORT NUMBER AN1/15/7/0-1821/74

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
9888	12	22	45	5
9889	10	-5	20	10
9890	18	8	65	4
9891	38	22	55	10
9892	22	28	70	10
9893	55	18	90	10
9894	15	5	70	40
9895	12	8	42	3
9896	18	5	70	10
9897	10	12	45	5
9898	15	5	32	8
9899	12	40	80	5
9900	8	-5	35	-2
9901	12	-5	35	5
9902	20	8	55	10
9903	8	5	20	2
9904	32	22	100	50
9905	60	-5	110	12
9906	25	5	65	3
9907	15	-5	38	2
9908	38	-5	120	10
9909	12	5	32	2
9910	12	15	35	3
9911	10	12	32	2
9912	5	20	25	3
9913	10	28	32	3
9914	8	28	28	4
9915	110	5	48	3
9916	22	18	60	4
9917	15	58	28	4
9918	45	8	100	5
9919	15	-5	90	3
9920	28	25	70	12
9921	8	5	42	4
9922	32	18	80	5
9923	40	12	80	8
9924	35	20	40	5
9925	12	10	20	3
9926	15	8	25	4
9927	10	-5	18	3
9928	20	10	48	4
9929	8	-5	45	-2
9930	12	8	30	4
9931	28	42	75	8
9932	12	5	45	4
9933	12	35	75	5
9934	25	12	40	15
9935	22	30	130	8
9936	20	28	60	8

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
9937	15	18	50	4
9938	25	12	45	8
9939	12	10	35	4
9940	12	8	22	2
9941	15	22	55	5
9942	15	10	50	8
9943	8	5	22	5
9944	22	15	48	12
9945	15	28	55	15
9946	15	12	35	8
9947	25	5	30	5
9948	22	20	50	10
9949	8	8	15	10
9950	10	8	30	-2
9951	10	10	25	3
9952	28	28	45	15
9953	8	8	20	2
9954	22	22	38	10
9955	12	20	28	8
9956	20	25	42	8
9957	10	8	22	3
9958	10	5	22	2
9959	10	10	22	2
9960	15	12	25	4
9961	22	22	48	-2
9962	42	5	35	3
9963	12	8	25	-2
9964	10	10	20	-2
9965	28	20	18	4
9966	18	10	20	4
9967	50	10	40	2
9968	32	15	85	3
9969	20	5	40	-2
9970	15	8	42	2
9971	42	8	80	2
9972	22	8	42	2
9973	8	10	200	-2
9974	8	10	30	3
9975	-5	-5	5	-2
9976	5	10	15	10
9977	8	12	18	10
9978	5	10	15	5
9979	10	8	30	6
9980	8	8	18	4
9981	5	5	18	2
9982	5	5	15	3
9983	10	12	25	4
9984	20	8	50	4
9985	5	-5	18	-2
9986	10	5	290	2
9987	8	5	40	4
9988	8	-5	20	5
9989	15	5	35	6
9990	10	5	28	2
9991	15	8	55	15
9992	18	130	75	35

SAMPLE NUMBER	ELEMENT IN PPM.				
M-/73	Cu	Pb	Zn	As	Au
9993	35	30	90	10	
9994	18	100	65	12	
9995	5	25	28	3	
9996	18	350	95	15	
9997	5	20	32	2	
9998	15	25	75	8	
9999	12	25	60	20	
10000	10	12	35	4	
10001	12	20	35	5	
10002	15	25	40	15	
10003	50	40	85	25	
10004	8	10	32	2	
10005	18	20	42	8	
10006	5	5	20	2	
10007	20	25	65	10	
10008	-5	5	10	2	
10009	10	28	25	10	
10010	12	12	45	4	
10011	22	25	60	10	
10012	20	22	50	8	
10013	12	20	30	10	
10014	12	55	28	10	
10015	20	10	55	2	
10016	8	20	28	6	
10017	10	18	22	4	
10018	-5	10	12	-2	
10019	12	15	28	4	
10020	5	15	20	6	
10021	-5	-5	15	3	
10022	8	10	18	4	
10023	8	10	22	20	
10024	60	70	45	70	0·1
10025	12	12	25	8	
10026	12	8	32	5	
10027	-5	-5	12	2	
10028	18	25	65	20	
10029	12	15	38	3	
10030	-5	5	15	4	
10031	35	35	55	25	
10032	65	100	55	30	
10033	50	5	32	10	
10034	10	10	25	8	
10035	12	-5	25	6	
10036	8	5	20	6	
10037	8	5	22	8	
10038	-5	-5	20	6	
10039	8	-5	30	5	
10040	8	-5	20	8	
10041	8	-5	100	5	
10042	25	60	65	12	
10043	12	8	45	10	
10044	25	-5	90	12	
10045	12	-5	60	10	
10046	48	-5	75	15	
10047	25	10	60	15	
10048	15	5	38	8	

SAMPLE NUMBER	ELEMENT IN PPM.				
M-/73	Cu	Pb	Zn	As	Au
10049	32	5	48	10	
10050	12	-5	40	5	
10051	5	5	25	2	
10052	15	8	55	3	
10053	18	5	65	8	
10054	10	-5	55	5	
10055	10	8	38	3	
10056	25	-5	50	15	
10057	5	-5	65	15	
10058	5	-5	75	10	
10059	8	5	65	25	
10060	15	10	95	60	<0.05
10061	22	5	40	5	

ASSAY RESULTS. AMDEL REPORT NUMBER AM1/15/7/0-1977/74

SAMPLE NUMBER	ELEMENT IN PPM.				
M-/73	Cu	Pb	Zn	As	Au
10062	5	8	45	-2	
10063	10	5	30	3	
10064	15	8	35	4	
10065	8	8	50	2	
10066	110	15	80	47	
10067	10	10	45	2	
10068	28	5	45	14	
10069	60	20	70	13	
10070	80	30	40	21	
10071	12	8	25	6	
10072	12	8	25	3	
10073	10	8	25	3	
10074	18	8	45	7	
10075	15	-5	30	7	
10076	32	22	25	28	
10077	25	8	5	6	
10078	40	22	55	25	
10079	15	12	40	11	
10080	10	-5	30	3	
10081	55	130	90	13	
10082	10	-5	18	3	
10083	8	-5	25	3	
10084	18	5	35	-2	
10085	8	5	15	2	
10086	8	-5	15	2	
10087	32	12	45	25	
10088	22	15	50	12	
10089	8	5	15	4	
10090	18	40	55	15	
10091	18	35	60	11	
10092	18	15	45	10	
10093	15	12	38	13	
10094	22	10	55	12	
10095	12	12	30	5	
10096	8	12	25	11	
10097	15	20	35	11	
10098	20	22	50	14	
10099	18	10	35	6	
10100	18	8	35	6	
10101	60	15	75	-2	
10102	80	22	45	7	
10103	10	8	20	7	
10104	22	20	28	2	
10105	20	35	25	7	
10106	12	10	50	-2	
10107	18	8	60	-2	
10108	2	-5	15	-2	
10109	18	20	55	9	
10110	30	40	65	62	<0.05
10111	12	15	25	29	
10112	5	5	10	6	
10113	10	18	35	19	

SAMPLE NUMBER	ELEMENT IN PPM.				
M-/73	Cu	Pb	Zn	As	Au
10114	22	18	90	19	
10115	20	10	45	14	
10116	10	10	20	17	
10117	5	8	15	12	
10118	8	-5	15	25	
10119	5	-5	10	330	
10120	60	18	80	32	<0.05
10121	20	25	55	28	
10122	12	8	60	16	
10123	35	40	65	11	
10124	12	5	25	4	
10125	12	5	40	7	
10126	35	42	40	27	
10127	28	20	45	41	
10128	35	30	50	17	
10129	28	25	35	16	
10130	38	40	40	18	
10131	15	10	25	4	
10132	42	140	60	13	
10133	60	300	180	3	
10134	32	38	140	2	
10135	38	50	45	8	
10136	38	48	80	6	
10137	40	65	70	7	
10138	28	38	60	8	
10139	18	75	45	10	
10140	28	110	80	-2	
10141	10	30	35	5	
10142	2	-5	28	-2	
10143	10	10	25	2	
10144	10	12	40	2	
10145	25	12	65	7	
10146	22	18	45	3	
10147	42	18	80	8	
10148	5	5	10	2	
10149	48	5	110	3	
10150	28	22	75	6	
10151	28	35	40	15	
10152	25	35	38	17	
10153	20	22	50	11	
10154	28	18	65	21	
10155	20	25	55	29	
10156	22	120	30	40	
10157	8	5	20	3	
10158	25	18	55	9	
10159	15	5	25	9	
10160	18	8	30	10	
10161	2	-5	5	2	
10162	8	10	15	5	
10163	15	15	45	7	
10164	15	20	45	7	
10165	8	22	20	11	
10166	15	65	28	22	
10167	15	45	28	16	
10168	15	15	38	7	
10169	22	8	70	9	
10170	40	15	90	14	

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10171	22	12	55	9
10172	12	8	20	5
10173	15	-5	40	2
10174	48	10	30	3
10175	22	5	55	2

ASSAY RESULTS. AMDEL REPORT NUMBER AN1/15/7/0-1977/74

SAMPLE NUMBERS	ELEMENT IN PPM.				
M-/73	Cu	Pb	Zn	As	Au
10176	18	12	18	6	
10177	15	-5	30	6	
10178	15	-5	25	4	
10179	10	-5	30	-2	
10180	8	5	35	4	
10181	8	-5	25	2	
10182	10	-5	25	2	
10183	25	20	90	17	
10184	22	-5	65	7	
10185	55	15	60	5	
10186	15	12	28	5	
10187	30	45	35	15	
10188	10	5	38	4	
10189	22	8	50	9	
10190	10	5	38	4	
10191	12	-5	30	3	
10192	40	8	55	13	
10193	15	20	45	8	
10194	12	15	30	3	
10195	30	42	65	11	
10196	8	8	25	-2	
10197	10	15	45	2	
10198	5	5	15	2	
10199	5	12	15	7	
10200	25	12	25	280	<0.05
10201	10	15	40	8	
10202	20	45	40	32	
10203	15	10	55	10	
10204	38	10	60	14	
10205	60	18	90	63	<0.05
10206	10	18	38	15	
10207	2	5	18	15	
10208	8	15	18	6	
10209	8	12	28	3	
10210	8	12	45	4	
10211	2	8	10	4	
10212	2	5	5	2	
10213	5	15	25	10	
10214	2	8	15	5	
10215	2	10	15	6	
10216	18	35	45	12	
10217	5	-5	8	3	
10218	25	190	35	48	
10219	8	8	10	2	
10220	20	120	50	20	
10221	25	45	85	14	
10222	15	32	55	12	
10223	15	45	35	15	
10224	20	230	25	17	
10225	18	18	38	9	
10226	25	38	50	11	
10227	10	30	25	10	

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10228	25	18	60	4
10229	28	25	60	3
10230	20	20	60	6
10231	18	42	55	2
10232	15	5	55	3
10233	2	8	25	-2
10234	15	12	45	4
10235	10	20	30	7
10236	25	90	40	40
10237	12	18	55	3
10238	15	18	60	12
10239	28	28	55	6
10240	15	20	300	7
10241	12	8	38	2
10242	10	22	75	4
10243	12	22	40	7
10244	8	10	25	3
10245	22	40	50	9
10246	20	12	60	15
10247	10	12	20	4
10248	25	55	30	23
10249	8	28	25	7
10250	15	18	15	-2
10251	10	12	28	7
10252	25	40	55	15
10253	70	62	50	29
10254	20	25	40	16
10255	20	35	60	14
10256	40	20	35	21
10257	12	20	25	9
10258	18	8	55	8
10259	18	12	50	23
10260	18	8	50	18
10261	30	18	38	13
10262	12	15	25	9
10263	12	10	20	6
10264	40	42	60	11
10265	30	15	50	19
10266	10	-5	15	9
10267	45	25	85	41
10268	10	8	15	7
10269	30	8	38	15
10270	45	12	45	30
10271	20	12	28	11
10272	15	12	18	5
10273	15	12	25	5
10274	25	18	40	4
10275	12	12	25	4
10276	28	15	60	3
10277	40	20	60	9
10278	32	15	55	6
10279	35	18	75	3
10280	10	-5	25	2
10281	30	18	55	7
10282	10	5	25	-2
10283	20	12	55	-2
10284	15	5	38	3

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10285	12	5	35	2
10286	15	10	38	-2
10287	12	5	25	2
10288	8	8	20	-2
10289	10	10	20	-2
10290	5	8	25	-2
10291	8	-5	25	2
10292	38	30	55	13
10293	8	-5	18	-2
10294	5	-5	18	-2
10295	25	10	45	6
10296	5	-5	28	2
10297	10	10	35	3
10298	15	22	55	15
10299	20	22	55	7
10300	15	8	55	7
10301	38	25	70	15
10302	15	25	45	2
10303	35	55	110	5
10304	15	38	70	7
10305	40	20	85	3
10306	35	30	85	29
10307	22	22	55	7
10308	15	25	65	7
10309	12	5	45	7
10310	30	70	110	12
10311	12	12	50	12
10312	22	5	55	16
10313	8	-5	20	-2
10314	18	8	50	14
10315	25	70	45	10
10316	5	-5	18	3
10317	18	10	45	15

ASSAY RESULTS. AMDEL REPORT NUMBER AN1/15/7/0-2055/74

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10318	2	10	5	-2
10319	5	32	5	3
10320	2	-5	5	-2
10321	2	15	10	7
10322	2	15	5	5
10323	12	38	25	12
10324	8	32	15	8
10325	5	22	10	6
10326	5	28	20	14
10327	2	10	18	2
10328	2	10	5	3
10329	32	120	15	20
10330	2	18	5	-2
10331	22	75	55	6
10332	25	55	40	5
10333	15	38	18	4
10334	12	32	30	2
10335	28	42	28	7
10336	18	32	25	2
10337	12	12	10	-2
10338	12	15	18	-2
10339	40	70	70	-2
10340	28	38	55	4
10341	42	42	90	4
10342	32	50	75	7
10343	30	28	70	5
10344	25	40	55	5
10345	25	28	55	2
10346	15	38	55	4
10347	35	22	85	9
10348	48	60	80	4
10349	18	20	40	3
10350	32	42	55	4
10351	8	18	25	14
10352	15	28	30	-2
10353	22	28	60	9
10354	5	5	10	-2
10355	30	18	55	6
10356	20	20	35	4
10357	15	20	40	6
10358	10	30	30	10
10359	5	20	28	7
10360	8	25	25	6
10361	8	28	28	8
10362	8	28	28	5
10363	8	25	25	5
10364	5	32	20	8
10365	5	35	18	8
10366	5	28	10	4
10367	5	38	20	22
10368	5	45	15	34
10369	5	20	18	6

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10370	5	35	18	7
10371	5	22	25	10
10372	2	10	8	-2
10373	5	22	20	7
10374	5	15	20	5
10375	8	18	25	3
10376	2	12	10	2
10377	10	12	25	5
10378	5	18	15	5
10379	5	10	5	-2
10380	35	15	15	6
10381	8	8	10	2
10382	10	15	30	6
10383	10	18	18	3
10384	8	12	25	5
10385	15	18	45	5
10386	15	8	28	7
10387	28	12	38	6
10388	15	22	28	7
10389	10	18	18	7
10390	10	12	20	8
10391	8	12	18	10
10392	5	8	8	2
10393	5	5	5	-2
10394	12	22	28	9
10395	5	10	8	3
10396	8	15	15	7
10397	8	25	20	11
10398	10	15	18	11
10399	5	22	10	8
10400	2	5	5	2
10401	2	12	5	3
10402	2	15	15	10
10403	5	12	10	8
10404	2	22	10	12
10405	5	18	15	8
10406	5	22	15	14
10407	5	22	15	10
10408	2	32	15	12
10409	-2	20	8	9
10410	25	28	10	20
10411	2	28	15	9
10412	12	45	35	16
10413	5	22	20	20
10414	5	12	15	8
10415	5	35	25	6
10416	10	30	18	30
10417	5	20	15	11
10418	5	20	15	16
10419	5	20	10	12
10420	5	28	18	20
10421	2	20	15	9
10422	2	38	15	13
10423	5	30	15	10
10424	2	28	15	11
10425	50	50	15	25
10426	12	18	25	7

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10427	22	40	30	11
10428	55	42	70	36
10429	35	42	60	10
10430	20	90	45	27
10431	12	22	50	10
10432	45	65	190	15
10433	10	18	38	4
10434	5	15	25	-2
10435	10	22	28	6
10436	2	10	18	-2
10437	8	12	25	3
10438	8	20	25	12
10439	12	22	28	15
10440	8	12	25	2
10441	8	15	20	18
10442	10	20	28	6
10443	10	22	30	6
10444	2	20	8	7
10445	5	80	15	12
10446	2	55	10	12
10447	2	8	5	2
10448	2	8	5	3
10449	5	18	18	11
10450	5	18	18	19
10451	2	18	15	9
10452	2	18	10	10
10453	2	12	15	9
10454	5	12	18	15
10455	5	22	10	7
10456	2	15	20	18
10457	2	-5	8	6
10458	2	12	15	13
10459	2	32	10	13
10460	5	22	15	21
10461	2	12	8	5
10462	5	20	15	16
10463	2	12	8	5
10464	2	20	10	12
10465	-2	18	5	4
10466	2	22	10	6
10467	5	30	18	5
10468	2	12	8	4
10469	2	22	15	20
10470	5	22	10	9
10471	5	18	8	7
10472	2	22	10	17
10473	8	12	8	9
10474	8	30	8	2
10475	5	30	15	23
10476	8	28	10	12
10477	5	30	10	14
10478	5	20	10	8
10479	5	18	10	9
10480	2	18	15	12
10481	2	12	10	7
10482	2	10	5	9
10483	5	28	5	5

