CRA EXPLORATION PTY.LIMITED.

MINERAL LEASES 120M/67, 121M/67, 10M/73, 1M/73, 2M/76 93M/77, 94M/77 and 95M/77

BALFOUR - TASMANIA

REPORT FOR THE YEAR ENDING 31ST DECEMBER, 1981.

Author: P.Heithersay (Geopeko)

Date: 31st March, 1982.

Submitted to: T.W.Dickson

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Geopeko
CRAE Library
CRAE Hobart
CRAE Burnie

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CONTENTS

1. SUMMARY

Detailed investigations involving geological mapping, jacro bedrock sampling and geophysical surveys were carried out over the Balfour grid. Within the area of the Balfour Agreement between CRA Exploration Pty.Limited and M.Laan and N.R.Langsford, (Mineral Leases 120M/67 121M/67, 10M/73, 1M/73, 2M/76, 93M/77, 94M/77 and 95M/77), this work led to the development of two diamond drill holes designed to test the zone of maximum brecciation and tourmalinisation on Specimen Hill.

The best intersections were obtained from hole DD81 BC1 as follows -

29m - 50m	21 metres @ 0.12% WO_3
57m - 72m	15 metres @ 0.15% WO_3
89m - 115m	26 metres @ 0.24% WO_3

This mineralised zone can be recalculated to include the internal barren zones to give -

29 - 115m	87 metres @ 0.14% WO_3

The model developed for the Balfour mineralisation suggests that the cassiterite wolframite veining forms a sheeted vein system with a trend of approximately 300°M and dip of between 0° - 35°. Specimen Hill is the main locus of veining although mineralised veins are evident over a larger area. A hidden granite cupola is considered the controlling factor of veining in the area.

Further diamond drilling is recommended to test the lateral extent of the Specimen Hill system.

2. INTRODUCTION

This report covers work carried out on mined leases 120M/67, 121M/67, 10M/73, 1M/73, 2M/76, 93M/77, 94M/77 and 95M/77, for the period ending 31st December 1981.

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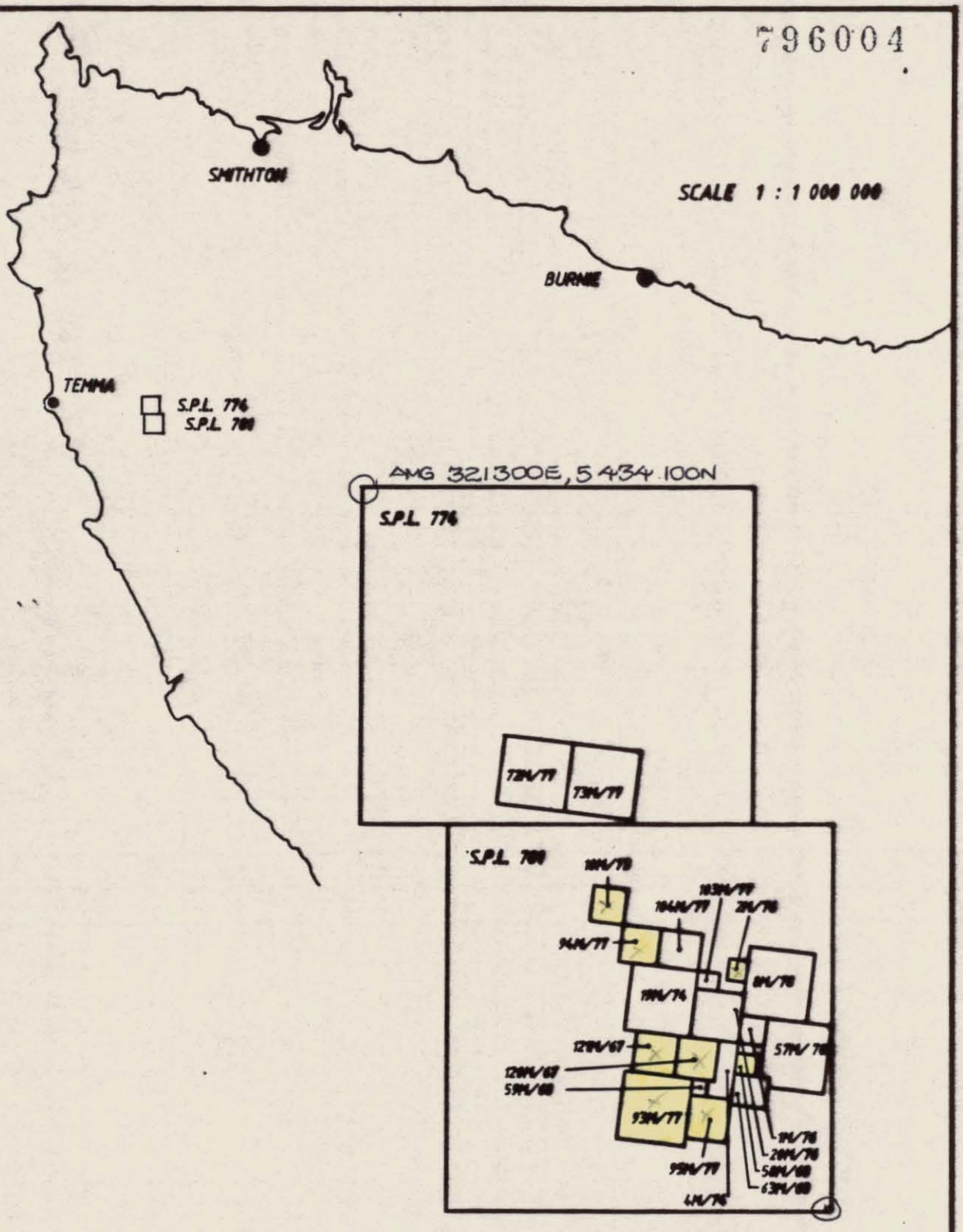

CRA EXPLORATION PTY. LIMITED	
BALFOUR TENEMENTS LOCALITY PLAN	
Ref. : SK55 - 3	
Scale AS SHOWN	Drawn R. T.
Author. T. W. B.	Report No.
Date. 16th Feb. 1982	Plan No. TASh 585

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The option agreement forms part of a number of farm in - option agreements between CRA Exploration Pty.Limited and various other syndicates in the Balfour area.

P.Laan & S.Caddy

MINING LEASE 73M/77

P.Laan & W.Baker (L. & B.Syndicate)

MINING LEASES 20M/76; 72M/77, 103M/77
104M/77; 8M/78; 57M/78

S.P.L.'s 774 and 781

M.Laan & N.R.Langsford (Balfour Agreement)

MINING LEASES 120M/76; 121M/67; 10M/73; 1M/73
2M/76; 93M/77; 94M/77; 95M/77

P.Laan, M.Laan, N.R.Langsford, W.Baker

MINING LEASE 19M/76

J.Holloway and R.South

MINING LEASE 59M/76; 4M/74

S.Tatlow (Agreement 1)

MINING LEASE 63M/68

S.Tatlow (Agreement 2)

MINING LEASE 58M/68

All the above agreements are part of the Rocky Cape Joint Venture between CRA Exploration and Geopeko.

The township of Balfour is situated approximately 16km inland from Temma Harbour and lies some 50km south of Smithton.

The programme of work carried out within the mineral leases includes.

- Geological mapping at both regional and 1:5000 scale.

- I.P. Surveying - original data collected 1979 with fill-in work carried out in December, 1980.
- A Jacro auger bedrock geochemical sampling programme.
- Two diamond drill holes totalling 326.5 metres to test a major coincident tin-tungsten I.P. target along Specimen Hill.

The I.P. survey was planned and interpreted by M.Flis and carried out by Geoterrex Ltd. The auger sampling and Jacro diamond drilling was carried out under contract by Geopeko Ltd. with geological supervision by P.Heithersay. The auger samples were prepared and the core split by Geopeko Ltd. All assays were by Analabs of Cooee, Tasmania.

3. CONCLUSIONS

Drilling and mapping on Specimen Hill has demonstrated that veins should be considered as a sheeted system with a dominant trend of approximately 300°M and dip of between o° and 35°. The evidence is inconclusive as to whether veins can be considered laterally continuous or not.

The nature of vein mineralogy, together with the accompanying wall-rock alteration, suggests that the vein system is granite derived. No granite outcrops, however, are known in the area.

The type of deposit which Balfour is developing towards is a large tonnage; low grade deposit, which can be mined by open cut methods and upgraded by specialised ore sorting techniques. This is an analogous situation to Mt.Carbine. It should also be pointed out that Mt.Carbine operates with an average head grade of 0.07% WO_3. The intersection of 87m at 0.14% WO_3 achieved in DD81 BC2 is more than comparable with this.

Drilling on Specimen Hill has given excellent indications of tungsten mineralisation on line 9600 north. Additional drilling is required to further outline the mineralised vein system.

4. RECOMMENDATIONS

Two diamond drill holes should be developed approximately 200 metres north and south of DD81 BC2 to evaluate the lateral and vertical extent of the veining. A total of approximately 450 metres of drilling would be required.

Both holes should be logged with down hole I.P. to ascertain the usefulness of this technique in detecting concentrations of quartz, cassiterite, wolframite and sulphide veining.

5. GEOLOGY

5.1 Regional Geology (Refer Fig.1)

S.W.Carey's (1981) photogeological study of the Rocky Cape E. 1/77 places the Balfour region within his Epsilon Group rocks. Epsilon Group is upper Proterozoic in age and is the most extensive Precambrian sequence delineated by his study. Where Epsilon Group runs into areas where field data are available the group correlates with the Balfour Slates and Interview Slates.

The structure of the Balfour region is dominated by north-north westerly trending faults which form within Careys 'Balfour-Redpa deep fault corridor'.