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	PB	Zn	As
10484	25	20	65	3
10485	5	22	15	19
10486	15	38	25	6
10487	25	30	70	7
10488	42	50	65	19
10489	22	38	38	11
10490	18	40	30	7
10491	30	50	65	3
10492	20	38	38	8
10493	15	18	65	2
10494	12	25	30	5
10495	25	32	65	7
10496	18	40	35	8
10497	25	40	65	6
10498	10	40	20	10
10499	22	32	50	6
10500	10	25	18	21
10501	30	30	55	8
10502	25	40	60	5
10503	32	38	75	-2
10504	28	42	75	7
10505	15	200	50	-2
10506	10	22	25	4
10507	8	25	18	13
10508	30	38	55	7
10509	8	15	20	6
10510	20	40	45	11
10511	25	38	55	11
10512	32	55	80	13
10513	30	20	80	14
10514	10	15	25	3
10515	5	12	15	-2
10516	15	25	40	4
10517	20	28	45	6
10518	20	28	55	8
10519	25	42	55	11
10520	25	25	85	5
10521	28	35	65	10
10522	38	28	75	10
10523	22	30	55	13
10524	12	25	38	6
10525	15	30	40	7
10526	10	8	35	4
10527	12	15	35	3
10528	32	10	60	12
10529	12	15	40	3
10530	15	25	45	6
10531	10	20	18	10
10532	18	18	45	9
10533	28	15	70	6
10534	25	22	70	6
10535	25	18	60	7
10536	30	18	55	5
10537	35	10	55	4
10538	22	20	60	-2
10539	28	20	60	6
10540	28	20	65	5

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10541	18	25	50	4
10542	10	12	30	2
10543	18	25	45	11
10544	10	18	35	2
10545	5	10	20	6
10546	8	15	25	4
10547	5	-5	25	3
10548	8	22	25	-2
10549	8	8	15	3
10550	12	10	28	8
10551	12	10	25	11
10552	5	10	15	3
10553	-2	-5	5	-2
10554	2	5	15	4
10555	8	15	35	27
10556	8	12	35	36
10557	5	5	10	4
10558	5	8	10	3
10559	12	15	30	8
10560	10	40	25	2
10561	18	22	45	9
10562	12	15	65	3
10563	20	18	45	7
10564	15	18	28	4
10565	18	20	50	6
10566	10	32	35	2
10567	12	18	50	8
10568	8	10	28	4
10569	28	75	70	29
10570	42	80	120	40
10571	10	18	35	3
10572	5	20	23	32
10573	15	18	45	8
10574	25	60	60	41
10575	20	18	45	12
10576	5	20	15	5
10577	5	10	15	2
10578	5	20	25	4
10579	5	12	18	2
10580	2	20	18	-2
10581	5	12	15	2
10582	5	12	15	-2

ASSAY RESULTS. AMDEL REPORT NUMBER AN1/15/7/0-2154/74

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10583	8	15	27	2
10584	8	18	20	6
10585	5	10	15	2
10586	10	20	30	9
10587	10	10	40	12
10588	5	12	25	8
10589	12	12	35	12
10590	10	12	27	9
10591				
10592	15	18	30	12
10593	15	30	40	5
10594	15	8	37	7
10595	12	25	27	32
10596	30	15	65	9
10597	100	12	90	4
10598	18	8	50	5
10599	25	15	60	6
10600	18	55	70	6
10601	18	28	60	24
10602	8	15	45	11
10603	5	5	15	4
10604	40	18	85	6
10605	35	20	80	12
10606	32	12	100	11
10607	15	20	43	8
10608	12	22	40	11
10609	28	100	100	5
10610	18	25	50	30
10611	20	22	55	14
10612	12	18	45	12
10613	10	10	30	4
10614	5	5	25	3
10615	8	8	35	5
10616	18	12	43	10
10617	8	12	27	15
10618	10	10	60	8
10619	5	20	55	30
10620	8	8	40	8
10621	5	5	27	5
10622	2	8	17	8
10623	5	10	25	10
10624	22	25	55	13
10625	15	12	43	15
10626	15	15	27	14
10627	5	18	23	22
10628	5	15	15	16
10629	2	5	5	4
10630	2	8	10	9
10631	5	15	17	15
10632	15	25	40	15
10633	12	55	30	18
10634	8	30	27	16

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10635	2	5	10	4
10636	8	15	20	11
10637	8	10	20	13
10638	8	12	20	16
10639	8	12	25	13
10640	10	18	43	13
10641	18	15	55	18
10642	25	15	75	9
10643	2	-5	10	3
10644	5	10	35	12
10645	5	15	17	26
10646	5	18	15	19
10647	5	20	17	26
10648	5	18	17	26
10649	2	18	20	24
10650	5	12	15	8
10651	5	15	15	19
10652	8	18	17	18
10653	8	10	20	14
10654	8	15	23	12
10655	8	18	23	18
10656	2	18	10	20
10657	8	15	20	17
10658	5	18	20	16
10659	5	22	17	18
10660	5	15	17	18
10661	5	15	23	16
10662	5	22	13	30
10663	5	12	15	14
10664	5	10	20	18
10665	5	10	17	14
10666	2	-5	5	3
10667	5	5	20	12
10668	2	-5	10	10
10669	5	12	23	19
10670	5	12	13	15
10671	5	15	10	11
10672	5	8	13	12
10673	5	18	13	17
10674	5	15	10	9
10675	2	-5	5	11
10676	2	12	7	20
10677	2	10	10	9
10678	5	15	10	17
10679	2	10	5	5
10680	2	8	5	6
10681	2	12	10	5
10682	2	20	7	6
10683	2	20	5	8
10684	8	15	7	11
10685	18	30	17	18
10686	5	18	7	10
10687	5	20	15	17
10688	5	28	5	8
10689	2	20	7	11
10690	8	28	-5	6

SAMPLE NUMBER	ELEMENT IN PPM.				
M-/73	Cu	Pb	Zn	As	Au
10691	5	15	-5	3	
10692	5	30	5	2	
10693	5	35	-5	3	
10694	5	75	7	70	<0.05
10695	2	22	-5	22	
10696	18	12	7	13	
10697	12	55	10	13	
10698	8	30	5	8	
10699	8	20	5	22	
10700	8	15	5	6	
10701	18	110	-5	95	<0.05
10702	32	28	-5	22	
10703	5	8	5	7	
10704	20	35	10	7	
10705	25	40	27	2	
10706	30	25	40	22	
10707	20	20	70	3	
10708	15	30	10	6	
10709	20	40	37	7	
10710	22	20	60	3	
10711	10	12	43	4	
10712	12	25	50	3	
10713	110	30	7	11	
10714	10	5	10	3	
10715	18	15	20	6	
10716	50	10	17	4	
10717	20	15	37	4	
10718	12	12	5	3	
10719	12	10	10	13	
10720	15	8	30	7	
10721	12	-5	33	9	
10722	5	8	5	7	
10723	15	20	33	6	
10724	5	10	5	7	
10725	5	12	5	4	
10726	18	48	55	2	
10727	18	120	5	20	
10728	12	50	5	15	
10729	5	10	7	9	
10730	22	32	10	26	
10731	20	8	7	3	
10732	35	25	65	7	
10733	38	18	85	10	
10734	8	-5	17	3	
10735	22	8	55	3	
10736	18	15	20	12	
10737	10	12	13	11	
10738	28	20	10	105	<0.05
10739	8	28	7	3	
10740	15	40	50	9	
10741	42	38	85	17	
10742	12	15	25	8	
10743	42	45	80	15	
10744	12	8	13	9	
10745	15	20	30	19	
10746	10	15	20	15	
10747	22	20	50	10	

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10748	12	18	43	6
10749	12	10	30	5
10750	5	5	13	5
10751	12	15	37	7
10752	2	8	7	2
10753	12	18	30	10
10754	10	18	30	3
10755	12	8	25	7
10756	25	20	45	13
10757	18	10	40	7
10758	10	5	30	3
10759	10	8	33	5
10760	18	10	45	5
10761	32	8	65	6
10762	15	20	7	2
10763	25	28	55	5
10764	28	15	90	6
10765	18	12	55	7
10766	10	12	33	4
10767	2	12	13	6
10768	5	12	15	17
10769	2	12	10	12
10770	2	5	20	3
10771	8	20	20	17
10772				
10773	2	18	10	13
10774	5	20	23	11
10775	5	18	15	19
10776	2	10	10	5
10777	5	18	20	19
10778	10	12	15	11
10779	2	10	7	6
10780	2	18	7	7
10781	8	20	15	11
10782	10	45	33	9
10783	10	18	25	6
10784	18	20	130	5
10785	10	35	110	5
10786	15	20	80	3
10787	12	20	60	6
10788	5	25	27	11
10789	5	18	33	4
10790	5	38	45	5
10791	10	15	110	8
10792	18	48	60	40
10793	5	20	25	8
10794	18	50	110	3
10795	28	25	45	5
10796	10	12	23	4
10797	15	32	30	6
10798	12	12	23	3
10799	12	10	35	2
10800	48	15	55	4
10801	45	120	100	-2
10802	20	45	160	6
10803	12	-5	30	3
10804	12	5	27	-2

SAMPLE NUMBER	ELEMENT IN PPM.			
M-/73	Cu	Pb	Zn	As
10805	10	-5	27	-2
10806	8	8	50	-2
10807	8	-5	13	5
10808	18	30	45	4
10809	10	28	23	-2
10810	5	8	15	3
10811	15	-5	27	3
10812	15	40	45	7
10813	10	12	30	3
10814	12	10	33	12
10815	22	70	120	5
10816	18	28	55	3
10817	12	25	65	4
10818	15	55	140	15
10819	38	45	85	6
10820	15	30	150	9
10821	12	60	75	3
10822	42	700	730	-2
10823	15	22	43	2
10824	32	160	190	6
10825	32	150	600	6
10826	15	330	100	6
10827	30	1200	1100	2
10828	18	18	45	5
10829	15	12	43	4
10830	15	-5	45	3
10831	15	-5	50	3
10832	15	18	45	-2
10833	20	18	55	2
10834	18	15	55	3
10835	15	12	55	2
10836	15	15	50	4
10837	10	15	25	3
10838	12	18	27	3
10839	8	15	17	4

LEGEND

PERMIAN TERTIARY

- Ferruginised sands and gravels
- Glacial and fluvioglacial deposits:- silts and sands.

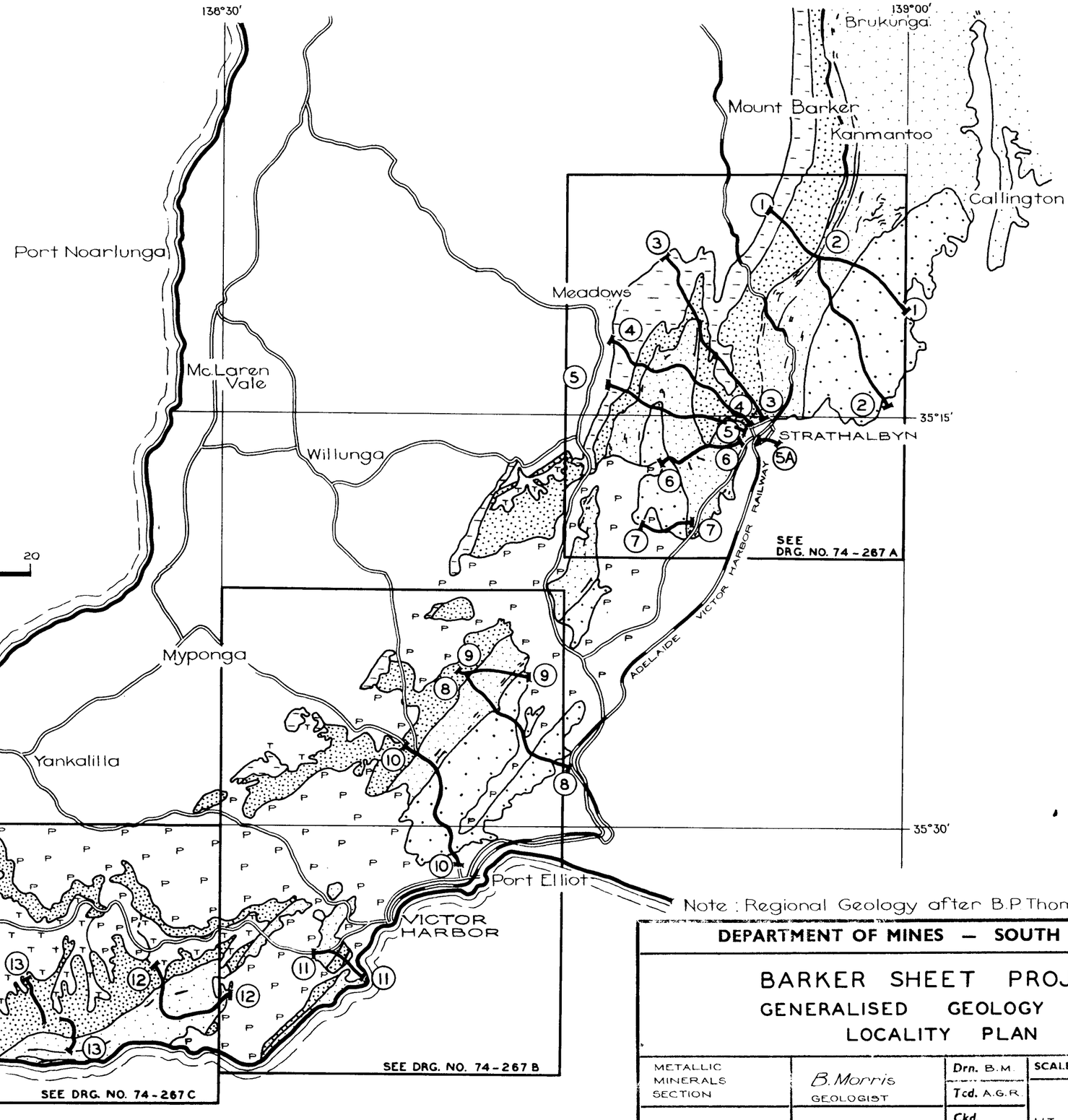
CAMBRIAN — KANMANTOO GROUP

- BRUKUNGA FORMATION — BROWN HILL GREYWACKE MEMBER
- Pyritic Phyllites and schists including the NAIRNE PYRITE MEMBER
- INMAN HILL FORMATION
- STRANGWAY HILL FORMATION

Soil Sampling Traverse (3)

SCALE IN KILOMETRES

5 0 5 10 15 20



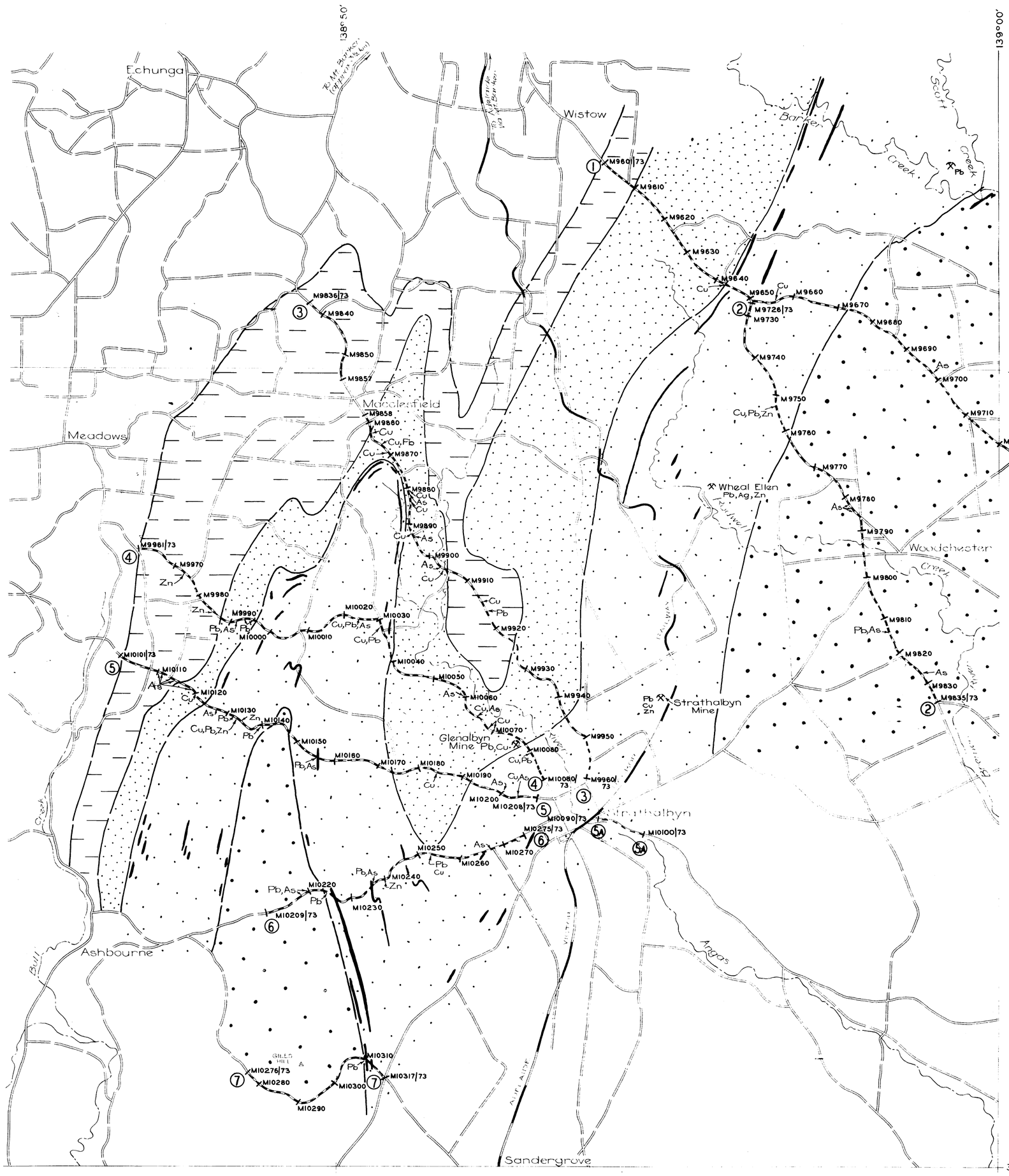
Note : Regional Geology after B.P Thomson (BARKER 1:250,000)

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
GENERALISED GEOLOGY AND LOCALITY PLAN

METALLIC MINERALS SECTION	B. Morris GEOLOGIST	Drn. B.M.	SCALE : 1:250,000
		Tcd. A.G.R.	74 - 669
		Ckd. HJ	
Director of Mines		Exd.	DATE : 22ND AUGUST 1974

FIG. 1.