The style of folding in the region is a series of doubley plunging anticlines and synclines forming 'dome and basin' structures with fold axes trending NW-SE and E-W.

5.2 Prospect Geology (Refer Plan TASh 631)

Methods

Grid extensions were mapped at 1:2500 scale using enlarged Lands Department aerial photos.

Stratigraphy

The Balfour stratigraphy is illustrated in figure 2. Facing criteria such as crossbedding and graded bedding established that the sequence youngs from west to east.

The rock sequences exhibit gradational contacts and mapping has illustrated the facies relationships between them. Hence they will be described as lithofacies.

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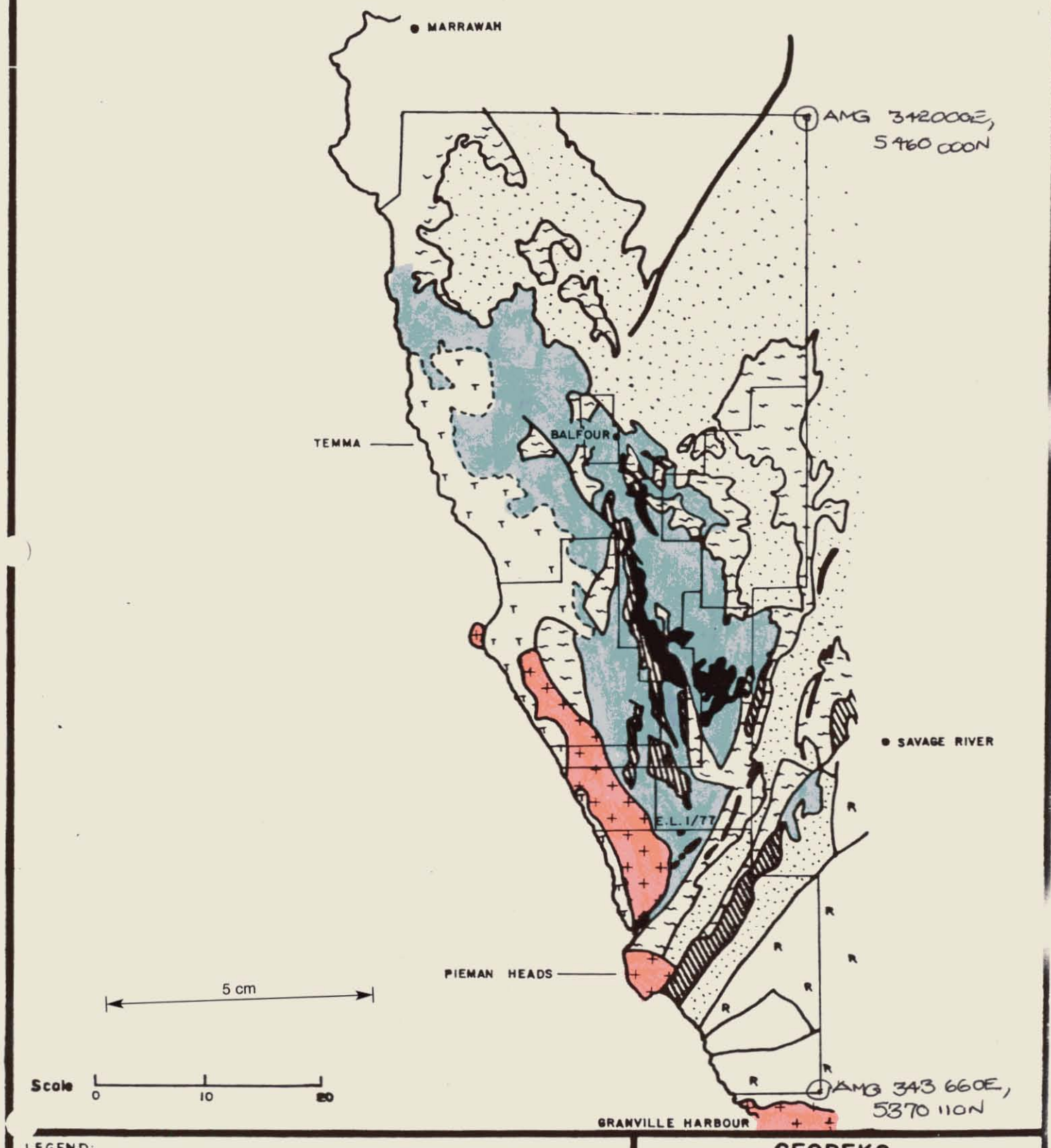
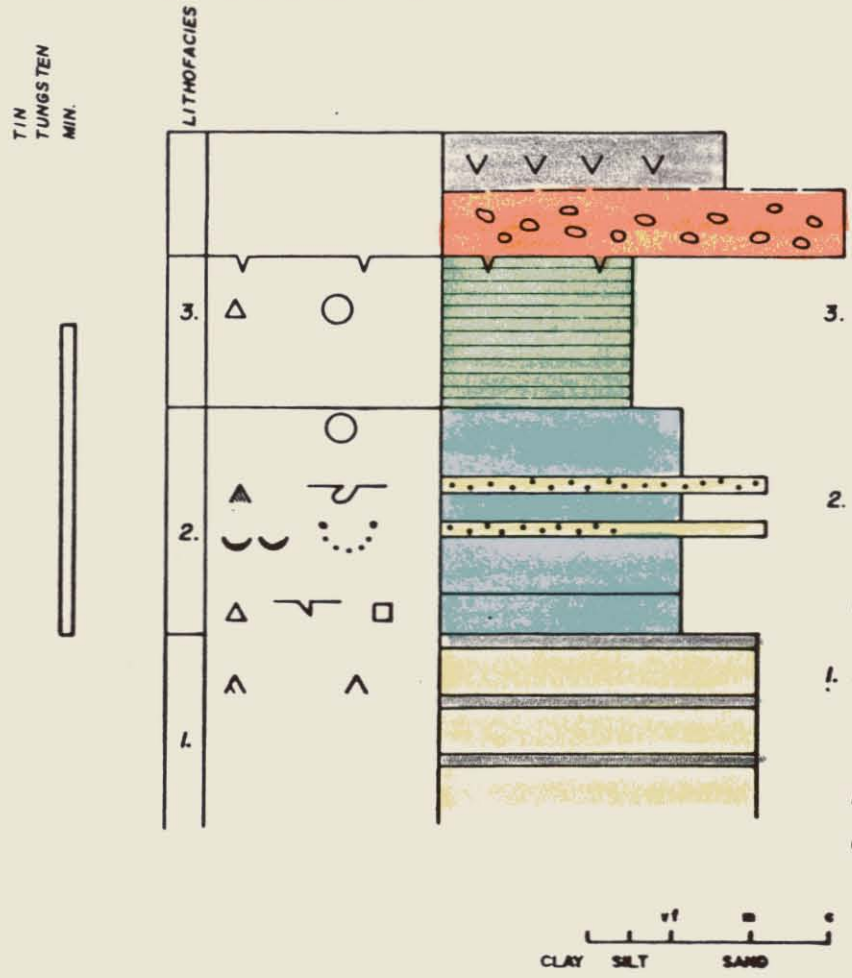


GEOPEKO

ROCKY CAPE E.L. 1/77
SUMMARY REGIONAL GEOLOGY
LOCATION MAP

FIG. 1 TASh 680

STRATIGRAPHIC COLUMN - BALFOUR REGION



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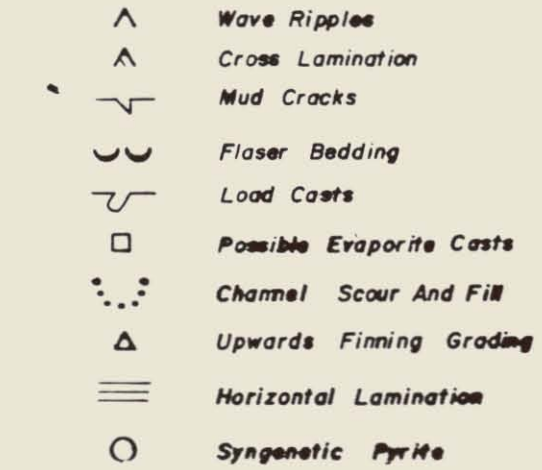

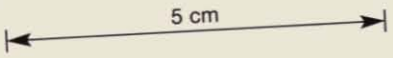

TASh 681

FIGURE 2

Lithofacies 1:

Consists dominantly of fine sandstone: siliceous sericitic-submature quartz arenite. Carbonaceous black shales and brown ferruginous sandstones are interbedded in the sequence, Crossbedding, rip up shale clasts are common sedimentary features and bedding planes showing symmetric ripple marks are occasionally seen.

Lithofacies 2:

Consists dominantly of irregularly laminated and banded rock which is characterized by beds and laminae which grade from white fine grained sericitic sandstone to grey green or brown, chlorite or tourmaline rich, argillaceous siltstone. Sedimentary features include oversteepened cross-stratification, 'sandstone dikelets', load structures and scour and fill structures. Soft sediment deformation is ubiquitous. Interbedded in the lower part of the sequence are thin black shale interbeds which appear to be laterally extensive.

Further up in the sequence, are interbeds of silica and sericite rich quartz arenites. These form the backbones of the ridges in the area. They are individually quite thin, rarely exceeding 3 metres in thickness, but are laterally extensive.
This lithofacies has been termed Pyjama Siltstones by CRAE geologists. This is a general name applied to tourmaline bearing siltstones and quartzites commonly found in the Upper Precambrian of Western Tasmania.

This sequence hosts the tin and tungsten bearing veins of Specimen Hill and a similar rock type is present in the footwall of the massive pyrrhotite cassiterite lodes at Mt.Bischoff.

The sequence has undergone lower greenschist facies metamorphism and an incipient schistosity develops to varying degrees.

Tourmaline content varies throughout the 'Pyjama Siltstones' but is generally confined to the argillaceous layers. A tourmaline rich zone has been mapped on Specimen Hill (Porter 1979) which crosscuts bedding, suggesting epigenetic replacement. A syngenetic origin involving boron rich sediments has been suggested in the past. Petrographic evidence has given conflicting viewpoints. Drill hole data suggests however that tourmalinisation has preceeded veining, hence this zone could be viewed as an alteration zone associated with veining.

Rare thin beds of probable andesite has been noted in this lithofacies.

Lithofacies 3: Lithofacies 2 grades both vertically and laterally into a monotonous, finely laminated, green, chloritic shale and slate sequence. Pyrite is common and is usually disseminated along bedding planes. This sequence hosts the Murray's Reward copper mineralisation and Tatlow's tin prospect.

Unconformably overlying this is a remnant Tertiary basalt flow on which the Balfour township is located. To the south remnant flat lying silicified Tertiary conglomerate beds can be seen.

Structure

The general lack of continuous marker beds has made structural interpretation difficult. However, the strata generally dip fairly steeply to the east. Southerly plunging flexures can be mapped on Specimen Hill and around the baseline on line 9100N. Plotting of cleavages developed on Specimen Hill reveals two distinct cleavages at approximately 335°/80E and 035/95E

This suggests that fold axes have developed with approximately 60° difference in trend. This would result in dome and basin structures, which ties in well with Carey's (1981) regional interpretation.

A structural problem which is apparent at Balfour is the difference in dip between Lithofacies 1 and 2. The sandstones of Lithofacies 1 form generally flat lying small scale domes and basins. As you proceed into Lithofacies 2, the dips become very steep. The contact between the two is gradational and no evidence for an unconformity or fault can be seen.

Strike slip faults are common displacing prominent sandstone/quartzite ridges.

The main quartz veins are generally between 1 to 10cm in thickness with a maximum thickness of 30cm. Two trends of veining are evident. The dominant trend is approximately 300°M while the subordinate trend is 235°M. The main concentration of veining which is exposed, occurs between 9600N and 9700N.

The veining exposed consists of massive white quartz containing varying amounts of cassiterite and rare wolframite. Bladed voids after wolframite are, however, commonly seen. Cassiterite occurs as small crystals in 'vughs' with blebs up to 5cm in diameter or as thin layers on margins of veins.

6. GEOCHEMICAL INVESTIGATIONS

During 1963-1964 BHP undertook exploration centred around the Specimen Hill mineralisation. Peat and gravel samples were taken and assayed for tin so as to define surface areas in which tin mineralisation appeared strongest. Small scattered areas of high tin content emerged mainly in the north west quadrant of the hill (Chestnut 1964).

1979 saw the establishment of 2.6km x 0.65km grid by the CRAE/Geopeko joint venture partners. A rock chip sampling programme over available outcrop was initiated, followed later by a Jacro auger sampling programme over areas of sparse outcrop, where magnetic and I.P.anomalies had been defined.

A summary of significant results generated to the end of 1979 is as follows:

1. Anomalous bedrock values up to 1900ppm Sn were found in the low lying area between Specimen Hill and Murray's Reward.
2. An erratic response for Sn, with values up to 555ppm were observed on line 10 100N over a major IP anomaly.
3. A weak Sn anomaly (225ppm) coincident with the magnetic anomaly on line 10 900N.
4. No distinct Sn anomaly occurred over the broad magnetic anomaly in the south west portion of the grid.
5. Rock chip sampling enabled a broad 100ppm Sn contour to be drawn. This embraced Specimen Hill, particularly the northern half and highlighted a narrow zone along Peter's Ridge. Two smaller anomalous areas in the south east part of the grid between 9300N and 8800N were documented. It should be noted that the rock chip sampling deliberately avoided visible quartz veins.

6.1 1980 Geochemical Programme

During 1980 a more comprehensive programme of Jacro bedrock sampling was completed. The first stage was completed during the period 25/4/80 to 10/6/80 and the lines selected on the following basis:

1. Lines 8800N to 1010N from the base line to as far east as was practical, to gain detailed information about the area of poor outcrop between Specimen Hill and Murray's Reward.
2. Lines 8900N, 94/9500N and 9800N extending to the west of Specimen Hill, to act as reconnaissance lines over this area of sparse outcrop.
3. Lines 10 800N and 11 200N to further test the two northern magnetic anomalies and weak Sn anomaly.

The second stage, completed during the period 10/7/80 to 15/7/80 was a fill in programme with the following lines selected:

1. Lines 10 200N, 10 300N and 10 400N, from the base line to as far east as was practical, to find the northern extent of the geochemical anomalies generated by the initial programme.
2. Lines 9400N, 9500N and 9600N to fill in information around Specimen Hill which was missed by the first programme.

The third and final stage covered the western side of the extended grid from 8600N to 10 000N. The object of this programme was to cover the Multicoil II EM anomalies generated by the Dighem Survey flown in March, 1980.

Auger holes were drilled to depths ranging from 0.5 to 3 metres using a Bombardier mounted Jacro auger. Particular care was taken to achieve a clean bedrock or if impractical, a 'C' horizon sample and to avoid contamination from alluvial and elluvial material at the tops of the holes. Where it was thought contamination could not be avoided, it was duly noted in the ledger sheets.

The samples were analysed for tin, tungsten, copper, lead, zinc, silver and iron by A.A.S. The results, on CRA Exploration Geochemical Ledger Sheets, are given in Appendix 1 with geological description of the rock chips by A.McKay, N.R.Langsford and P.Heithersay.

6.2 Discussion of Results

Generally results were very encouraging with strong geochemical anomalies over Specimen Hill and Peter's Ridge.

Tin Geochemistry

Refer Plan TASh 638

Values suggest that greater than 100ppm should be regarded as a significant anomaly. Background values are concentrated in the 5 to 30ppm range.

Two important anomalous zones can be noted. The first is centred some 350m east of the base line and forms a north-south striking, linear zone 50 to 100m wide, which extends from 9200N to 10 200N. At 9400N, 10 325E a narrow, discontinuous anomaly extends down the eastern side of Peter's Ridge.

It is noteworthy that the anomalous zone is in close proximity to the lithological boundary between the Pyjama Siltstones and the green shale sequence.

The central anomalous zone forms a discontinuous north-south trending anomaly approximately 100m x 200m in extent which covers Specimen Hill.

The prominent geochemical low between these two zones is a function of inadequate sample density. Current alluvial mining has uncovered quartz veins mineralised with cassiterite and wolframite in this area. This suggests that if adequate sampling could be achieved, the two anomalous zones would link up.

Geochemical results on the western side of the grid, away from Specimen Hill give a distribution of spot highs, with the high values in the order of 450ppm. A poorly defined linear anomaly occurs between 9200N and 9400N.

Geochemistry from the south west grid extensions, does not rise above background.

North of Specimen Hill, some anomalous geochemical character is expressed between lines 10800N and 10900N, near the baseline.

Tungsten Geochemistry (Refer Plan TASh 635)

Anomalous values are considered to be greater than 20ppm against a background of 10ppm. As the detection limit of XRF for tungsten is 10ppm, anomalies of 20ppm should be regarded with caution.

Two well defined anomalies emerge. A fairly narrow eastern anomaly extends from 9100N to 9900N approximately 250m from the baseline. A broader anomaly centres over Specimen Hill, between lines 9400N and 9900N. Some extremely anomalous spot highs occur, particularly around 9200N and 9300N, near the baseline.

The only other anomaly of significance occurs on line 11200N, just east of the baseline.

Copper Geochemistry (Refer Plan TASh 633)

The results recorded, imply that greater than 50ppm copper is anomalous while background values average from 2-15ppm.

Contouring revealed a number of highs in the area between Specimen Hill and Murrays Reward. These have comparatively limited linear extent. Noteworthy is the highest value of 0.34% which occurs in an anomalous zone between lines 9500N and 9200N some 300m east of the baseline. Similarly spot high values occur west of the baseline, with no apparent trend.

The bedrock sampling survey recorded a surprisingly weak response over the Murrays Reward, Central Mt.Balfour line of known copper mineralisation.

A possible explanation for this is that the gangue mineralogy may have combined with ground waters to give a solution capable of leaching copper out of the soil profile. The anomalous zone which were recorded may reflect a different style of copper mineralisation.

Zinc Geochemistry

Refer Plan TASh 636

Visual estimation suggests that background values of around 50ppm is appropriate, while samples exceeding 100 ppm are anomalous. Approximately 3 percent of the samples exceed 1000ppm.

A well defined, anomaly trending grid north-south occurs between lines 9200N and 10 000N approximately 400m east of the baseline. At 9700N, 10,400E, visible sphalerite occurs as small stratabound pods within the siltstones.

A less well defined anomaly occurs between 8800N and 9400N approximately 500m east of the baseline. This generally low value anomaly is characterised by two spot highs on line 9300N with values of 0.92% and 0.94%. These are the highest values for zinc recorded in the Jacro programme.

Some further anomalous geochemical expression occurs north of Specimen Hill between lines 10 000N and 10 400N.

Lead Geochemistry

Refer Plan TASh 637

Anomalies of greater than 40ppm show the best expression on the western side of the grid. A discontinuous zone appears between 8600N and 9600N. The highest values obtained are 0.11% at 8800N 9200E, 0.28% at 9100N 9375E and 0.12% at 9200N 9600E.

Background values for lead are in the 5-10ppm range.