LEGEND

CAMBRIAN KANMANTOO GROUP

- BRUKUNGA FORMATION — Brown Hill Greywacke Member
- Pyritic phyllites and schists including the Nairne Pyrite Member
- INMAN HILL FORMATION — Coarse grained impure arkose
- STRANGWAY HILL FORMATION — Greywackes, phyllites, quartzites and marble

⚒ Disused mine

Pb Lead
Zn Zinc
Cu Copper
Ag Silver
— Sample anomalous

⑦ M10270|73 — Soil Sample Traverse showing location of soil samples, soil sample numbers and traverse number.
⑦ M10280|73

Sealed road

Unsealed road

Geological boundary (Approximate)

SCALE IN KILOMETRES
1 0 1 2 3 4 5 6
1 0 1 2 3 4
SCALE IN MILES

Note: For locality plan see Drg. No. 74-669

Regional Geology after B.P. Thomson, (Barker 1:250,000)

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SOIL SAMPLE LOCATIONS AND GENERALISED GEOLOGY

METALLIC MINERALS SECT.	B. Morris GEOLOGIST	Drn. B.M.	SCALE: 1 : 50,000
		Tcd. A.G.R.	74-267A Hac
Director of Mines		Ckd.	
		Exd.	DATE: 29TH MARCH 1974

FIG. 2.

138°30′ 138°35′ 138°40′ 138°45′

35°25′ 35°30′ 35°35′

To Willunga

To Myponga 2½ mls.

Mount Compass

To Ashbourne

Tooperang

To Strathalbyn

Au

To Inman Valley

To Cape Jervis

Waitpinga

Hall Creek

Hindmarsh Valley

River Hindmarsh

River Inman

Currency Creek

To Currency Creek

Kilki

Pb,As

As

Pb,Cu

Cu

Pb

Pb,Zn

Cu,As

Disused mine

Newland Head

Newland

Victor Harbor

Granite Island

Middleton

To Goolwa

VICTOR HARBOR ADELAIDE RAILWAY

Port Elliot

ENCOUNTER BAY

M10270|73

M10280|73

M10318|73

M10320

M10399|73

M10410

M10420

M10430

M10440

M10443|73

M10444|73

M10450

M10460

M10470

M10480

M10490

M10500

M10510

M10520

M10530

M10540

M10550

M10552|73

M10553|73

M10560

M10570

M10580

M10590

M10600|73

M10330

M10340

M10350

M10360

M10370

M10380

M10390

M10390|73

LEGEND

PERMIAN TERTIARY

- Ferruginised sands and gravels
- Glacial and fluvioglacial deposits cross bedded silts and sands

CAMBRIAN KANMANTOO GROUP

- BRUKUNGA FORMATION — Brown Hill Greywacke member
- Pyritic phyllites and schists including the Nairne Pyrite Member
- INMAN HILL FORMATION — Coarse grained impure arkose
- STRANGWAY HILL FORMATION — Greywackes, phyllites, quartzites and marble
- Victor Harbor Granite

Cu,Pb,Zn & As — Sample anomalous in copper, lead, zinc and arsenic

Soil Sample Traverse showing location of soil samples, soil sample numbers and traverse number.

Sealed road

Unsealed road

Geological boundary (Approximate)

SCALE IN KILOMETRES 1 0 1 2 3 4 5 6

SCALE IN MILES 1 0 1 2 3 4

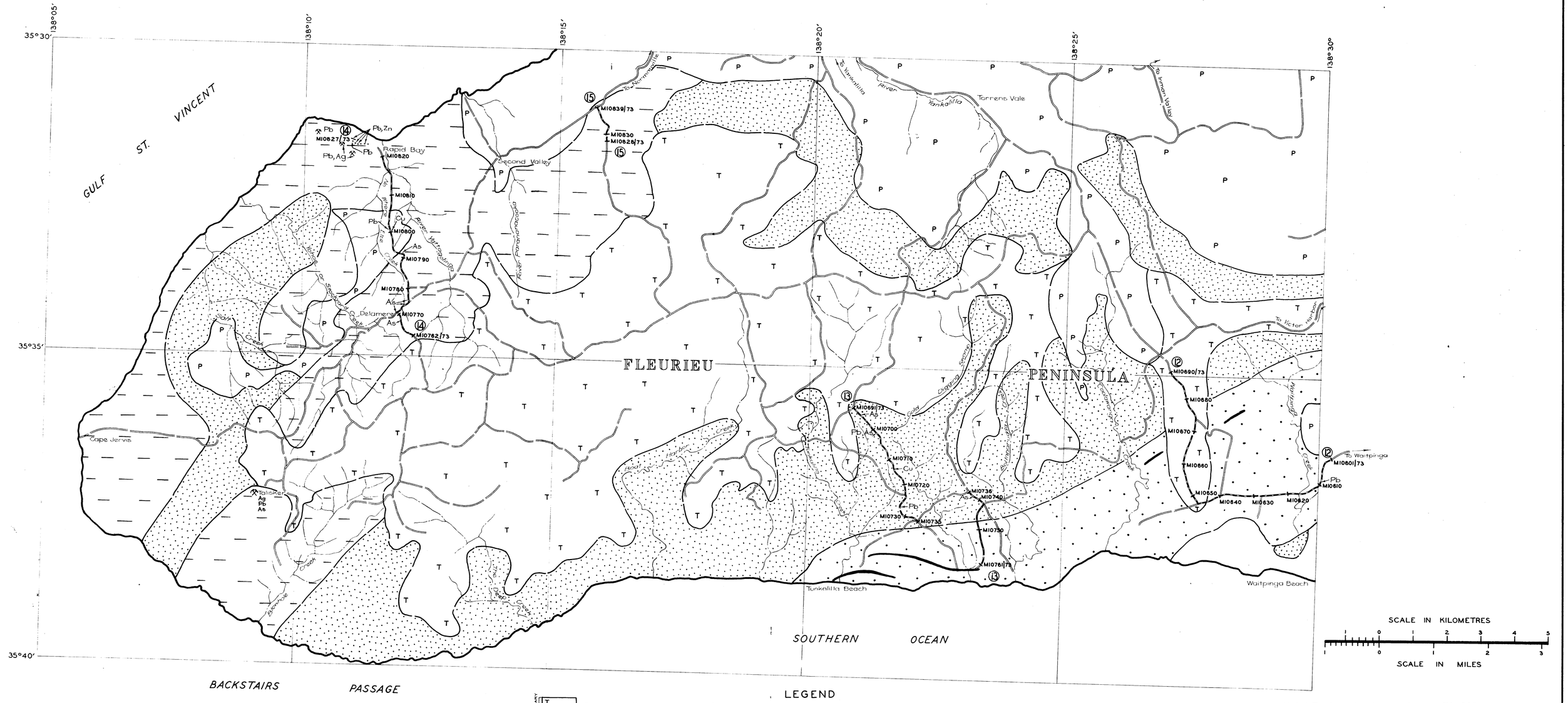
Note: For locality plan see Drg. No. 74-669
Regional Geology after B.P. Thomson, (Barker 1:250,000)

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SOIL SAMPLE LOCATIONS AND GENERALISED GEOLOGY

METALLIC MINERALS SECT.	B. Morris GEOLOGIST	Compiled B. MORRIS	Scale: 1 : 50,000
			Date: 28TH MARCH 1974
Director of Mines		Drn. A.G.R. / Ckd.	Drg. No. 74-267B Hoc

FIG. 3.



LEGEND

- Sealed road
- Unsealed geological boundary (Approximate)
- Unsealed road
- TERTIARY — T — Ferruginised sands and gravels
- PERMIAN — P — Glacial and fluvioglacial deposits cross bedded silts and sands
- CAMBRIAN, KANMANTOO GROUP — BRUKUNGA FORMATION — Pyritic pyllites and schists including the Nairne Pyrite Member
- CAMBRIAN, KANMANTOO GROUP — INMAN HILL FORMATION — Coarse grained impure arkose
- CAMBRIAN, KANMANTOO GROUP — STRANGWAY HILL FORMATION — Greywackes, phyllites, quartzites and marble
- Disused mine
- Cu, Pb, Zn & As — Sample anomalous in copper, lead, zinc and arsenic
- 7 / M10270/73 / 10280/73 / 7 — Soil Sample Traverse showing location of soil samples, soil sample numbers, and traverse number.

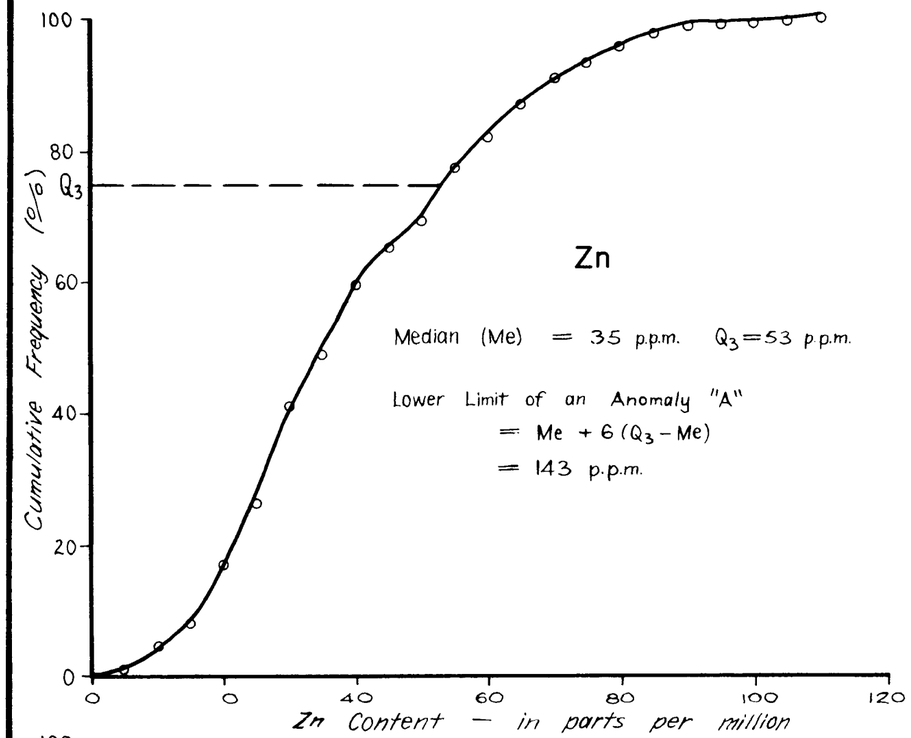
Note: For locality plan see Drg.No. 74-669

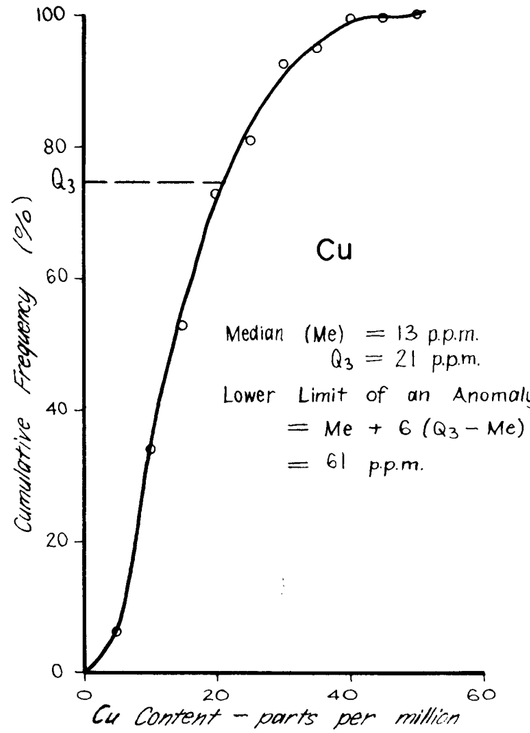
Regional Geology after B.P.Thomson (Barker 1:250,000)

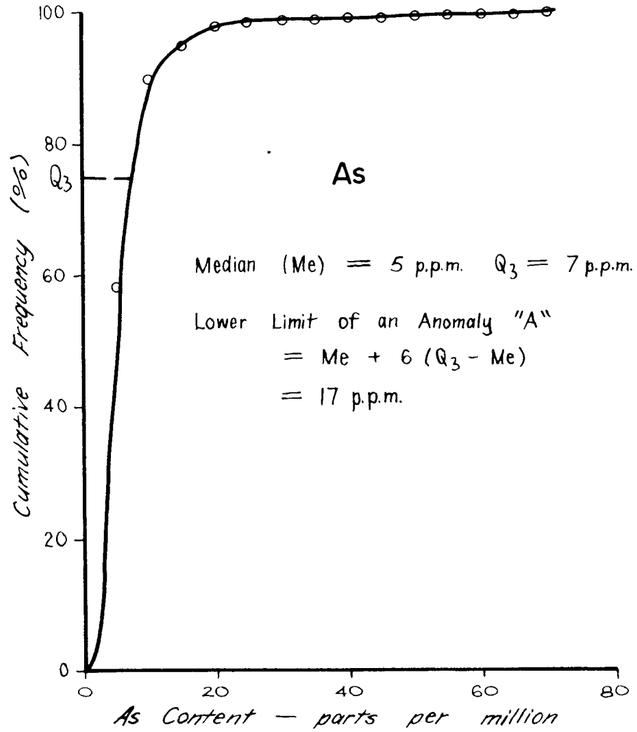
DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SOIL SAMPLE LOCATIONS AND GENERALISED GEOLOGY

METALLIC MINERALS SECT.	B. Morris GEOLOGIST	Drn. B.M.	SCALE: 1: 50,000
		Tcd. A.G.R.	74-267c Hac
Director of Mines		Ckd.	
		Exd.	DATE: 25TH MARCH 1974.







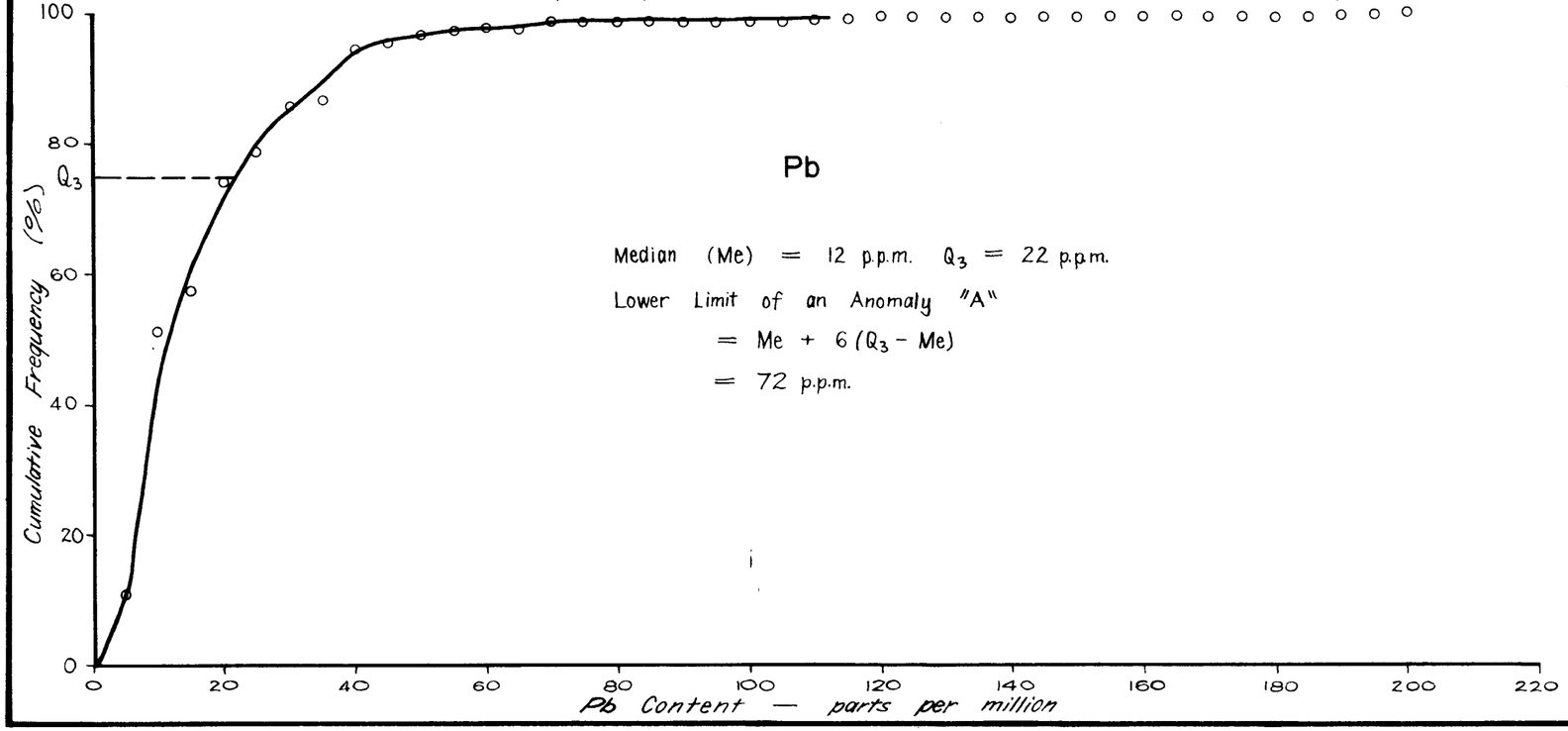
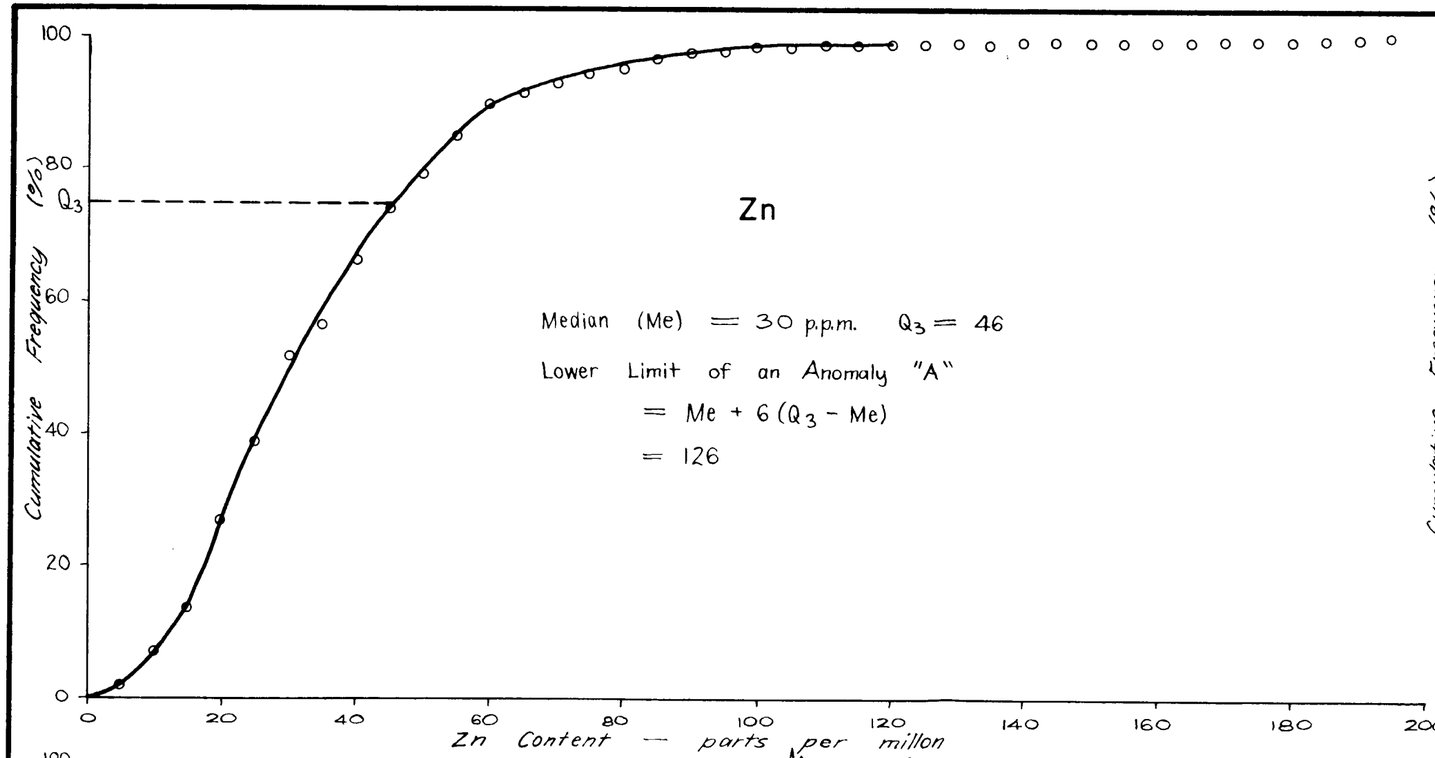