Iron Geochemistry

Refer Plan TASh 634

Greater than 2% iron is considered anomalous. The striking feature of this plan is the coincidence of the 2% contour line with the lithological contact between the'Pyjama siltstone' sequence and the green chloritic shales and slates which host the Murray's Reward Cu mineralisation.

Clearly the green shale sequence is iron rich overall with respect to other sequences in the area. Furthermore, some linear zones are apparent which may reflect beds with increased pyrite or chlorite content. West of the baseline, scattered high values are developed with limited continuity between lines.

In summary two zones of interest have been highlighted within the L and L Syndicate leases. They are as follows:

1. A distinct tin, tungsten geochemical anomaly sits over Specimen Hill. The lack of anomalous copper, lead, zinc values in this area is significant. Several possibilities emerge to explain this pattern
   (a) It could reflect a marked change in the style of mineralisation from that found in the eastern zone i.e. cassiterite and wolframite in quartz veins as opposed to a polymetallic style of tin, tungsten mineralisation similar to Cleveland or Renison Bell.

   (b) It may be due to a zonal distribution of elements, centred on Specimen Hill, with a tin tungsten rich core and copper, lead, zinc with lesser tin and tungsten in the peripheral zone.

   (c) A third alternative is that it reflects topographic control on the degree of element leaching and dispersion.

2. A noteworthy coincident tin, tungsten, copper, lead and zinc anomaly occurs 200m west of the baseline between lines 9600N and 9700N.

7. GEOPHYSICS

A review of geophysical surveys undertaken up until December, 1980 is compiled in McKay and Flis (1980). Comments and recommendations on Balfour IP by J.Sumpton is included in Appendices

Ground magnetics has revealed three major anomalies (McKay and Flis 1980).

1. Centred on line 108N. Remnant magnetic susceptibility measurements made on core from DDB 5 (drilled by B.H.P.) suggested that the remnant magnetism of disseminated pyrrhotite in the core was sufficient to explain the size of the magnetic anomaly.

2. Centred over Specimen Hill. Chestnut (1965) considered that a combination of vein type quartz with variable amounts of pyrrhotite together with disseminated pyrrhotite in the sediments, explained the magnetic anomaly.

3. Modelling of magnetic data from line 10 800N shows a westward dipping 'dyke' at a depth of 70m.

Of these anomalies, the one centred on 10 800N remains untested. The possibility of massive pyrrhotite hosting tin mineralisation cannot be discounted.

IP Surveys: An IP survey was commissioned in May of 1979 to cover selected portions of the Specimen Hill grid. These areas included the magnetic anomaly on line 108N and tin anomalies on the eastern portions of 90N and 96N. In general, none of the anomalous IP zones were associated with magnetic anomalies; they were, however, correlatable to the elevated tin values.

A second survey was designed to test the continuity of zones delineated in the previous survey and to test the southern magnetic high. The anomalous zones were shown to be linearly continuous. A weak IP response was detected over the southern magnetic anomaly.

Self-potential (or spontaneous potential) readings taken concurrently with this survey were inconclusive.

The Specimen Hill area exhibits significant responses to both magnetic and electric geophysical methods. The spatial correlation between the two, however, is almost non existant. Whilst these two types of responses form two linear and parallel zones anomalous tin geochem samples seem to occur independently of these.

Surface geology gives an explanation for the zone of electrical response in that black micaceous carbonaceous siltstones occur in the zone. In the magnetic zone surface geology seems to offer little cause for the observed response and may, in fact, be due to some deeper seated "magnetic basement" feature (e.g. a dolerite dyke) which is too deep to be detected by both IP or EM.

8. DIAMOND DRILLING RESULTS

Drill hole nomenclature varies between CRA Exploration and Geopeko. CRAE number the holes as they are drilled within the current exploration programme. That is hole DD81 BC4 is the fourth hole drilled by the CRAE-Geopeko Joint Venture. Geopeko on the other hand includes all previous drilling with their numbering system. (i.e. they include ten holes previously drilled by B.H.P.) so that their equivalent number for CRAE hole DD81 BC4 is DDB 14.

Both numbers are referred to in this report.

8.1 DD81 BC1 (DDB 11 of Geopeko)

This hole was designed to test the main zone of quartz veining on Specimen Hill. Its aim was to determine the mineralogy, distribution and frequency of veining at depth. The hole was drilled to a depth of 116m. A detailed geological log with assays is given in the appendix and the cross section is shown on Plan TASh 682.

The hole intersected dominantly graded white sandy siltstone to grey black argillaceous siltstone. Scour and fill structures, oversteepened cross lamination and 'sandstone dikelets' were common. Up to 3% pyrite and pyrrhotite was common as cubes and dendrites in the sandier layers. White silicified massive quartzites were also intersected. These were barren of mineralisation.

Veins which were intersected averaged 1cm in thickness. They consisted of quartz, pyrite, arsenopyrite, chalcopyrite, siderite, wolframite, lesser muscovite and minor cassiterite. The pyrite, and arsenopyrite content in veins varies from a minor amount, to being the dominant consituent of the vein. Wolframite occurs as bladed crystals which sometimes grow from the edge of the vein or occur randomly oriented within the vein.

Petrology reveals that the sediments have been weakly metasomatised with schorl and phlogopite replacing the shaly partings.

The best zone of veining occurs between 28m and 63m with a vein frequency approaching 3 veins per metre. The assays for this interval average 115 ppm Sn and 116ppm W.

8.2 DD81 BC 2 (DDB 12 of Geopeko)

DD81 BC2 was targeted to go through the hinge of the flexural anticline on Specimen Hill and to test the geochemically anomalous tourmaline zone. The tourmaline zone appeared as one of the best expressions of possible mineralisation in the Balfour field. It also tested the best development of the tin, tungsten geochemical anomaly centred on Specimen Hill.

The hole was drilled to a depth of 210.5m. A detailed geological log with assays is given in the Appendix and a geological and geochemical summary cross section is shown on Plan TASh 683.
A geological summary of B.H.P. hole DDB 1 is included on Plan TASh 683.

The hole intersected a good representation of all rock types to be found in Lithofacies 2. Tourmalinised siltstone was intersected in the top 80m of the hole. White, barren, silicified quartzites, were also penetrated. The bottom two thirds of the hole intersected the characteristic graded siltstone with varying amounts of alteration superimposed on it. Alteration consists of tourmalinisation, silicification and sericitization. This effect is clearly related to veining but is apparently fairly localised in extent. Sulphide content is variable throughout the sequence intersected. Pyrite and pyrrhotite blebs and dendritic patterns occur throughout, concentrating mainly in the lighter coloured sandy layers. Remobilised sulphides in cleavage and fractures is common. In these two forms, sulphide content ranges between 3% to 7%. In a few places however pyrite content increases to approximately 30% over 10 to 30cm intervals.

Veins represented in core averaged 1cm in thickness with several larger veins reaching up to 30cm thickness. Most veins contained quartz, pyrite, arsenopyrite, chalcopyrite, wolframite and siderite in varying amounts. Coarse cassiterite crystals in quartz veins, which is common on the surface, were noticeably absent in the core. Pyrite and arsenopyrite content varied considerably within the veins intersected.

At lease two phases of mineralisation are suggested by the following evidence.

1. Massive pyrite in pyritic veins often has subordinate cellular pyrite veins crosscutting the main vein.
2. Muscovite selvages commonly form at the edge of veins. Observed parallel selvages indicates reactivation of the vein fracture, with subsequent infilling with more vein material.

The best intersections achieved in DD81 BC 2 were as follows:-

29m	- 50m	21m @ 0.12% WO_3	
57m	- 72m	15m @ 0.156% WO_3	
89m	- 115m	26m @ 0.24% WO_3	(includes a 1m section (90-91m) @ 5.1% WO_3

Mineralisation can be recalculated to give the following result, overall.

29m - 115m 87m @ 0.137% WO_3

The vein frequency over these intervals is approximately 1 vein every 2 metres.

By using bedding/cleavage relationships, the orientation of veins was determined. The predominant dip of the vein system appears to be between 0° to 35° to the west. A number of veins do, however, show variable, usually steeply dipping orientations which is often cleavage related. Projection of veins between DD81 BC 2 and DDB 1 (old BHP hole) tends to confirm the predominant shallowly dipping trend. However, the frequency and average thickness of veins intersected by DDB 1 is significantly less than that of DD81 BC2. This suggests that the individual veins may not have large lateral continuity.

This section demonstrates that the vein system should be considered as a sheeted system rather than a random 'stockwork' with a consistent and predictable trend and dip.

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10. KEYWORDS

Tin, Tungsten, veins, Drill-Diamond, Geochem-rock, soil, Geology, Geophysics, Mag, I.P.