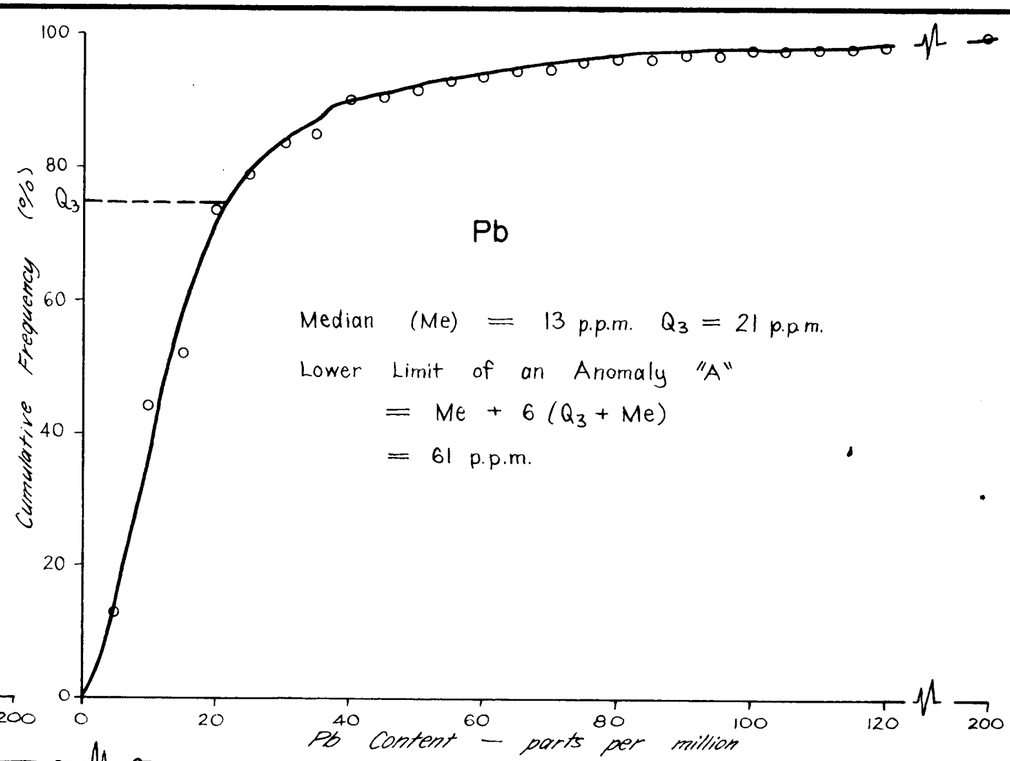
FIG.5

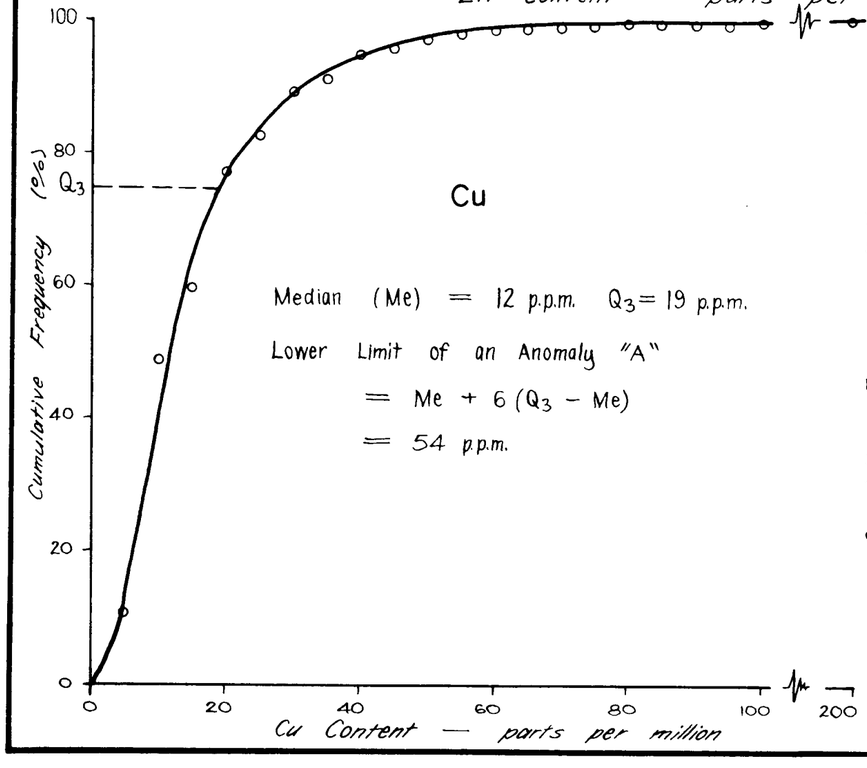
DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
CUMULATIVE FREQUENCY CURVES
BROWN HILL GREYWACKE MEMBER

METALLIC MINERALS SECTION	R.J. Morris GEOLOGIST	Drn. B.J.M.	SCALE: Graphical
		Tcd. D.J.M.	74-656
		Ckd.	HJ
Director of Mines		Exd.	DATE: 14 Aug. 1974







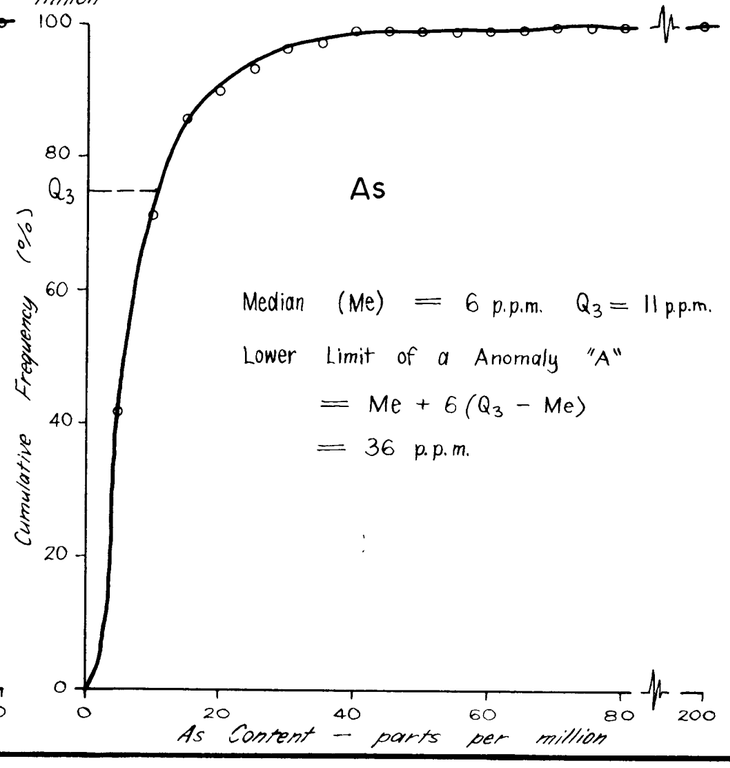
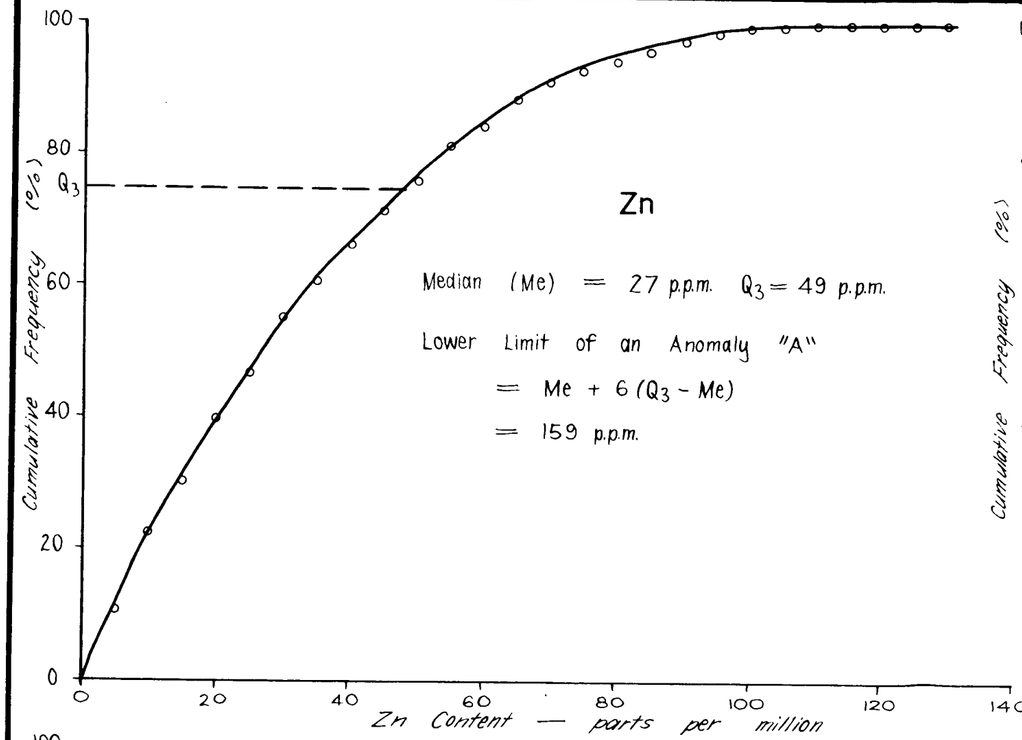


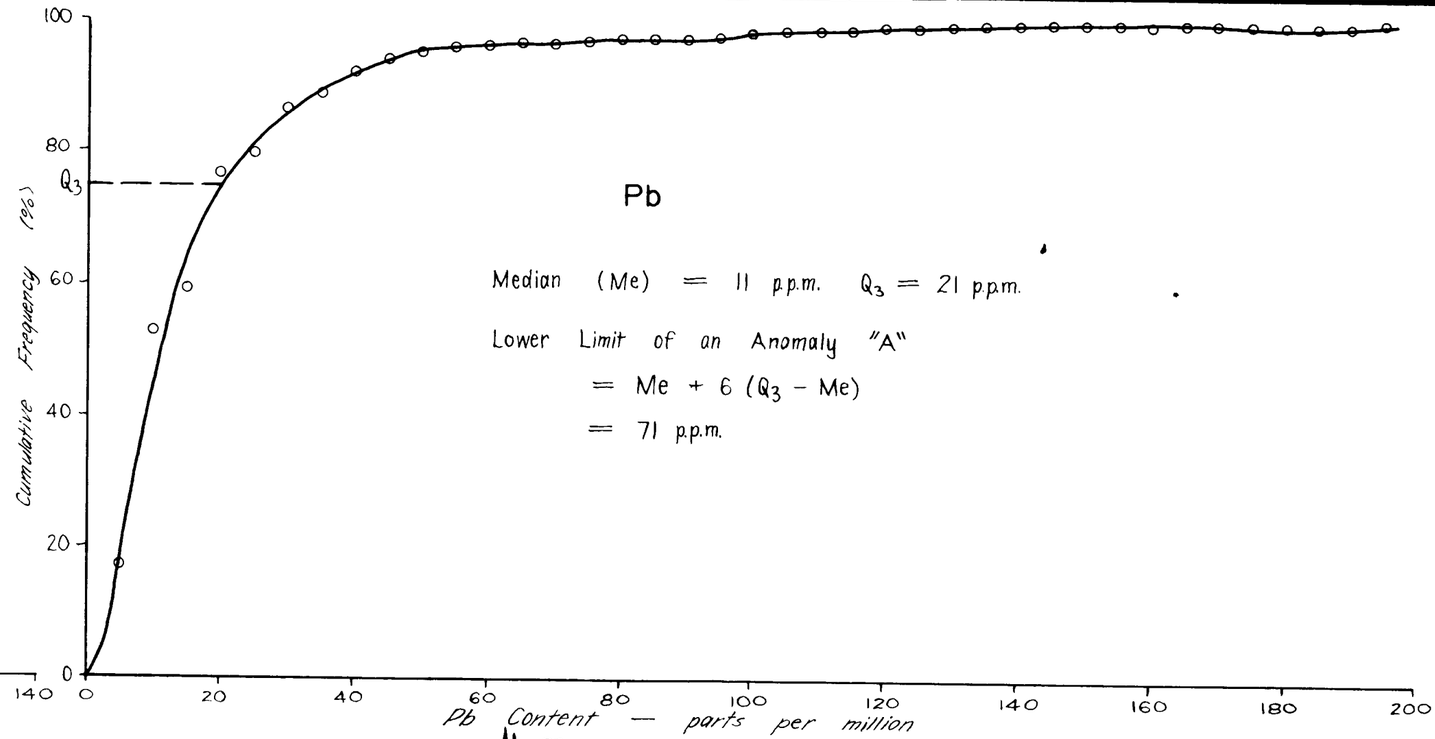
FIG. 6.

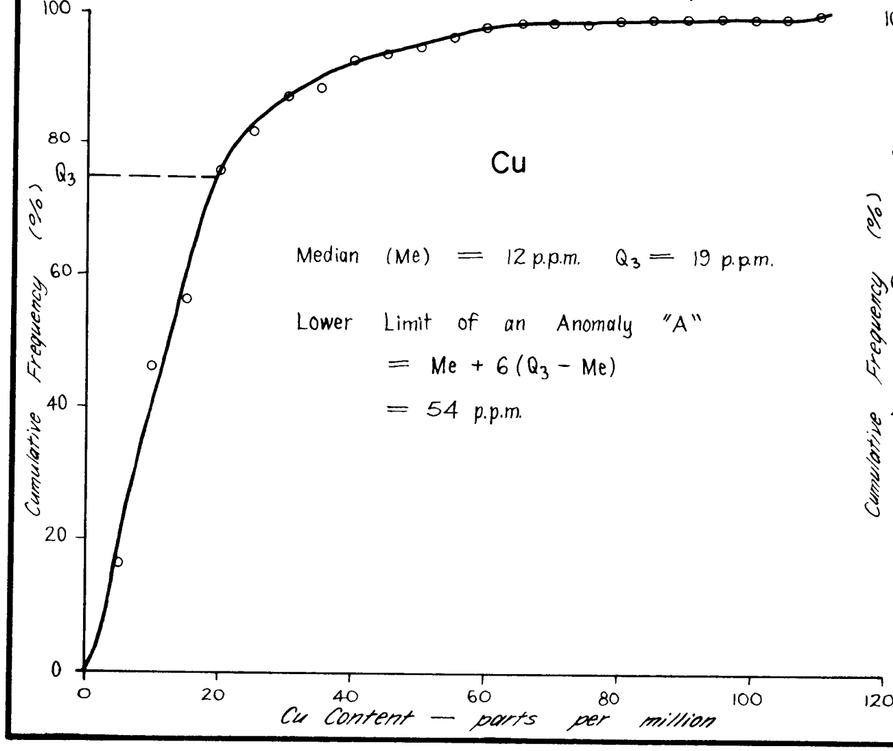
DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
CUMULATIVE FREQUENCY CURVES
PYRITIC PHYLLITES AND SCHISTS OF THE BRUKUNGA FORMATION

METALLIC MINERALS SECTION	B.J.M. GEOLOGIST	Drn. B.J.M.	SCALE: Graphical
		Tcd. D.J.M.	74-655 HJ
Director of Mines		Ckd.	
		Exd.	DATE: 19th. August 1974







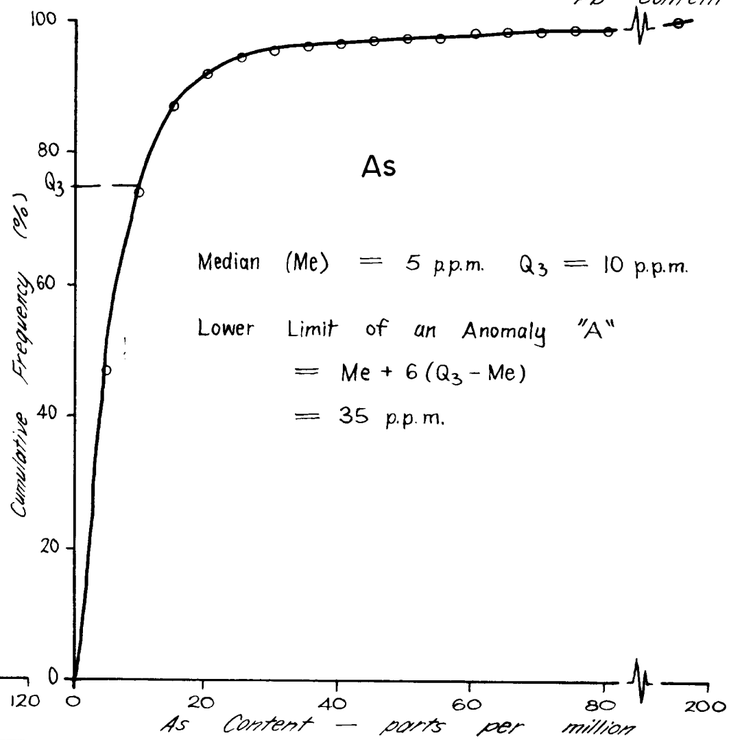


FIG. 7.