Locality: Burnie 1:250 000 Sheet SK55-3

11.LIST OF PLANS

12.LIST OF APPENDICES

APPENDIX 1

GEOCHEMICAL LEDGER SHEETS

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SPA 781 No. ..... Sample numbers ..... Collected by NRL Sheet No. 14

Area / Prospect BALFOUR Date OCT 1980

Map / Photo reference ..... Analysed by ALS DPO no .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type ****	Carbon	Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	Boron	Grid ref	Geological Observations 796029
									Depth													
7630		1.5									25	15	90	<1		2.40		15	40		97006	0-0.5 peat, rubble
																						0.5-1.5 grey shale
7629		2									25	80	200	1		1.76		50	<10		97256	0-1 peat
																						1-2 grey shale
7628		2									210	120	225	4		1.40		100	<10		97506	0-1 peat
																						1-2 dark grey shale
7627		2									55	60	500	<1		1.36		30	<10		97756	0-1 peat
																						1-2 grey shale
7626		1.5									50	260	255	<1		0.92		15	<10		98006	0-1.5 grey shale
7625		1.5									5	5	25	<1		0.20		10	<10		98256	0-0.2 peat
																						0.2-1.5 pale grey shale
7624		2									70	25	10	<1		2.40		35	<10		98506	0-0.5 peat
																						0.5-2 yellow brown shale
7623		1.5									5	10	60	1		2.80		5	<10		98756	0-0.5 peat
																						0.5-1.5 pale grey shale
7622		2									5	10	110	1		3.60		5	<10		99006	0-0.5 peat
																						0.5-2 light grey shale
7621		1.5									5	15	80	<1		3.60		5	<10		99256	0-0.2 peat
																						0.2-1.5 light grey shale
7620		1									5	10	70	<1		3.20		15	<10		99506	0-0.2 peat
																						0.2-1 pale grey shale
7619		1									<5	5	5	<1		0.46		15	<10		99756	0-0.2 peat
																						0.2-1 hard light grey shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name: EL 781 No. ..... Sample numbers: ..... Collected by: NRL Sheet no.: 16

Area / Prospect: BALFOUR Date: Oct 1980

Map / Photo reference: ..... Analysed by: ALS DPO no.: .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type *** Roth	s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9000N	Grid ref	Geological Observations 796030
7767		1.5									5	30	80	1		3.40		5	<10		94256	0-0.5 peat
																						0.5 - 1.5 yellow shale
7768		1.5									5	20	40	1		1.48		<5	<10		94506	0-0.5 peat
																						0.5 - 1.5 grey green shale
7769		1.5									20	20	20	<1		1.28		<5	<10		94756	0 - 0.2 peat
																						0.2 - 1.5 yellow to grey shales
7770		1.5									30	25	30	1		2.40		10	<10		95006	0 - 0.2 peat
																						0.2 - 1.5 dark green shale
7771		1.5									35	30	35	1		3.20		5	<10		95256	0 - 0.2 peat
																						0.2 - 1.5 dark grey green shale
7772		1.5									10	30	45	1		2.00		10	<10		95506	0 - 0.2 peat
																						0.2-1.5 grey to yellow shale
7773		1.5									10	20	25	1		1.60		5	<10		95756	0 - 0.2 peat
																						0.2 - 1.5 dark grey green shale
7774		1.5									5	20	15	1		0.19		65	<10		96006	0 - 0.2 peat
																						0.2 - 1.5 light grey green shale
7775		1.5									2	25	40	1		2.40		5	<10		96256	0 - 0.2 peat
																						0.2 - 1.5 light grey green shale
7776		Zr									5	20	55	1		1.22		<5	<10		96506	0 - 0.2 peat
																						0.2 - Zr yellow to grey shale
7777		1.5									50	60	95	1		0.52		10	<10		96756	0 - 0.2 peat
																						0.2 - 1.5 dark grey green shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SL 781 No. ..... Sample numbers ..... Collected by NRL Sheet no. 17

Area / Prospect BALFOUR Date Oct 1980

Map / Photo reference ..... Analysed by ALS DPO no.

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl / wi / al / co / ca / pH; o/c sample type ***; s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9000N	Grid ref	Geological Observations 796031
		Depth													
7778		1.5		70	290	340	1		1.72		<5	<10		97006	0-0.2 peat
															0.2-1.5 grey shale
7779		2		40	145	720	1		0.64		<5	<10		97256	0-0.5 peat
															0.5-2 grey green shale
7780		1.5		30	20	90	1		1.16		<5	<10		97506	0-0.2 peat
															0.2-1.5 grey green shale
7781		1.5		30	20	50	<1		1.56		<5	<10		97756	0-0.2 peat
															0.2-1.5 yellow shale
7782		2		25	20	45	<1		2.20		<5	<10		98006	0-0.5 peat
															0.5-2 yellow to red clay (sub.shale)
7783		1.5		10	25	90	1		3.00		10	<10		98256	0-0.2 peat
															0.2-1.5 grey shale
7784		1.5		10	25	40	<1		3.20		10	<10		98506	0-0.2 peat
															0.2-1.5 grey shale
7785		1.5		10	25	50	1		3.60		5	<10		99006	0-0.2 peat
															0.2-1.5 yellow shale
7786		2		35	75	370	1		6.40		15	<10		99256	0-0.5 peat
															0.5-2 grey green shale
7787		2		10	30	90	<1		4.00		15	<10		99506	0-0.5 peat
															0.5-2 grey green shale
7788		1.5		20	30	55	<1		2.20		15	<10		99756	

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name: L781 No. ● Sample numbers: ○ Collected by: NRC Sheet no. 19

Area / Prospect: BOLFOUR Date: Oct 1980

Map / Photo reference: Analysed by: ALS DPO no:

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type *** Depth s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9100N	Grid ref	Geological Observations 796032
7673		1.5								20	15	<2	1		800		10	<10		91756	0-0.5 peat
																					0.5-1.5 red-brown to grey shale
7672		2								10	640	70	<1		0.28		10	<10		92006	0-0.5 peat
																					0.5-2 dark grey green shale
7671		2								15	55	575	<1		0.28		<5	<10		92256	0-1 peat
																					1-2 grey to brown sandy shale
7670		1.5								2	10	5	1		520		<5	<10		92506	0-0.5 peat, rubble
																					0.5-1.5 grey to yellow shale
7669		1.5								15	15	<2	1		400		<5	<10		92756	0-0.5 peat
																					0.5-1.5 dark grey green shale
7668		2								2	10	5	<1		880		40	10		93006	0-1 peat, rubble
																					1-2 sandy yellow shale with qtz flags
7667		2								5	15	10	<1		0.21		35	<10		93256	0-1 peat, rubble
																					1-2 light yellow grey shale
7666		2								10	65	15	<1		380		15	<10		93506	0-1 peat
																					1-2 light grey shale
7665		2								25	0.28	800	1		0.14		40	<10		93756	0-0.5 peat
																					0.5-2 yellow-green shale pyritic
7664		2								35	30	820	<1		0.60		30	10		94006	0-0.5 peat
																					0.5-2 grey shale
7663		2								60	30	0.19	<1		1.24		55	<10		94256	0-0.5 peat
																					0.5-2 grey shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name EL 781 No. ..... Sample numbers ..... Collected by NRL Sheet No. 20

Area / Prospect BALFOUR Date OCT 1980

Map / Photo reference ..... Analysed by ALS DPO no .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type **** Depth	Carbon	Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9100N	Grid ref	Geological Observations 796033
7662		2									45	280	460	<1		1·32		<5	<10		94506	0-0·5 peat
																						0·5-2 grey shale
7661		2									35	40	45	<1		2·40		40	<10		94756	0-0·5 peat
																						0·5-2 grey-green clay (wh. shale)
7660		1·5									20	25	40	1		3·60		5	<10		95006	0-0·5 peat
																						0·5-1·5 grey shale
7659		1·5									30	55	280	1		2·00		15	<10		95256	0-0·2 peat
																						0·2-1·5 dark grey green shale
7658		1·5									10	10	520	<1		1·44		<5	<10		95506	0-0·2 peat
																						0·2-1·5 grey shale
7657		1·5									20	<5	25	<1		1·44		15	<10		95756	0-0·2 peat
																						0·2-1·5 pale grey shale
7656		1·5									35	5	15	<1		1·52		35	<10		96006	0-0·2 peat
																						0·2-1·5 pale grey green shale
7655		1·5									20	40	30	<1		1·60		10	<10		96256	0-0·5 peat
																						0·5-1·5 dark grey-green shale
7654		1·5									<2	<5	<2	<1		0·20		290	10		96506	0-0·5 peat
																						0·5-1·5 light grey shale
7653		1·5									5	<5	30	<1		1·24		<5	<10		96756	0-0·5 peat
																						0·5-1·5 yellow grey shale
7652		1·2									35	65	305	<1		0·62		60	<10		97006	0-0·5 peat
																						0·5-1·2 hard grey green clay
																						(w. shale?)

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name S 781 No. ... Sample numbers ... Collected by NRL Sh no. 21 of 3

Area / Prospect BALFOUR Date Oct 1980

Map / Photo reference ... Analysed by ALS DPO no. ...

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type **** Depth	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9100N	Grid ref	Geological Observations 796034
7651		2									40	25	480	<1		2.40		35	<10		97256	0–1 peat
																						1–2 grey shale
7798											<2	20	55	1		0.88		10	<10		97506	
7797		1.5									90	90	150	1		1.48		10	<10		97756	0–0.5 peat
																						0.5–1.5 dark grey green shale
7796		1.2									55	85	110	1		0.76		<5	<10		98006	0–0.2 peat
																						0.2–1.2 hard light brown shale
7795		1.5									<2	15	55	1		2.20		60	<10		98256	0–0.5 peat
																						0.5–1.5 pale brown shale
7794		1.5									<2	25	35	1		3.60		5	<10		98506	0–0.5 peat
																						0.5–1.5 pale yellow shale
7793		1.5									5	20	50	1		2.20		<5	<10		98756	0–0.5 peat
																						0.5–1.5 light grey green shale
7792		1.5									10	25	350	1		3.20		<5	<10		99006	0–0.5 peat
																						0.5–1.5 pale grey green shale
7791		1									5	20	170	1		2.00		250	<10		99256	0–0.5 peat
																						0.5–1 hard green-grey shale
7790		1.5									95	20	560	1		2.60		55	<10		94506	0–0.5 peat
																						0.5–1.5 grey green shale
7789		1									<2	20	40	1		1.90		65	<10		99756	0–0.2 peat
																						0.2–1 hard grey green shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LOGGER

Tenement name EL 781 No. ..... Sample numbers ..... Collected by NRL Sheet no. 23