DEPARTMENT OF MINES — SOUTH AUSTRALIA

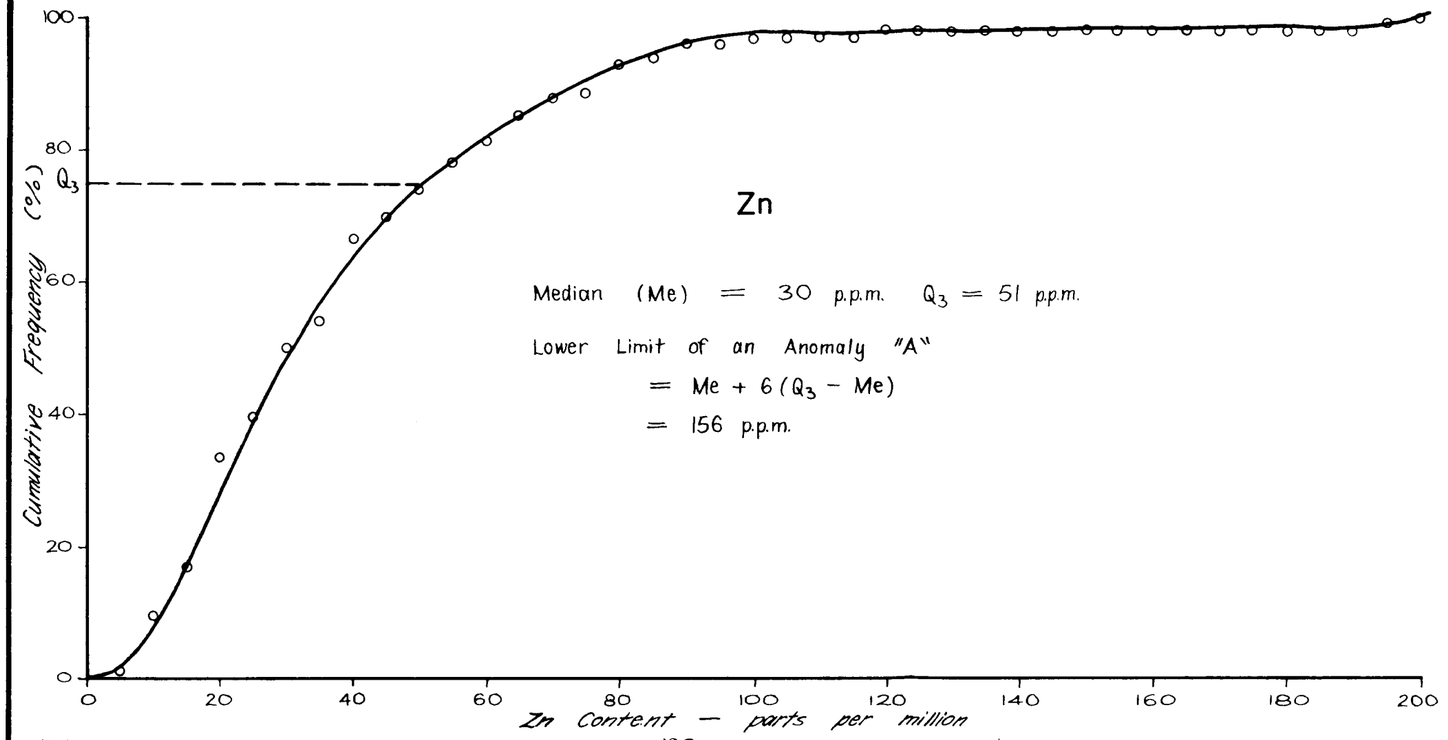
BARKER SHEET PROJECT
CUMULATIVE FREQUENCY CURVES
INMAN HILL FORMATION

METALLIC MINERALS SECTION	B.J. Morris GEOLOGIST	Drn. B.J.M.	SCALE: Graphical
		Tcd. D.J.M.	74-654 HJ
Director of Mines		Ckd.	
		Exd.	DATE: 19th August 1974

Zn

Median (Me) = 30 p.p.m. Q_3 = 51 p.p.m.

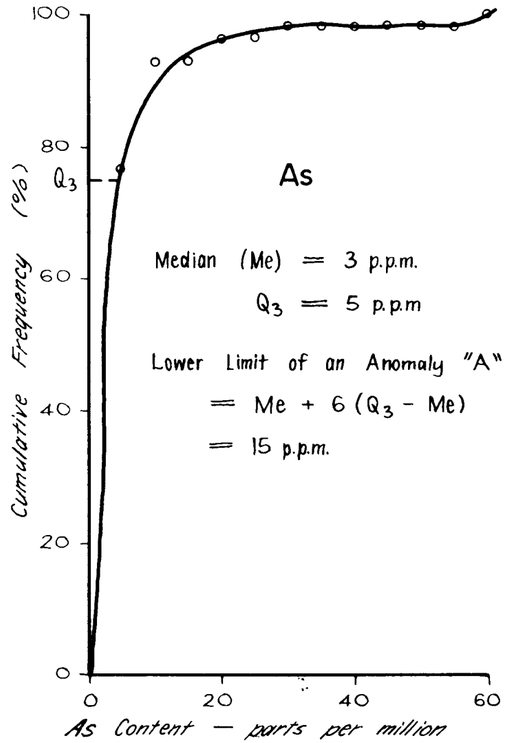
Lower Limit of an Anomaly "A"
= Me + 6 (Q_3 − Me)
= 156 p.p.m.



As

Median (Me) = 3 p.p.m.
Q_3 = 5 p.p.m

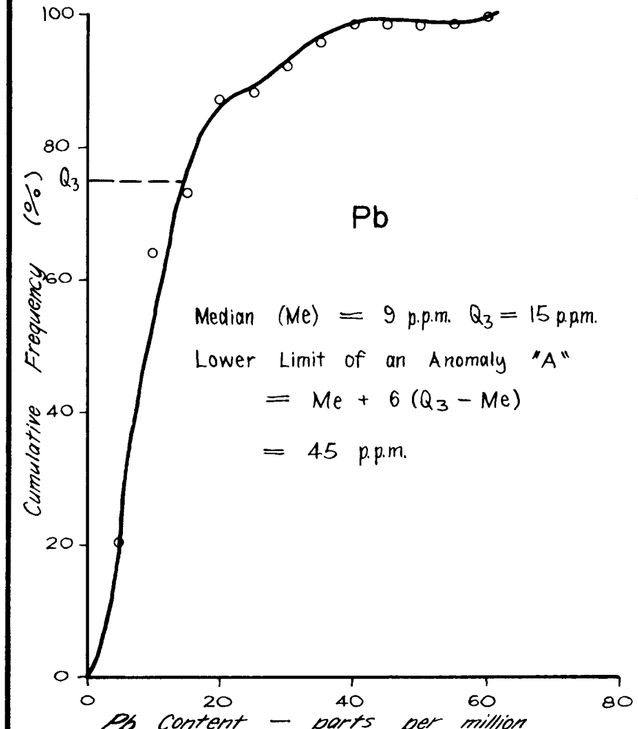
Lower Limit of an Anomaly "A"
= Me + 6 (Q_3 − Me)
= 15 p.p.m.



Pb

Median (Me) = 9 p.p.m. Q_3 = 15 p.p.m.

Lower Limit of an Anomaly "A"
= Me + 6 (Q_3 − Me)
= 45 p.p.m.



Cu

Median (Me) = 15 p.p.m. Q_3 = 27

Lower Limit of an Anomaly "A"
= Me + 6 (Q_3 − Me)
= 87 p.p.m.

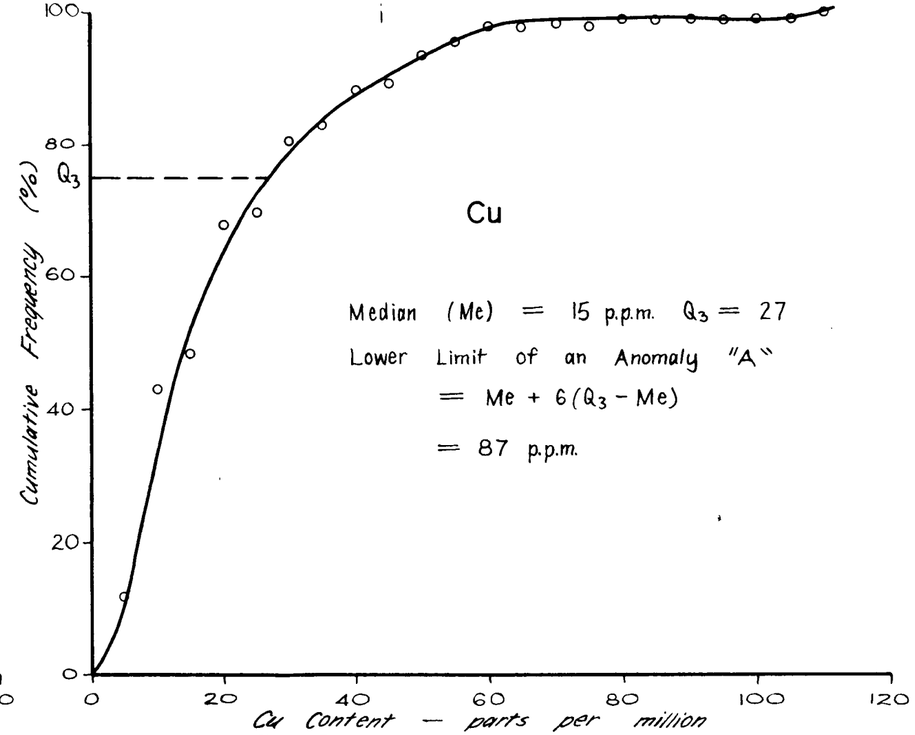


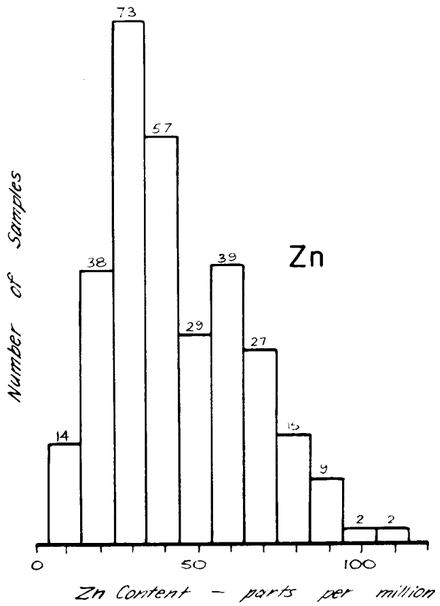
FIG.8

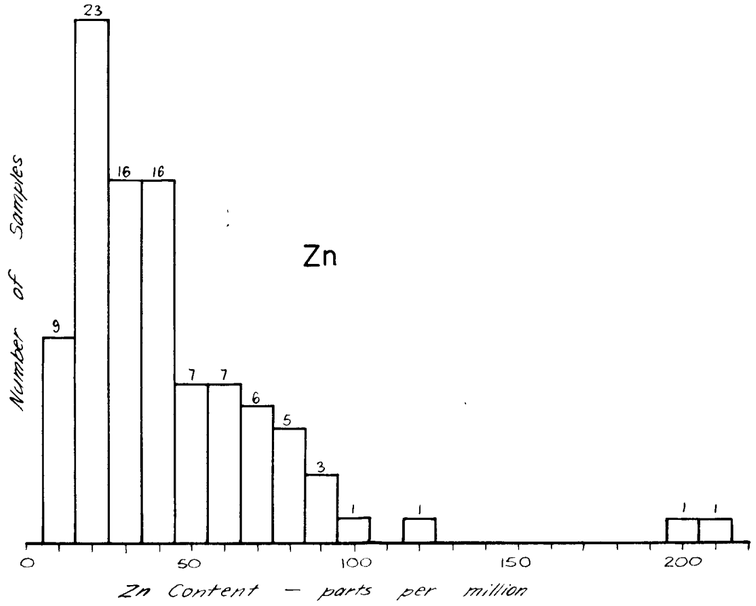
DEPARTMENT OF MINES — SOUTH AUSTRALIA

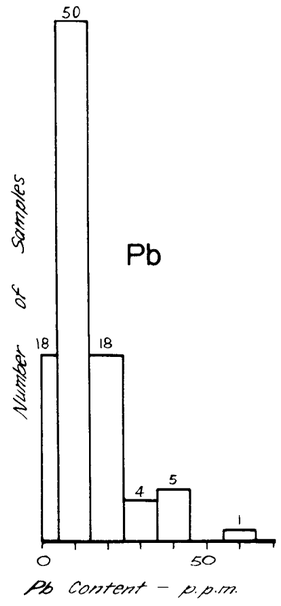
BARKER SHEET PROJECT
CUMULATIVE FREQUENCY CURVES
STRANGWAY HILL FORMATION

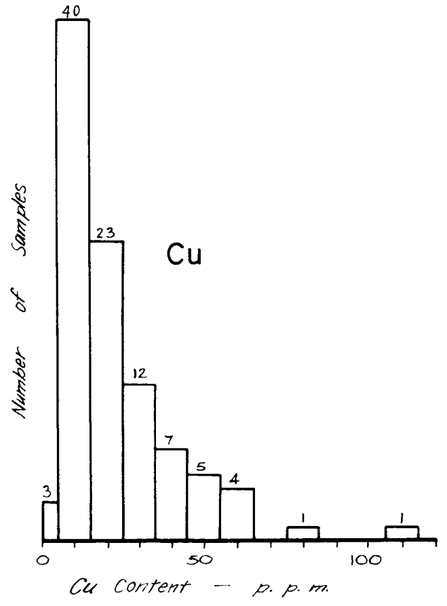
METALLIC MINERALS SECTION	GEOLOGIST	Drn. B.J.M.	SCALE: Graphical
		Tcd. B.J.M.	74-657 HJ
Director of Mines		Ckd.	
		Exd.	DATE: 19th. August 1974

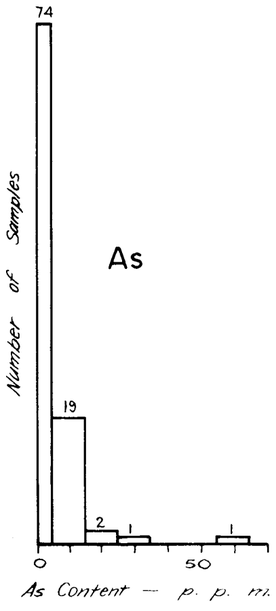
STRANGWAY HILL FORMATION



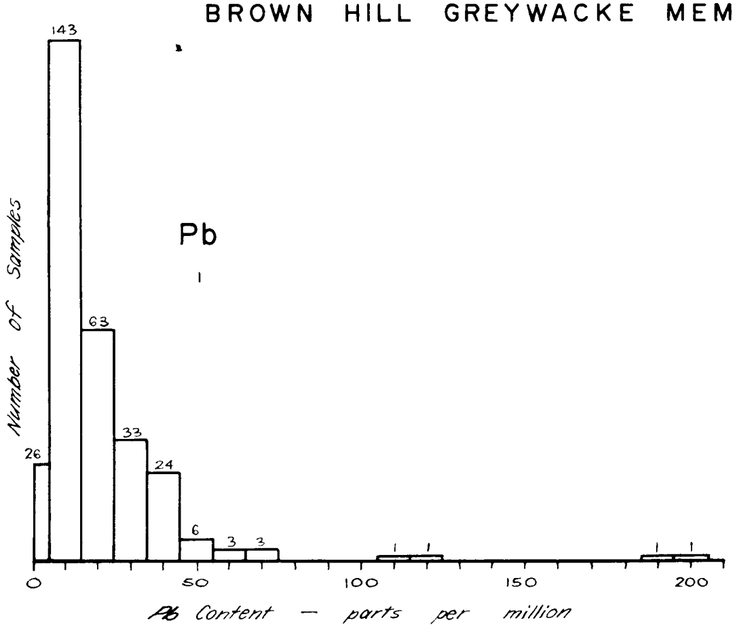


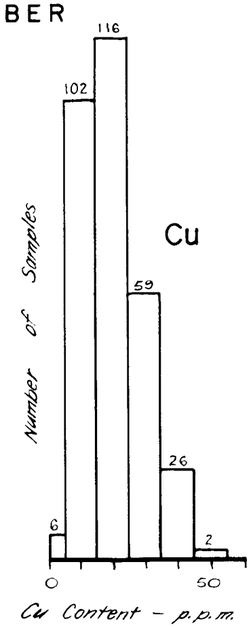






BROWN HILL GREYWACKE MEMBER





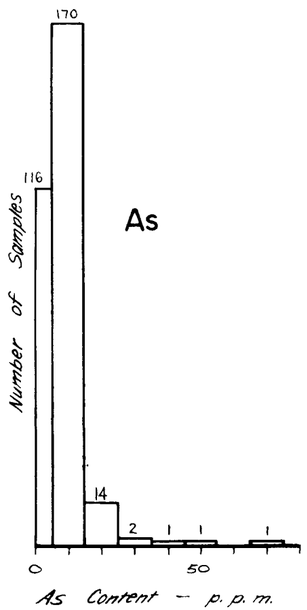
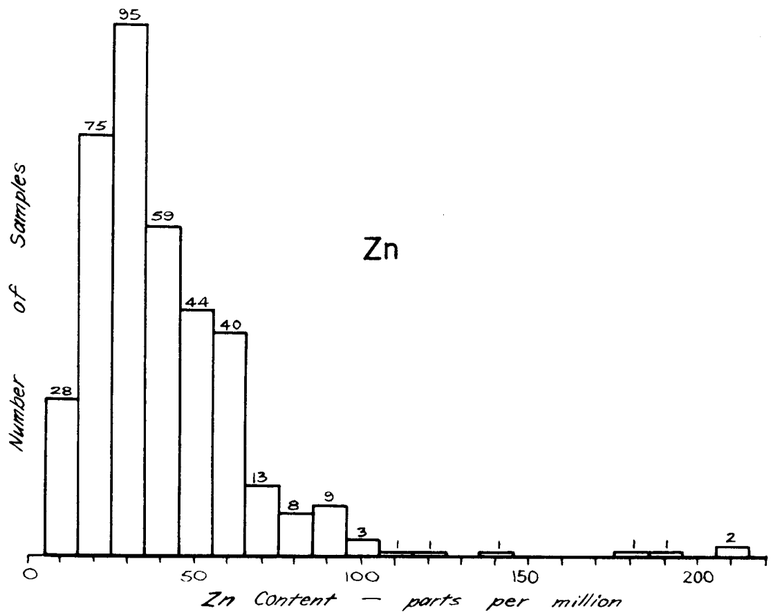


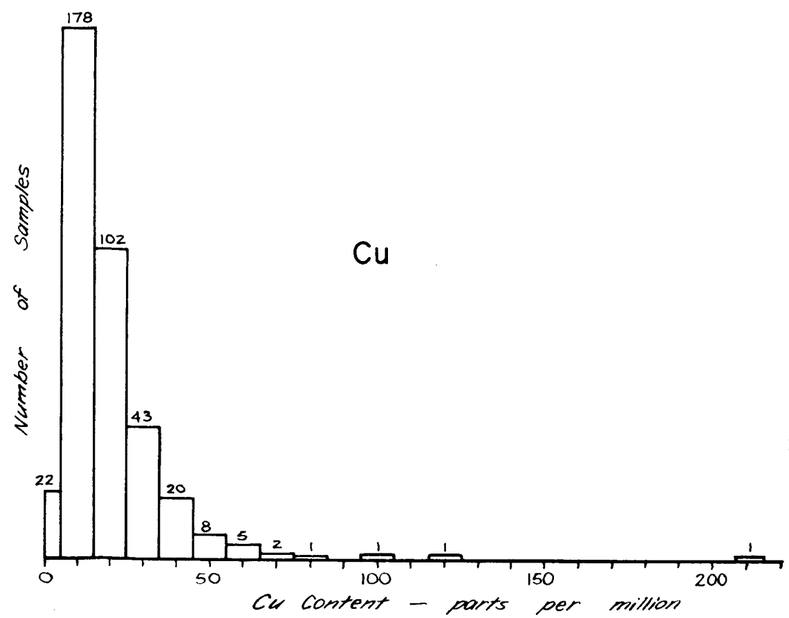
FIG. 9.

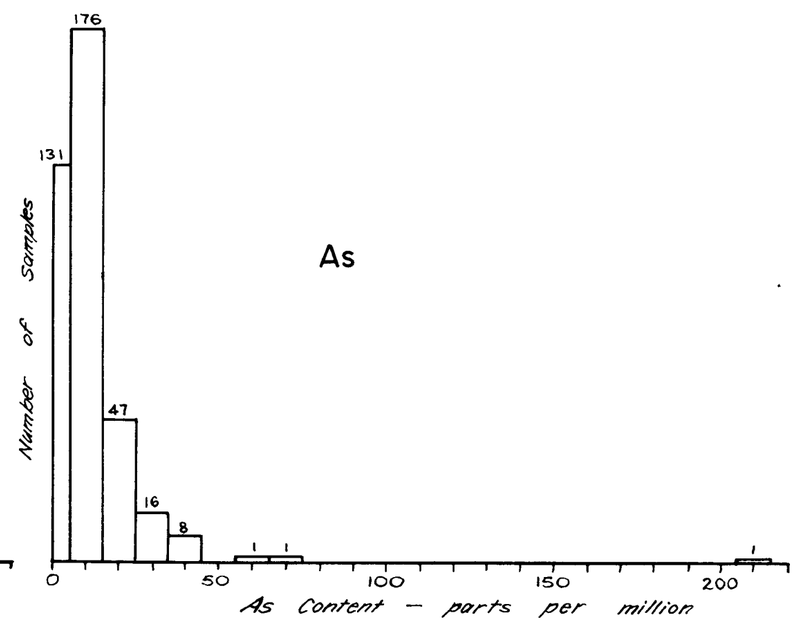
DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
FREQUENCY DISTRIBUTION HISTOGRAMS
STRANGWAY HILL FORMATION
AND BROWN HILL GREYWACKE MEMBER

METALLIC MINERALS SECTION	B.J.Morris GEOLOGIST	Drn. B.J.M.	SCALE: Graphical
		Tcd. D.J.M.	74-660 HJ
Director of Mines		Ckd.	
		Exd.	DATE: 19th. August 1974







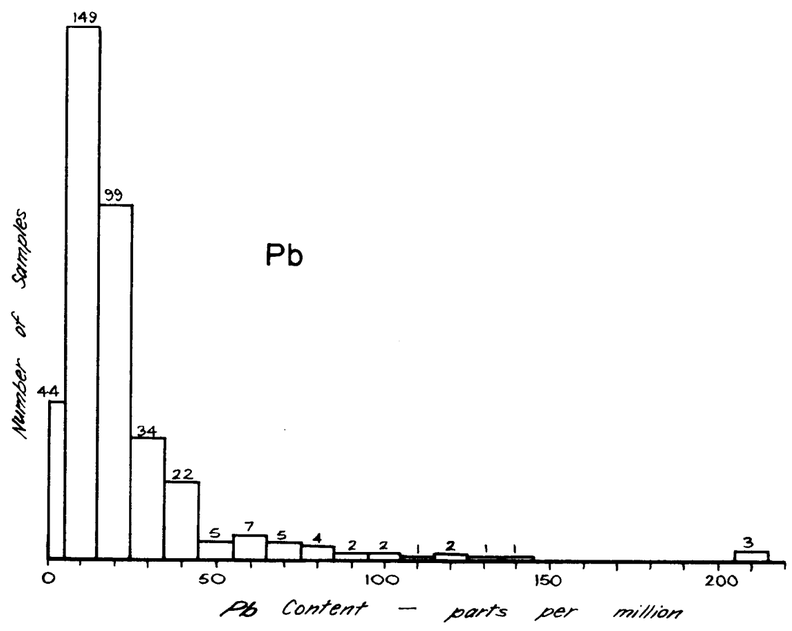
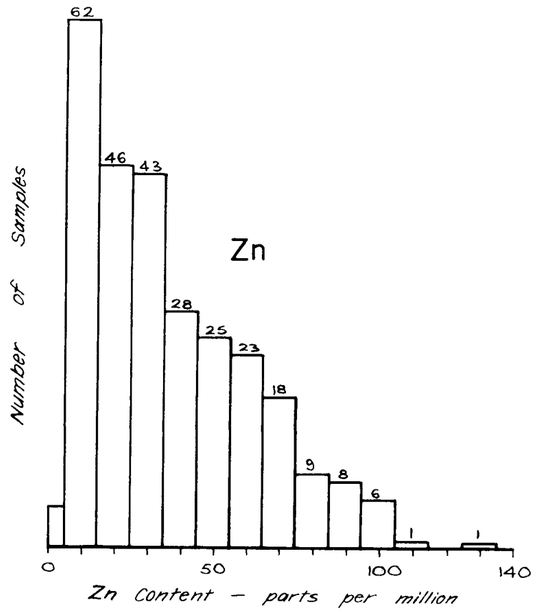


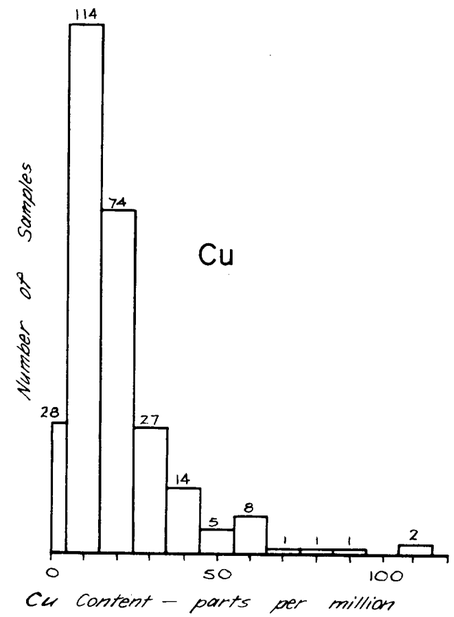
FIG. 10.

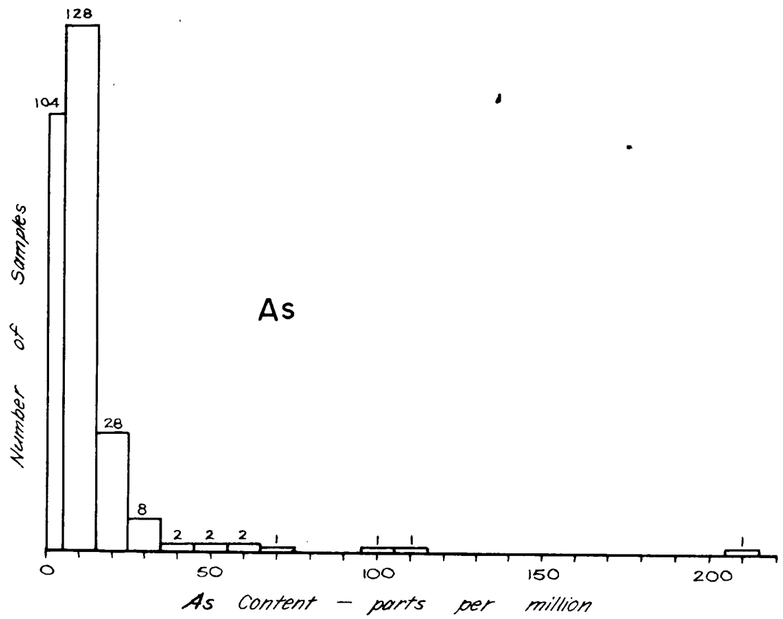
DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
FREQUENCY DISTRIBUTION HISTOGRAMS
PYRITIC PHYLLITES AND SCHISTS OF THE BRUKUNGA FORMATION

METALLIC MINERALS SECTION	B.J.M. Morris GEOLOGIST	Drn. B.J.M.	SCALE: Graphical
		Tcd. D.J.M.	74-658 HJ
Director of Mines		Ckd.	
		Exd.	DATE: 19th. August 1974







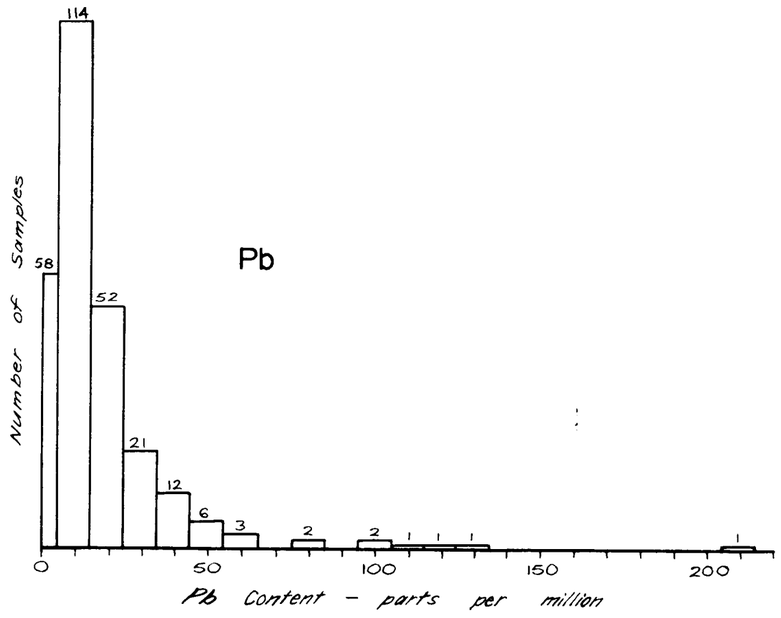
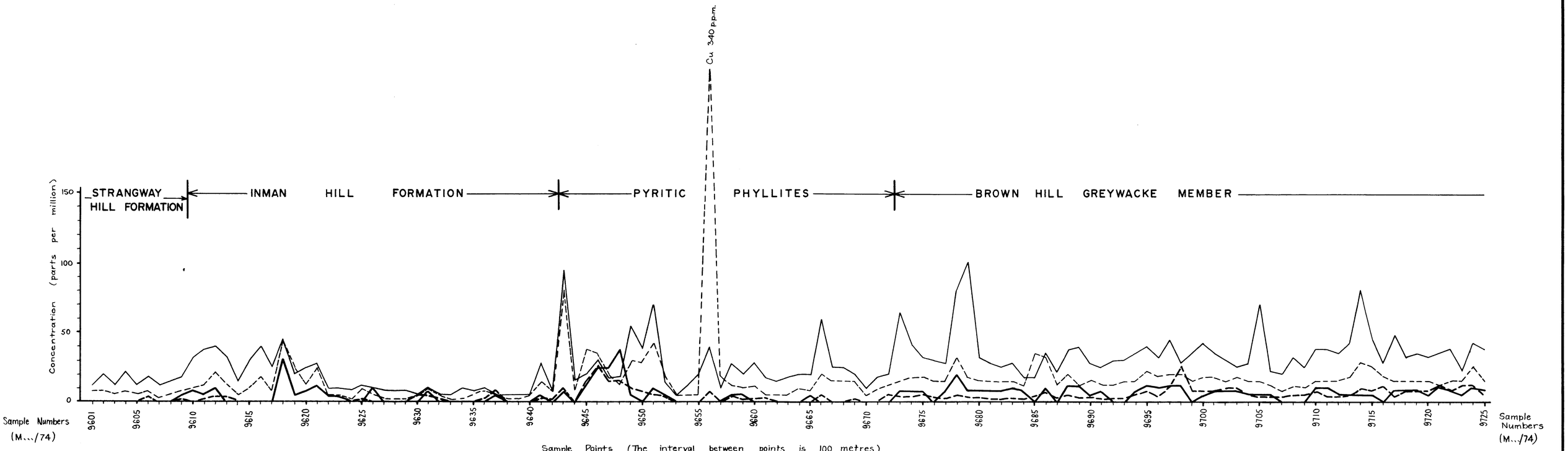


FIG. 11.

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
FREQUENCY DISTRIBUTION HISTOGRAMS
INMAN HILL FORMATION

METALLIC MINERALS SECTION	R.J. Morris GEOLOGIST	Drn. B.J.M.	SCALE: Graphical
		Tcd. R.J.M.	74-659 HJ
Director of Mines		Ckd.	
		Exd.	DATE: 19th. August 1974



Sample Points (The interval between points is 100 metres)

Traverse 1 : 12·4 kilometres

Zinc values ——————

Lead values ——————

Copper values – – – – –

Arsenic values – – – – –

Note : For location of traverse, see Drg. No. 74-669

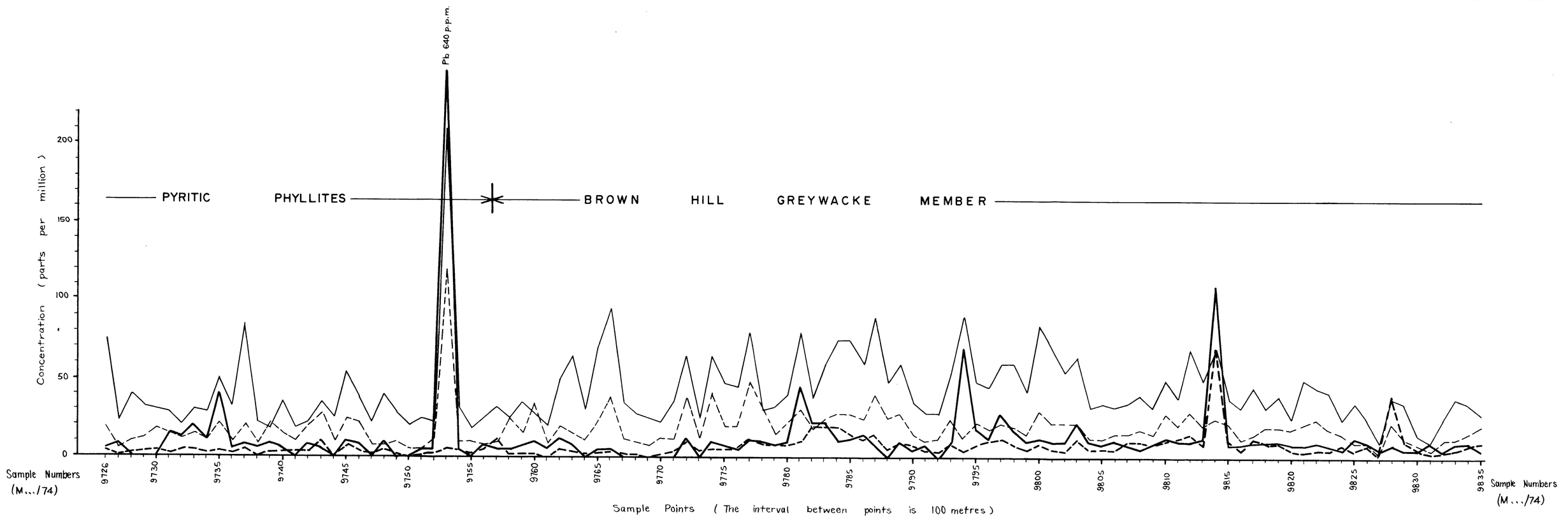
FIG. 12.

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSE 1

METALLIC MINERALS SECTION		Compiled B. J. Morris	Scale : approx. 1:20000 horiz.
			Date : 30th. Sept. 1974
Director of Mines		Drn. D.J.M. Ckd.	Drg. No. 74-808 HJ

500-1/72 61558



Note: For location of traverse, see Drg. No. 74-669

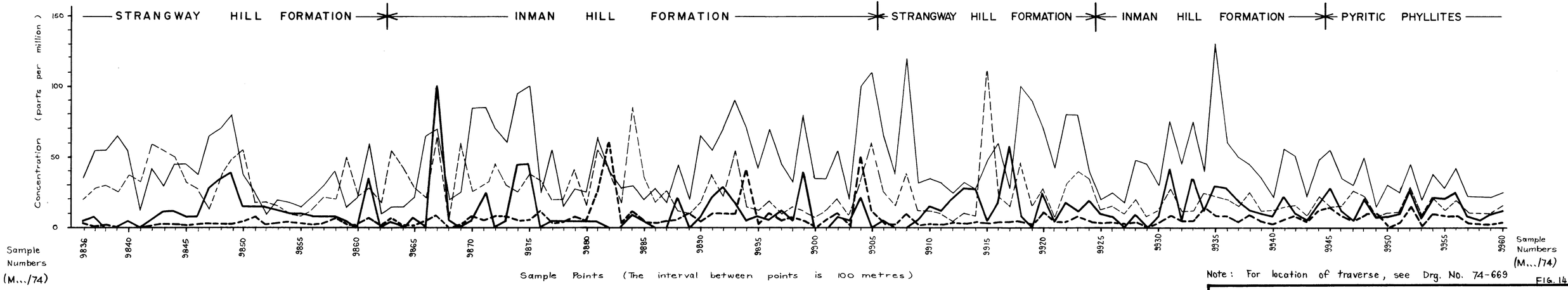
FIG. 13.