Area / Prospect BALFOUR Date Oct 1980

Map / Photo reference ..... Analysed by ALS DPO no. .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	Depth s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9200N	Grid ref	Geological Observations 796035
7696		1.5									<2	35	10	3		460		5	<10		91756	0-0.5 peat
																						0.5-1.5 grey to dark brown sandy shale
7697		1.5									5	10	10	1		0.18		10	<10		92006	0-0.2 peat
																						0.2-1.5 black shale
7698		2									45	20	25	1		0.72		10	<10		92256	0-0.5 peat
																						0.5-2 black shale
7699		1.5									10	15	15	1		0.22		10	<10		92506	0-0.2 peat
																						0.2-1.5 dark grey green to brown shale
7700		2									20	5	10	<1		0.48		<10	<10		92756	0-0.5 peat
																						0.5-2 yellow to grey shale
7701		2									10	30	15	1		4.80		5	<10		93006	0-0.5 peat
																						0.5-2 orange clay
7702		2									10	20	10	<1		0.28		5	<10		93256	0-0.5 peat
																						0.5-2 pale grey shale
7703		2									10	15	20	2		640		335	30		93506	0-0.5 peat
																						0.5-2 brown clay white mottled
7704		1.8									10	20	15	2		0.26		5	<10		93756	0-0.5 peat
																						0.5-1.8 hard brown to grey shale
7705		1									100	160	45	1		0.14		10	<10		94006	0-0.2 peat
																						0.2-1 hard brown shale
7706		1.2									10	25	115	1		1.60		<5	<10		94256	0-0.2 peat
																						0.2-1.2 dark grey green shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LOGGER

Tenement name EL 2781 No. Sample numbers Collected by N.R.L Sheet No. 2 of 4

Area / Prospect BALFOUR Date OCT 1980

Map / Photo reference Analysed by ALS DPO no.

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type **** Depth	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9200N	Grid ref	Geological Observations 796036
7707		1									5	20	40	1		2.20		5	<10		9450E	0-0.2 peat
																						0.2-1 hard grey shale
7708		1.2									20	25	115	1		1.00		25	<10		9475E	0-0.2 peat
																						0.2-1.2 dark grey shale
7709		2									40	40	85	1		0.92		5	<10		9550E	0-0.5 peat
																						0.5-2 grey shale
7710		2									400	300	0.12	3		0.64		120	10		9575E	0-1 peat
																						1-2 brown green clays (w shale)
7711		2									250	0.12	0.12	2		1.28		40	<10		9600E	0-1 peat
																						1-2 grey shale
7712		2									20	30	180	1		1.00		5	<10		9625E	0-1 peat
																						1-2 grey shale
7713		2									10	25	290	1		2.00		5	<10		9650E	0-1 peat
																						1-2 pale grey shale
7714		1									480	540	720	2		1.12		75	30		9675E	0-0.2 peat
																						0.2-1 grey brown shale
7715		2									15	30	70	1		2.20		45	<10		9700E	0-0.5 peat
																						0.5-2 yellow green shale
7716		1.5									10	20	45	1		2.00		30	<10		9725E	0-0.2 peat
																						0.2-1.5 grey green shale
7717											15	30	40	1		2.20		10	<10		9750E	

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name: EL781 No. ... Sample numbers ... Collected by: NRL Sheet no.: 25

Area / Prospect: BALFOUR Date: OCT 1980

Map / Photo reference ... Analysed by: ALS DPO no. ...

A 02143

Sample No.	Type (ss * / oc / f / s)	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type **** (depth)	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Fe	Mn	Au	Sn	W	9200N	Grid ref	Geological Observations 796037
7718		1									5	15	35	.1	1·20			5	<10		97756	0-0·2 peat
																						0·2 - 1 pale grey green shale
7719		1·5									10	20	80	1	1·04			20	<10		98006	0-0·2 peat
																						0·2 - 1·5 dark green grey shale
7720		2									25	30	35	3	0·72			20	10		98256	0-0·5 peat
																						0·5 - 2 pale green shale
7721		1·5									10	50	40	·2	2·00			0·20	330		98506	0-0·2 peat
																						0·2 - 1·5 pale grey green shale
7722		2									10	20	20	<1	1·68			25	40		98756	0-0·5 peat
																						0·5 - 2 pale yellow green shale
7723		1·5									5	25	35	1	2·40			10	<10		99006	0-0·2 peat
																						0·2 - 1·5 light grey green shale
7724		1·5									5	25	35	1	2·20			<5	<10		99256	0-0·2 peat
																						0·2 - 1·5 light grey green shale
7725		1·5									10	20	15	2	0·98			35	<10		99506	0-0·2 peat
																						0·2 - 1·5 grey brown shale
7726		2									5	15	10	1	0·76			95	10		99756	0-0·5 peat
																						0·5 - 2 pale grey green shale
7815		1·5									5	20	2	1	0·32			5	<10	9300N	99006	0-0·5 peat
																						0·5 - 1·5 grey shale
7814		1·2									5	20	5	1	0·90			<5	10		89256	0-0·5 peat
																						0·5 - 1·2 dark brown shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SPL791 No. ..... Sample numbers ..... Collected by NRL Sheet no. 26

Area / Prospect BALFOUR Date Oct 1980

Map / Photo reference ..... Analysed by ALS DPO no .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Fe %	Au	Sn	W	9300N	Grid ref	Geological Observations
																						796038
7813		3									5	20	5	<1		0.40		<5	<10		8950E	0-0.5 peat
																						0.5-2.5 sand, rubble
																						2.5-3 grey, sandy shale
7812		2									10	20	2	1		0.76		<5	10		8975E	0-0.5 peat
																						0.5-1.5 orange (Fe st.) sand
																						1.5-2 yellow sandy shale? (hard)
7811		1.5									5	15	2	<1		0.58		<5	10		9000E	0-0.5 peat, rubble
																						0.5-1.5 yellow sandy shale
7810		1.5									10	20	5	1		0.30		<5	<10		9025E	0-0.2 peat
																						0.2-1.5 light yellow to cream shale
7809		1.5									10	15	5	<1		0.32		<5	<10		9050E	0-0.2 peat
																						0.2-1.5 hard brown sandy shale
7808		2									2	20	5	<1		0.28		<5	<10		9075E	0-1 peat, white sand
																						1-2 grey sandy shale
7807		2									5	20	5	<1		0.16		<5	<10		9100E	0-1 peat, white sand
																						1-2 dark brown to grey sandy shale
7806		2									10	105	10	1		1.10		<5	<10		9225E	0-1 peat, rubble
																						1-2 yellow-grey shale
7805		1.8									20	85	35	1		0.94		10	<10		9275E	0-0.5 peat, gravel
																						0.5-1.8 dark grey-black shale
7804		2									10	80	10	2		0.66		15	10		9300E	0-0.5 peat
																						0.5-2 dark grey brown shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample ty[illegible]

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name 781 No. ..... Sample numbers ..... Collected by NRL Sh no. 27

Area / Prospect BALFOUR Date OCT 1980

Map / Photo reference ..... Analysed by ALS DPO no .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type **** Depth	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9300N	Grid ref	Geological Observations 796039
7803		1.5									2	25	20	1		0.32		50	30		93256	0-0.5 peat
																						0.5-1.5 grey shale
7802		1.5									10	40	25	1		0.22		<5	<10		93506	0-0.5 peat, gravel
																						0.5-1.5 brown shale
7801		2									5	50	10	1		1.96		10	<10		93756	0-0.5 peat, gravel
																						0.5-2 bright orange to white clay
7750		1.5									10	25	5	1		084		10	<10		94006	0-0.5 peat, gravel
																						0.5-1.5 grey shale
7749		1.5									10	280	15	1		1.78		450	<10		94256	0-0.2 peat
																						0.2-1.5 yellow to grey shale
7748		1.5									5	25	10	1		0.72		25	10		94506	0-0.2 peat
																						0.2-1.5 grey to yellow shale
7747		1									20	20	5	1		1.56		<5	<10		94756	0-0.2 peat
																						0.2-1 Khaki shale
7746		0.8									20	25	120	2		7.60		5	<10		95006	0-0.2 peat
																						0.2-0.8 Khaki shale
7745		0.8									30	50	10	1		1.28		<5	<10		95256	0-0.2 peat
																						0.2-0.8 dark grey green shale
7744		1									10	20	60	1		0.88		10	<10		95506	0-0.2 peat
																						0.2-1 yellow-grey shale
7743		1.5									270	60	0.18	1		1.72		95	<10		95756	0-0.5 peat
																						0.5-1.5 dark grey-green shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SR 181 No. Sample numbers Collected by NRL Sheet no. 28
Area / Prospect BALFOUR Date OCT 1980
Map / Photo reference Analysed by ALS DPO no.
A 02143