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSE 2

METALLIC MINERALS SECTION		Compiled B. J. Morris	Scale: approx. 1:20000 horiz.
			Date: 30th. Sept. 1971
Director of Mines		Drn. B.J.M. Ckd.	Drg. No. 74-809 HJ

280—4.70 A2432



Sample Points (The interval between points is 100 metres)

Traverse 3 : 12·40 kilometres

Zinc values
Lead values
Copper values
Arsenic values

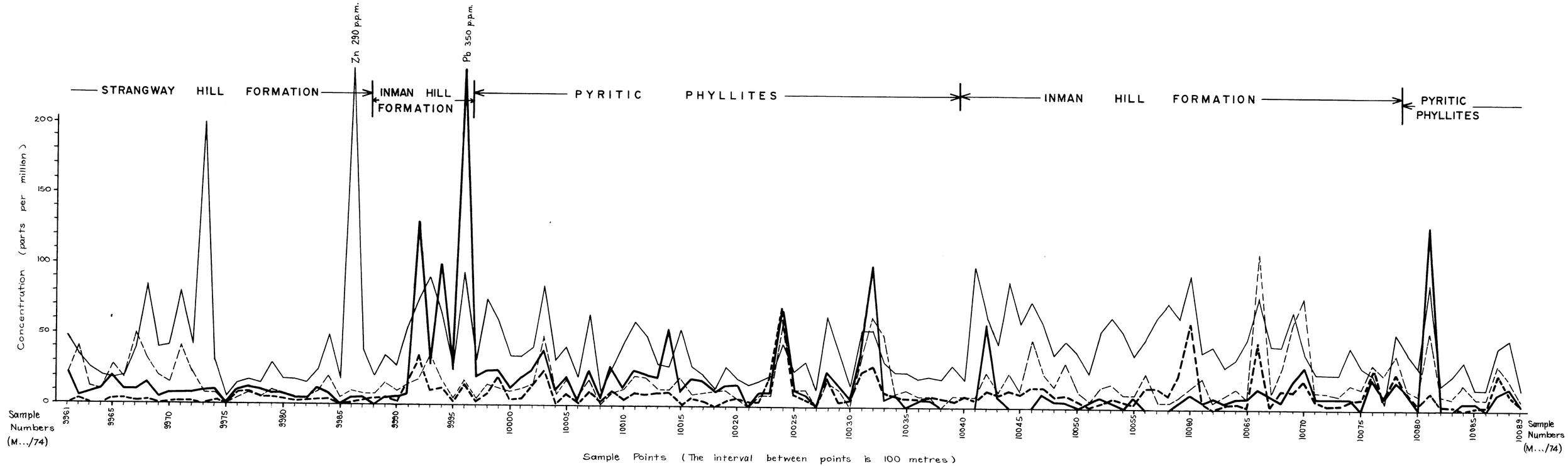
Note : For location of traverse, see Drg. No. 74-669

FIG. 14.

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSE 3

METALLIC MINERALS SECTION		Compiled B. J. Morris	Scale: approx. 1:20 000 hors.
			Date: 30th. Sept. 1974
Director of Mines		Drn. D.J.M.	Drg. No. 74-810
		Ckd.	



Sample Points (The interval between points is 100 metres)

Traverse 4 : 12·80 kilometres

Zinc values
Lead values
Copper values
Arsenic values

Note : For location of traverse, see Drg. No. 74-669

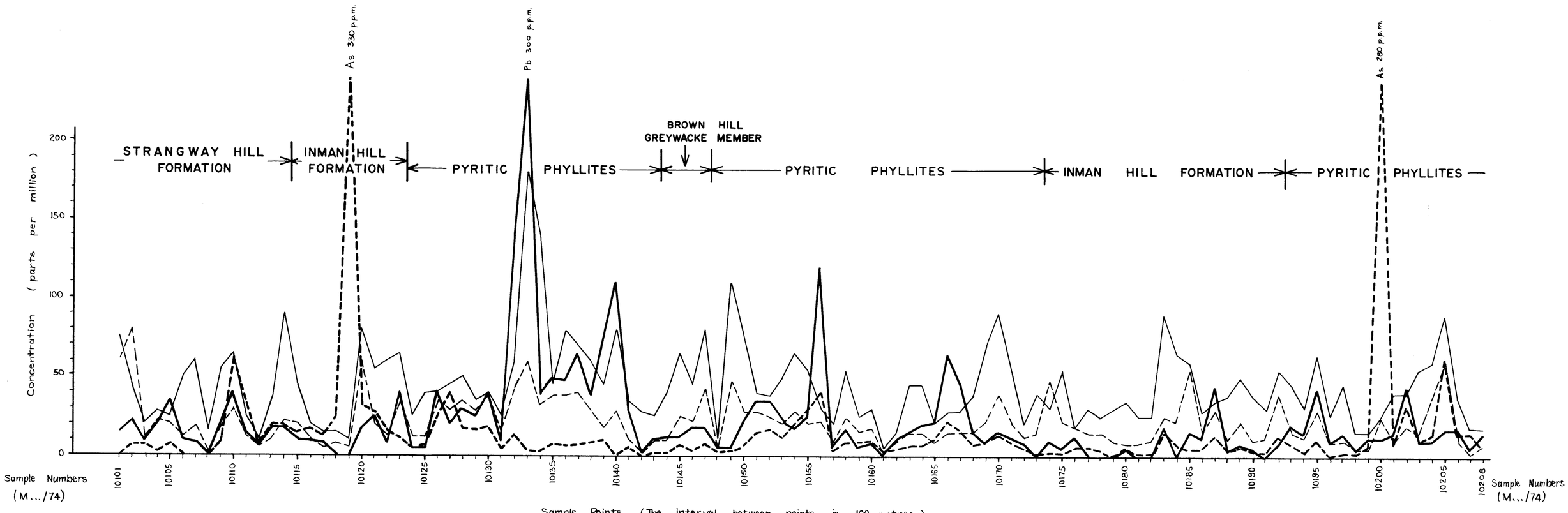
FIG. 15

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSE 4

METALLIC MINERALS SECTION		Compiled B. J. Morris	Scale : approx. 1:20 000 horz.
			Date : 30th. Sept. 1974
Director of Mines		Drn. D.J.M. Ckd.	Drg. No. 74-811

500—6.72 03558



Sample Points (The interval between points is 100 metres)

Traverse 5 : 10·70 kilometres

Zinc values
Lead values
Copper values
Arsenic values

Note: For location of traverse, see Drg. No. 74-669

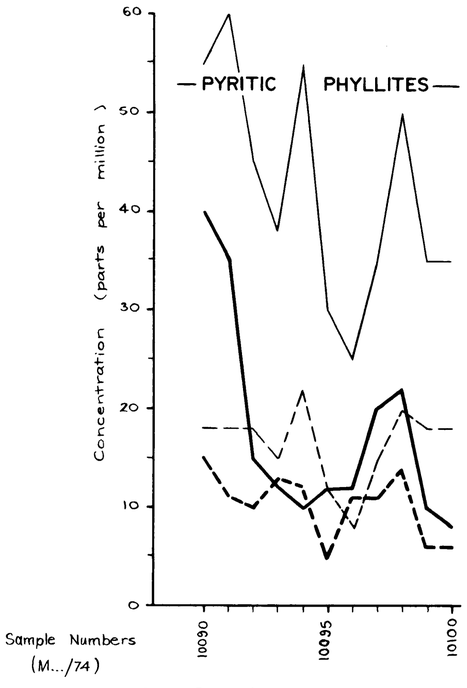
FIG. 16.

DEPARTMENT OF MINES — SOUTH AUSTRALIA

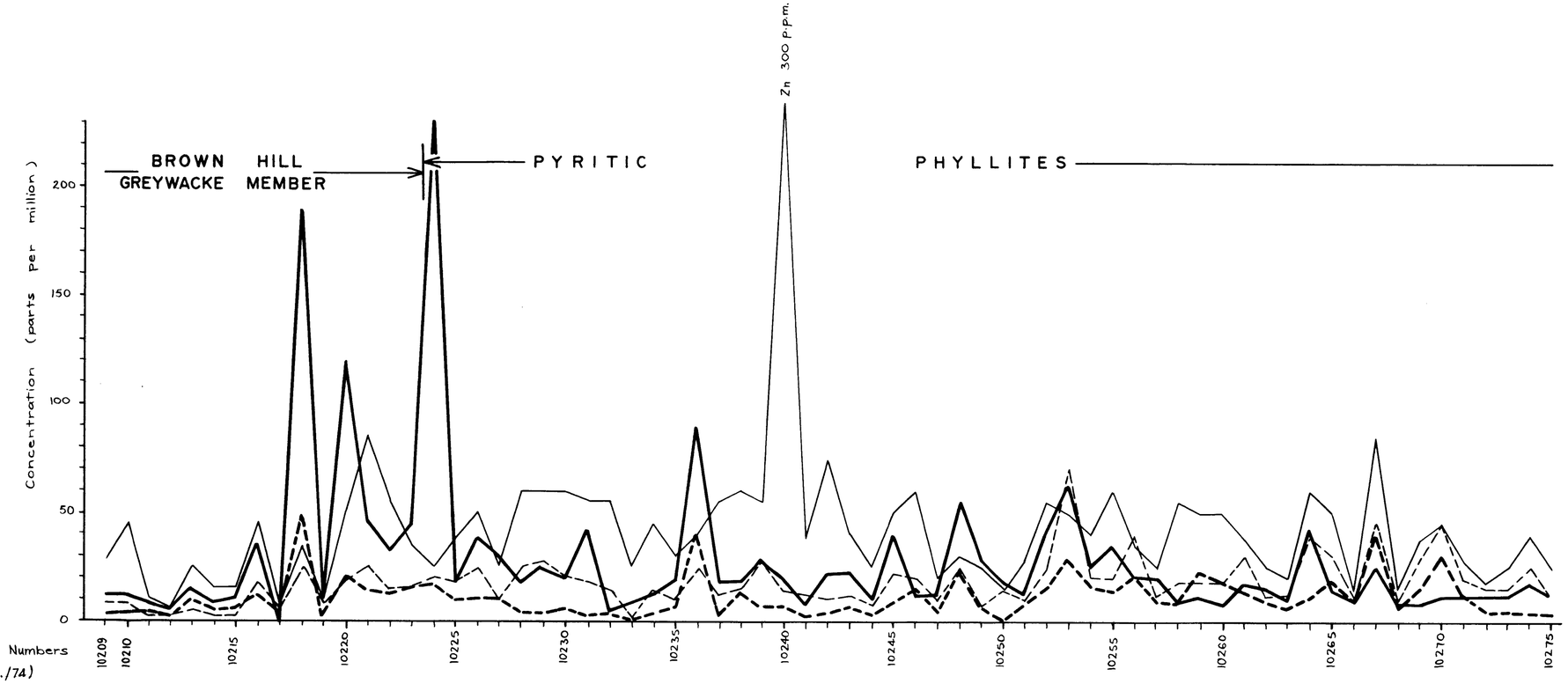
BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSE 5

METALLIC MINERALS SECTION		Compiled B.J. Morris	Scale: approx. 1:20000 horiz.
			Date: 30th. Sept. 1974
Director of Mines		Drn. B.J.M. Ckd.	Drg. No. 74-812 HJ

206—4.70 A3662



Traverse 5A: 2·0 Kilometres



Traverse 6 : 6·60 kilometres

Zinc values ——————
Lead values ——————
Copper values - - - - - -
Arsenic values - - - - - -

Note: For location of traverses, see Drg. No. 74-669

FIG. 17.

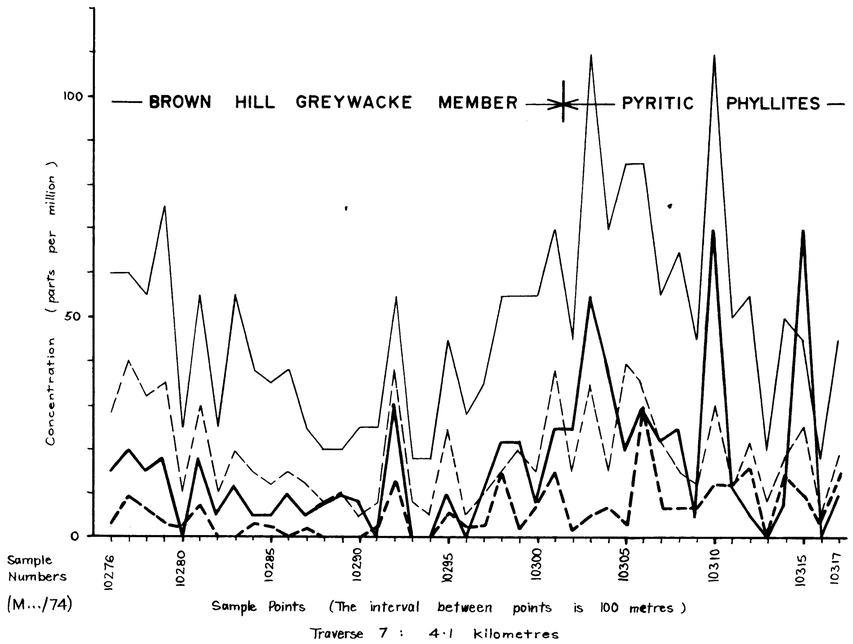
DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT

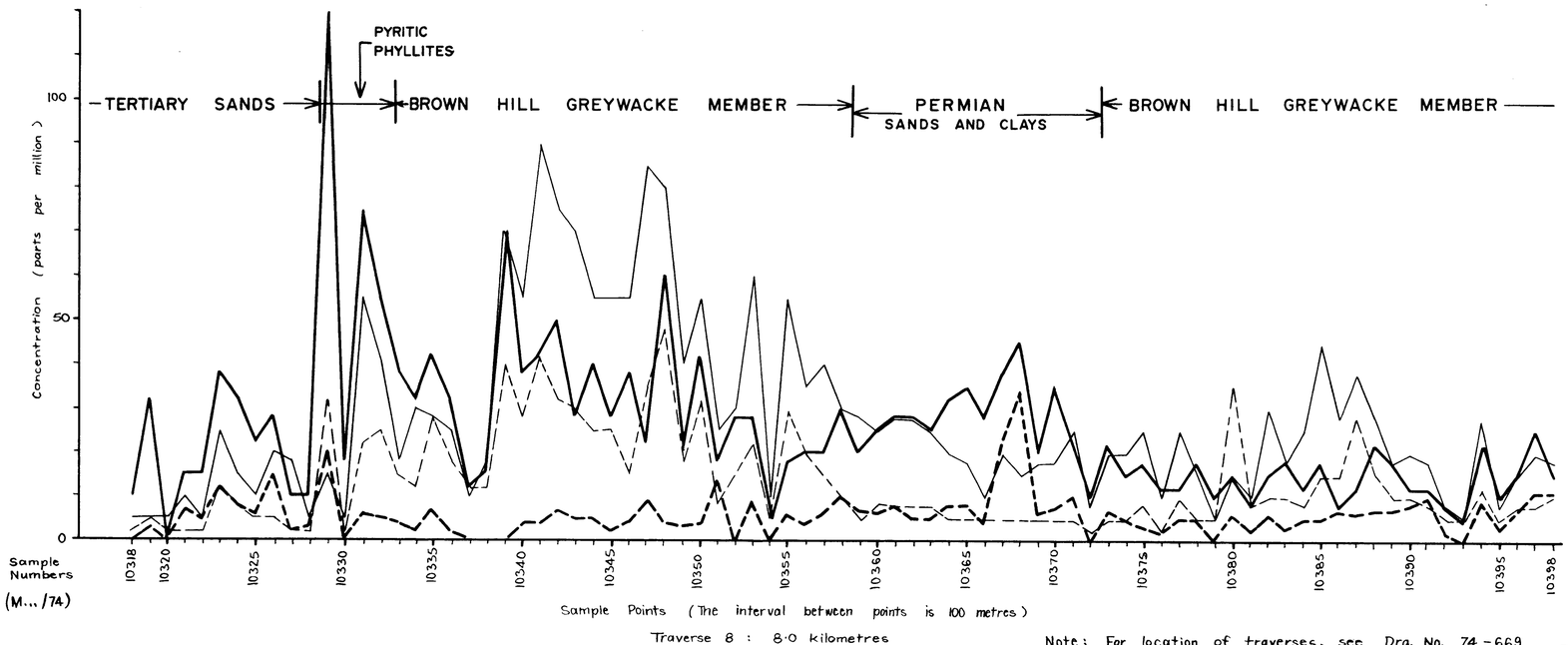
SAMPLE RESULTS OF TRAVERSES 5A & 6

METALLIC MINERALS SECTION		Compiled B. J. Morris	Scale: approx. 1:15000 horiz.
			Date: 30th Sept. 1974
Director of Mines		Drn. D. J. M. Chkd.	Drg. No. 74-813 HJ

200—4.74 A2452



Traverse 7 : 4·1 kilometres



Traverse 8 : 8·0 kilometres

Note: For location of traverses, see Drg. No. 74-669

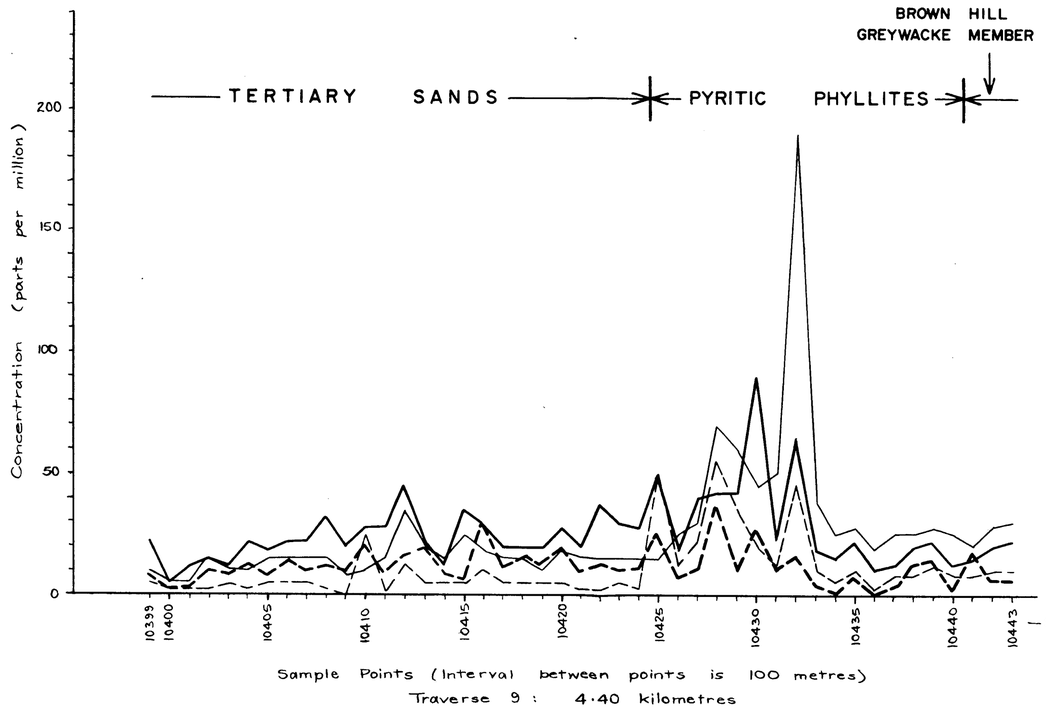
FIG. 18.

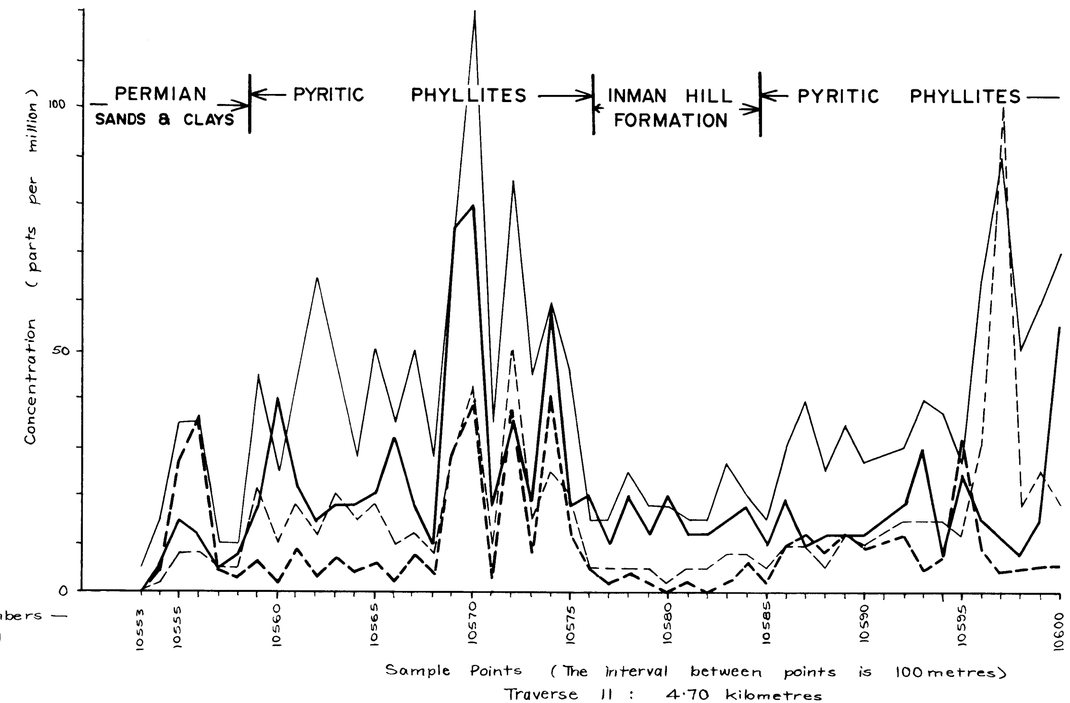
Zinc values ——————
Lead values ——————
Copper values — — — —
Arsenic values — — — —

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSES 7 & 8

METALLIC MINERALS SECTION		Compiled B. J. Morris	Scale: approx. 1:20 000 horiz.
			Date: 30th Sept. 1974
Director of Mines		Drn. B.J.M. Ckd.	Drg. No. 74-814 HJ





Zinc values
Lead values
Copper values
Arsenic values

Note : For location of traverses, see Drg. No. 74-669

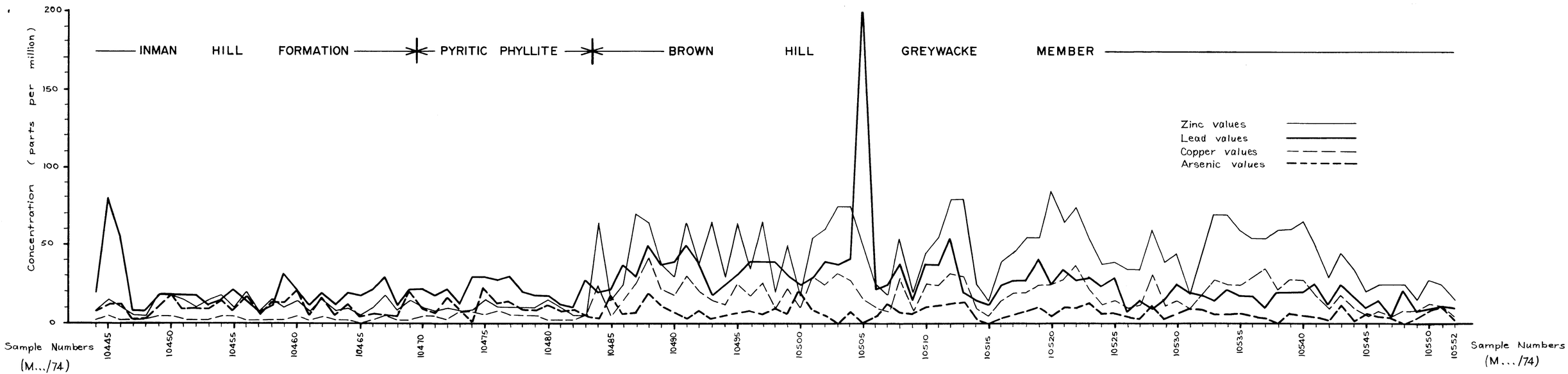
FIG. 19.

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSES 9 & 11

METALLIC MINERALS SECTION		Compiled B. J. Morris	Scale : approx. 1:20000 horz.
			Date : 30th. Sept. 1974
Director of Mines		Drn. DJM	Drg. No. 74-815 HJ
		Ckd.	

200—4,78 A2432



Sample Points (The interval between points is 100 metres)
Traverse 10 : 10·80 kilometres

Note: For location of traverse, see Drg. No. 74-669

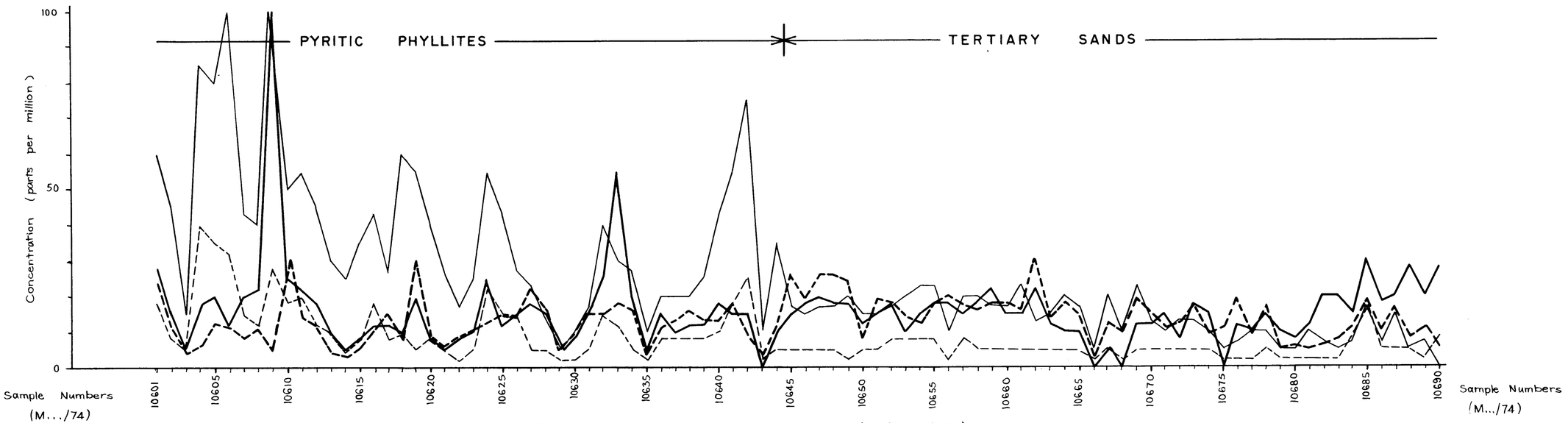
FIG. 20.

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSE 10

METALLIC MINERALS SECTION		Compiled B.J. Morris	Scale: approx. 1:20 000 horz.
			Date: 30th Sept. 1974
Director of Mines		Drn. D.J.M. Chd.	Drg. No. 74-816 HJ

208—4.70 AMS2



Sample Points (The interval between points is 100 metres)

Traverse 12 : 8·9 Kilometres

Zinc values
Lead values
Copper values
Arsenic values

Note: For location of traverse, see Drg. No. 74-669

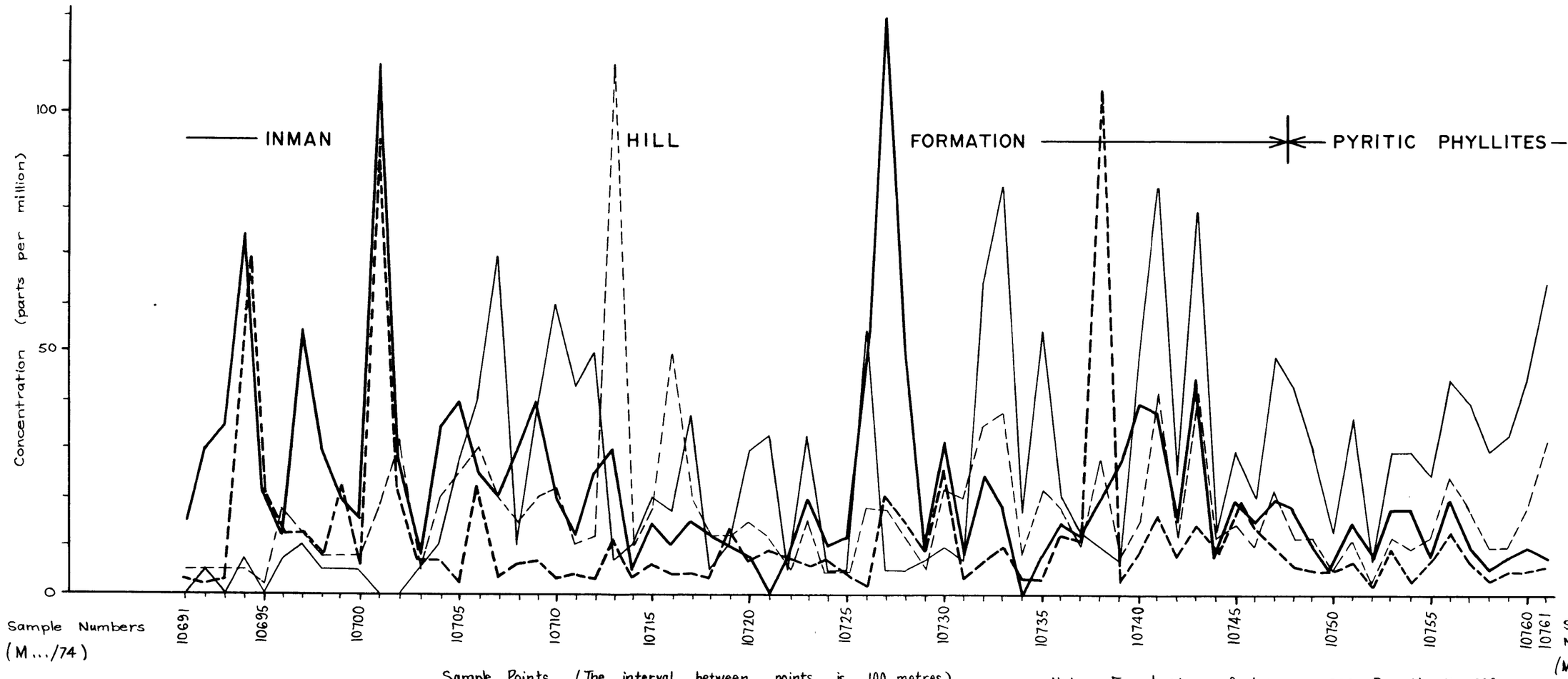
F16.21

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSE 12

METALLIC MINERALS SECTION		Compiled B. J. Morris	Scale: approx. 1:20 000 horiz.
		Drn. D.J.M.	Date: 30th. Sept. 1974
Director of Mines		Chd.	Drg. No. 74-817 HJ

296—4,70 A2432



Sample Points (The interval between points is 100 metres)

Traverse 13 : 7·0 kilometres

Note: For location of traverse, see Drg. No. 74-669

FIG. 22.

Zinc values ——————

Lead values ——————

Copper values — — — — —

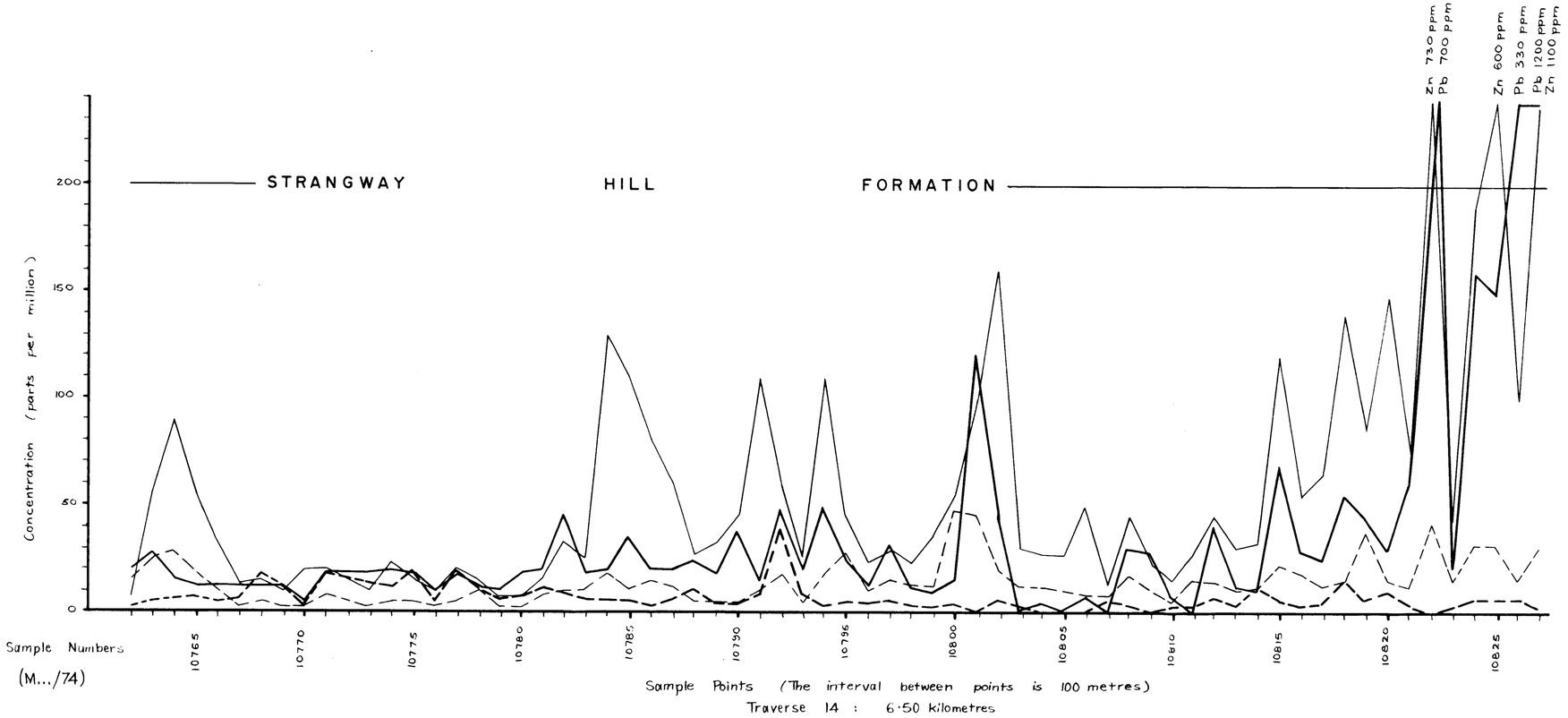
Arsenic values - - - - - -

DEPARTMENT OF MINES — SOUTH AUSTRALIA

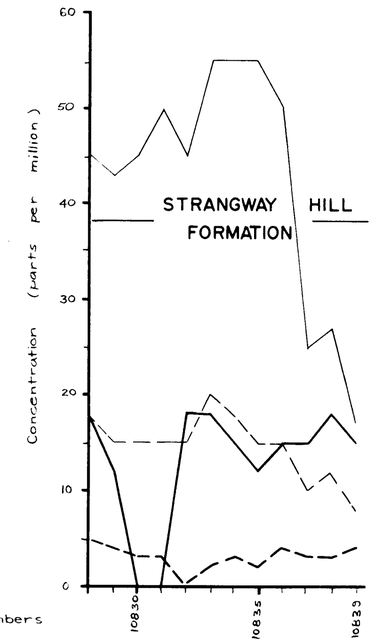
BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSE 13

METALLIC MINERALS SECTION		Compiled B. J. Morris	Scale: approx. 1:20000 horiz.
			Date: 30th Sept. 1974
Director of Mines		Drn. D.J.M. Chd.	Drg. No. 74-818 HJ

280—4.70 A2482



Sample Points (The interval between points is 100 metres)
Traverse 14 : 6·50 kilometres



Sample Points (Interval is 100 metres)
Traverse 15 : 1·10 kilometres

FIG. 23.

Zinc values ——————
Lead values ——————
Copper values — — — —
Arsenic values — — — —

Note: For location of traverses, see Drg. No. 74-669

DEPARTMENT OF MINES — SOUTH AUSTRALIA

BARKER SHEET PROJECT
SAMPLE RESULTS OF TRAVERSES 14 & 15

METALLIC MINERALS SECTION		Compiled B.J. Morris	Scale: approx. 1:16000 horiz.
			Date: 30th. Sept. 1974
Director of Mines		Drn. DJW Ckd.	Drg. No. 74-819 HJ

200-4,70 A2432