Sample No.	Type ss * oc f s	ss channel ** fl wi sl co ca pH; o/c sample type ***	s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9300	Grid ref	Geological Observations 796040
7742		2			15	20	230	1		0·88		35	<10		96006	0-1 peat, gravel
																1-2 grey green shale
7741		1·5			15	20	220	1		1·56		20	<10		96256	0-0·5 peat
																0·5-1·5 grey green shale
7740		2			10	30	115	1		0·76		5	<10		96506	0-1 peat
																1-2 grey shale
7739		2			15	35	160	1		0·96		25	20		96756	0-1 peat
																1-2 grey shale
7738		2			15	30	110	1		1·52		5	<10		97006	0-1 peat
																1-2 grey shale
7737		3·5			20	45	350	1		0·92		10	20		97256	0-1·5 peat, gravel
																1·5-3·5 grey shale
7736		1·5			5	30	190	1		0·94		20	<10		97506	0-0·5 peat
																0·5-1 light grey shale
7735		1·5			95	90	210	1		1·20		10	<10		97756	0-0·7 peat
																0·7-1·5 grey shale
7734					10	20	25	<1		1·08		50	<10		98006	
7733		2			10	20	30	<1		1·32		35	<10		98256	0-0·5 peat
																0·5-2 grey green shale
7732		2			10	15	10	1		0·64		20	<10		98506	0-0·5 peat
																0·5-2 light yellow grey shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil
** Stream sed. sample description fl = flow m3/sec wi = width m sl = alluvial co = colluvial ca = catchment km2
*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
**** Soil sample type auger hole or pit (state depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SPL 781 No. ... sample numbers ... Collected by NRL Sht no. 29
Area / Prospect FOUR Date Oct 1980
Map / Photo reference ... Analysed by ALS DPO no ...
A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9300N	Grid ref	Geological Observations 796041
7731		2									15	30	25	1		440		10	<10		98756	0-0.5 peat
																						0.5-2 khaki shale
7730		1.5									5	20	5	<1		044		5	<10		99006	0-0.5 peat
																						0.5-1.5 light brown shale
7729		1.5									10	20	15	1		0.12		10	<10		99256	0-0.5 peat
																						0.5-1.5 brown shale
7728		1.5									45	60	026	1		080		75	20		99506	0-0.5 peat
																						0.5-1.5 brown shale
7727		1.5									20	15	95	1		1.64		20	<10		99756	0-0.7 peat
																						0.7-1.5 khaki shale
7816		2									5	20	5	<1		028		110	<10	7500N	94006	0-0.5 peat, rubble
																						0.5-2 dark, grey shale
7817		1.5									10	20	10	1		0.24		25	10		94256	0-0.5 peat, rubble
																						0.5-1.5 dark grey shale
7818		2									5	25	5	1		0.16		10	<10		99506	0-0.5 peat
																						0.5-2 dark grey shale
7819		1.5									120	125	10	2		0.26		10	<10		94756	0-0.5 peat
																						0.5-1.5 dark grey green shale
7820		1.2									10	25	15	1		0.60		45	20		95006	0-0.2 peat
																						0.2-1.2 black shale
7821		1.2									10	40	45	1		1.60		10	10		95256	0-0.2 peat
																						0.2-1.2 pale grey green shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil
** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
**** Soil sample type auger hole or pit depth m A, B or C horizon

043

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SL 7781 No. ..... Sample numbers ..... Collected by NRL Sheet no. 30

Area / Prospect BALFOUR Date Oct 1980

Map / Photo reference ..... Analysed by ALS DPO no .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type ****	Carbon	Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9500N	Grid ref	Geological Observations 796042
7822		1							Depth		10	25	55	1		1.40		5	<10		95.. E	0-0.2 peat 0.2-1 light grey green shale
7823		2									25	20	100	1		1.64		<5	<10		95756	0-2 light grey shale
7824		2									20	30	65	1		2.04		5	<10		96006	0-1 peat, gravels 1-2 light grey shale
7825		1.2									30	30	310	<1		1.92		<5	10		96256	0-0.2 peat 0.2-1.2 brown shale
7826		1.2									75	50	300	1		2.26		15	<10		96506	0-0.2 peat 0.2-1.2 brown shale
7827		1.5									10	40	45	2		0.74		60	20		96756	0-0.5 peat, gravel 0.5-1.5 brown to grey shale
7828		3.5									20	45	280	1		1.96		10	10		67006	0-2.5 peat, gravel 2.5-3.5 light grey shale
7829		2.5									15	15	250	1		1.54		<5	<10		97256	0-2 peat, gravel 2-2.5 light grey shale
7830		2									70	25	700	1		1.72		200	<10		97506	0-1 peat, gravel 1-2 light grey shale
7831		3.5									50	200	0.14	2		1.18		450	30		97756	0-2.5 peat, gravel 2.5-3.5 grey clay
7832		2									110	400	0.28	2		2.06		45	10		98006	0-1 peat, gravel 1-2 grey shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type

J44

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name L7781 No. ..... Sample numbers ..... Collected by NRL Sheet no. 31

Area / Prospect BALFOUR Date Oct 1980

Map / Photo reference ..... Analysed by ALS DPO no .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9500N	Grid ref	Geological Observations 796043
7833		12							Dpth		30	50	260	1		1·18		30	<10		9825E	0-0·2 peat
																						0·2-1 grey shale
7834		1·5									40	95	115	1		0·58		10	<10		9850E	0-0·2 peat
																						0·2-1·5 light grey brown shale
7835		2									5	10	20	1		0·44		120	100		9875E	0-1 road fill
																						1-2 light brown grey shale
7836		1·5									10	10	15	1		0·42		40	20		9900E	0-0·7 peat, rubble
																						0·7-1·5 hard grey shale
7837		1·5									90	15	30	2		4·40		25	10		9925E	0-0·5 peat
																						0·5-1·5 yellow shale
7838		1									10	15	5	2		0·50		145	50		9975E	0-0·5 road
																						0·5-1 brown shale
7872		2									2	30	5	1		0·24		30	<10	9600N	9100E	0-0·5 peat
																						0·5-2 grey sandy shale
7871		1·5									2	15	5	1		0·28		<5	<10		9125E	0-0·5 peat
																						0·5-1·5 grey shale
7870		2									5	20	5	2		0·60		<5	30		9150E	0-1 peat, rubble
																						1-2 grey to yellow sandy shale
7869		1·5									2	10	5	1		0·12		10	10		9175E	0-0·8 peat, rubble
																						0·8-1·5 brown to grey sandy shale
7868		3·5									5	15	5	1		0·20		5	10		9200E	0-0·5 peat
																						0·5-2·5 qutz rubble
																						2·5-3·5 grey green sandy shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

U41

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SL 781 No. ..... Sample numbers ..... Collected by NRL Sheet no. 32

Area / Prospect BALFOUR Date OCT 1980

Map / Photo reference ..... Analysed by ALS DPO no .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	cs	pH	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9600N	Grid ref	Geological Observations 796044
		o/c sample type ***																		
		Depth s sample type ****																		
7867		2							5	10	5	1		0·16		<5	10		92256	0 - 0·5 peat
																				0·5 - 2 light grey green sandy shale
7866		1·5							2	35	5	2		0·44		5	10		92506	0 - 0·5 peat
																				0·5 - 1·5 grey green shale
7865		1·5							2	20	5	1		0·20		5	20		92756	0 - 0·5 peat
																				0·5 - 1·5 light grey sandy shale
7864		1·8							10	20	5	2		0·36		<5	20		93256	0 - 0·5 peat
																				0·5 - 1·8 light brown to grey green shale
7863		2							15	160	10	2		0·36		10	20		93506	0 - 1 peat
																				1 - 2 grey shale
7862		2							10	30	5	2		0·32		65	10		93756	0 - 1 peat, rubble
																				1 - 2 grey shale
7861		2							10	20	5	1		0·28		<5	10		9400	0 - 1 peat rubble
																				1 - 2 light grey sandy shale
7860		2							5	20	5	1		1·16		10	<10		94256	0 - 1 peat, rubble
																				1 - 2 dark grey green shale
7859		2							10	30	10	1		0·46		65	<10		94506	0 - 0·5 peat
																				0·5 - 2 grey sandy shale
7858		2							80	740	15	2		1·02		120	10		94756	0 - 0·5 peat
																				0·5 - 2 grey shale
7857		1·5							15	20	15	1		0·42		35	10		95006	0 - 0·2 peat
																				0·2 - 1·5 black shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

U40

C M A EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SPL781 No. ● Sample numbers ○ Collected by NRL Sheet no. 33
Area / Prospect B.C. FOUR Date Oct. 1980
Map / Photo reference Analysed by ALS DPO no.
A 02143

Sample No.	Type ss * oc f s	ss channel ** fl wi al co ca pH; o/c sample type ***	Depth s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9600N	Grid ref	Geological Observations 796045
7856		2			20	20	25	3		0·66		285	120		95256	0-0·5 peat
																0·5-2 black shale
7855		1·5			760	70	25	2		0·46		10	<10		95506	0-0·5 peat
																0·5-1·5 light brown shale
7854		1·5			5	20	20	1		0·88		15	10		95756	0-0·2 peat
																0·2-1·5 light brown shale
7853		1·5				10	20	1		0·56		370	20		96006	0-0·5 rubble
																0·5-1·5 light brown-grey shale
7852		1·5			2	10	25	1		0·22		40	<10		96256	0-0·5 peat
																0·5-1·5 grey shale
7851		1·5			50	25	460	1		4·00		30	<10		96506	0-0·5 peat, gravel
																0·5-1·5 light grey shale
7850		2			25	15	170	1		1·02		70	30		96756	0-1 peat, gravel
																1-2 grey green shale
7849		2			50	35	016	1		0·76		255	40		97006	0-0·5 peat
																0·5-2 grey green shale
7848		2			20	20	640	1		0·79		15	70		97256	0-0·5 peat
																0·5-2 light grey green shale
7847		2			30	15	180	1		1·36		15	10		97506	0-1 peat, rubble
																1-2 light grey shale
7846		2			20	30	0·11	1		0·82		10	50		97756	0-1 peat gravel
																1-2 light grey shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil
** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2
*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)
**** Soil sample type auger hole or pit depth m A, B or C horizon

U4J

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SPL 781 Nn. ...sample numbers... Collected by NRL Sheet no. 34

Area / Prospect BALOUR Date OCT 1980

Map / Photo reference Analysed by ALS DPO no.

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl / wi / al / co / ca / pH; o/c sample type ***; s sample type **** Depth	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	960CN	Grid ref	Geological Observations
															796046
7845		1·5		30	110	12	2		2·24		25	<10		98006	0-0·2 peat
															0·2-1·5 light grey green shale
7844		1·5		10	10				0·50		15	70		98256	0-0·5 peat, rubble
															0·5-1·5 light green brown shale
7843		1·5		5	10	15	<1		0·28		15	10		98506	0-0·5 peat, rubble
															0·5-1·5 grey-brown shale
7842		1·5		90	20	20	1		0·32		10	25		98756	0-0·5 peat, rubble
															0·5-1·5 cream to light brown shale
7841		1·2		15	10	15	1		0·52		25	<10		99006	0-0·7 peat, rubble
															0·7-1·2 light brown shale
7840		1		5	10	5	1		0·44		60	40		99256	0-0·2 peat
															0·2-1 light grey shale
7839		1		10	10	10	1		0·50		125	50		99506	0-0·2 peat
															0·2-1 brown shale
7873		2		2	30	2	2		0·26		<5	20	970CN	91006	0-1 peat, sand
															1-2 light brown sandy shale
7874		2		<2	25	10	1		0·24		<5	40		91256	0-0·2 peat
															0·2-1·5 red brown sand
															1·5-2 pale brown sandy shale?
7875		2		5	20	5	2		0·30		5	20		91506	0-1 peat, sand
															1-2 dark brown sandy shale
7876		2		2	20	10	1		0·30		10	10		91756	0-1 peat, sand
															1-2 dark brown to grey sandy shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

USO S.P.L. 781

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name S.P.L. 781 No. Sample numbers 819332 - 341 Collector P.H. Sheet no. 35

Area / Prospect Balfour Date April 1980

Map / Photo reference Analysed by A.L.S. DPO no

Sample No.	Type ss * oc f s	ss channel ** fl / wi / al / co / ca / pH; o/c sample type ***; s sample type **** Depth	Horizon	Carbon	Cu	Pb	Zn	Ag	Mo	Mn-Fe	Au	Sn	W	Grid ref 100N	Geological Observations 796047
9341	S	2	C		2	5	20	1		0·40		0·11%	<10	10575E	50m South of Nico line white qtzite
340	"	2	"		10	10	50	<1		3·20		35	<10	10612E	Taken on road east Peters ridge orange clay rich
339	"	2	"		2	10	70	<1		3·20		<5	<10	10625E	Green clay no rock minor Fe staining
338	"	2	"		10	25	70	<1		2·96		5	<10	10650E	Green shale
337	"	2	"		2	10	65	<1		2·48		20	<10	10675E	" "
336	"	2	"		10	20	65	1		3·36		15	<10	10700E	Green yellow shale
335	"	2	"		20	20	80	1		6·40		<5	<10	10725E	" " "
334	"	2	"		5	30	60	1		2·96		<5	<10	10750E	Green clay rich no rock chips
333	"	1·3	"		45	10	20	1		2·40		10	<10	10775E	
332	"	1·3	"		580	15	65	<1		2·56		<5	<10	10800E	Contaminated by tailings

ACRO AUGER

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

051

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SPL 781 No. ..... Sample numbers ..... Collected by N.R.L. Sheet no. 36

Area / Prospect BALFOUR Date Oct 1980

Map / Photo reference ..... Analysed by A.L.S. DPO no. .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	Depth s sample type ****	Carbon	Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9700	Grid ref	Geological Observations 796048
7888		1·2									20	40	10	1		0·26		<5	<10		9475E	0-0·2 peat
																						0·2-1 light grey shale
7889		2									10	30	35	2		1·12		40	20		9550E	0-1 peat, rubble
																						1-2 pale grey sandy shale
7890		1·5									20	20	15	1		1·04		30	20		9575E	0-0·2 peat
																						0·2-1·5 black shale
7891		1·5									20	45	25	1		2·00		150	40		9600E	0-0·5 peat, rubble
																						0·5-1·5 grey green sandy shale
7892		1									5	15	55	1		3·00		60	<10		9625E	0-0·2 peat
																						0·2-1 light grey shale
7893		1·5									5	10	20	1		0·96		325	20		9650E	0-0·2 peat
																						0·2-1·5 pale grey shale
7894		1									45	20	75	1		3·40		20	<10		9675E	0-0·2 peat
																						0·2-1 grey shale
7895		1·5									55	15	200	2		4·00		45	<10		9700E	0-0·5 peat
																						0·5-1·5 grey green shale
7896		1·5									165	20	30	1		0·86		90	<10		9725E	0-0·5 peat, gravel
																						0·5-1·5 light grey sandy shale
7897		1·5									15	20	105	1		2·16		605	50		9750E	0-0·5 peat
																						0·5-1·5 grey shale
7898		0·5									720	30	90	2		0·86					9775E	0-0·5 hard brown shale
7899		1·5									210	85	0·14	2		3·80		270	60		9800E	0-0·5 peat
																						0·5-1·5 dark grey green shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name SL 781 No. ..... Sample numbers ..... Collected by NRL Sheet no. 37

Area / Prospect BALFOUR Date OCT 1980

Map / Photo reference ..... Analysed by ALS DPO no. .....

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	9700N	Grid ref	Geological Observations 796049
7900		1.5							Depth		250	20	45	1		0.48		250	60		98256	0-0.5 road 0.5-1.5 grey shale
7901		1.2									10	90	20	1		0.60		175	30		99006	0-0.2 road 0.2-1.2 light grey shale
7902		1.5									5	10	15	1		0.54		45	10		99256	0-0.5 peat gravel 0.5-1.5 grey shale
7903		2									15	20	60	1		0.40		280	80		99506	0-0.2 peat 0.2-2 pale yellow shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

USS

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name S.P.L. 781 No. Sample numbers 819377 - 819389 Collected by P.H. Sheet no. 38

Area / Prospect BALFOUR Date APRIL 1980

Map / Photo reference Analysed by A.L.S. DPO no.

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W		Grid ref 99 N.	Geological Observations 796050
		o/c sample type ***																		
		Depth	s sample type ****				Horizon													
819377	S	1·5					C		2	10	10	<1		0·12		225	20		10575E	White qtzite
378	"	1·6					"		35	10	25	<1		2·32		80	<10		10600E	Green grey siltstone
379	"	1·7					"		2	10	45	<1		2·16		20	<10		10625E	Green shale
380	"	0·6					"		5	10	25	<1		1·88		5	<10		10650E	Green grey shale
381	"	1·5					"		5	15	60	<1		4·08		<5	<10		10675E	Tailings dump green shale
382	"	1·4					"		<2	10	45	<1		3·36		<5	<10		10700E	" " " "
383	"	2					"		30	10	50	<1		3·20		10	<10		10725E	" " " "
384	"	2					"		50	15	50	<1		3·52		5	<10		10750E	" " " "
385	"	1·6					"		15	20	70	<1		2·96		<5	<10		10775E	Near tailings / Green shale.
386	"	2					"		20	20	50	1		6·00		5	<10		10800E	Dark to light green shale
																			10825E	NOT SAMPLED.
387	"	2					C		20	10	30	<1		2·64		<5	<10		10850E	Grey shale qtzite top of M.B. Ridge
388	"	2					"		20	30	25	<1		1·64		5	<10		10875E	Grey siltstone, qtzite
389	"	2					"		5	15	10	<1		0·10		<5	<10		10900E	White clay

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample ty[illegible] gs = grab sample rc = rock chip (state interval & length) cs = channel sample (st[illegible]ength)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name 054 SPL 781 No. Sample numbers 819452 - 819461 Collected by N.R.L Sheet no. 44

Area / Prospect BALFOUR Date MAY 1980

Map / Photo reference Analysed by A.L.S DPO no.

Sample No.	Type	ss channel **						Carbon	Metal content ppm or %										Grid ref	Geological Observations
	ss * oc f s	fl	wi	al	co	ca	pH		Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W		94N.	796051
		o/c sample type ***																		
		Depth	s sample type ****				Horizon													
819452	S	2·5							10	10	75	1		240		20	<10		10475E	0-2m peat
																				2-2·5m pale green siltstone
453	"	2							65	15	135	2		7·20		20	<10		10500E	0-1·8m peat
																				1·8-2m pale green siltstone
454	"	2							65	10	310	2		3·00		45	<10		10525E	0-1·5m peat
																				1·5-2m light green siltstone
455	"	2							2	5	50	1		3·16		<5	<10		10550E	0-1·2m peat
																				1·2-2m light green siltstone
456	"	2							2	5	45	1		3·20		10	<10		10575E	0-1·7m peat
																				1·7-2m light green siltstone
457	"	1·2							50	10	50	1		2·84		5	<10		10600E	0-1m peat
																				1-2m light green siltstone
458	"	2							10	10	40	1		2·72		5	<10		10625E	0-1·2m peat
																				1·2-2m light green siltstone
459	"	1							25	10	30	2		2·32		<5	<10		10670E	On lower road, Murrays Ridge
																				0-1m light grey siltst.
460	"	1·5							80	15	35	2		2·94		<5	<10		10710E	Top Murrays Ridge
																				0-1m waste
																				1-1·5m yellow siltstone
461	"	1							10	5	25	1		1·68		<5	<10			
																			10750E	0-0·5m road
																				0·5-1m yellow brown siltstone

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

053

C.R.A. EXPLORATION : GEOCHEMICAL SAMPLE LEDGER

Tenement name SPL 781 No. ● mple numbers 819483 - 819492 Colle● by N.R.L. Sheet no. 47

Area / Prospect FLEURIEU Dat Mar 1980

Map / Photo reference Analysed by A.L.S DPO no.

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type *** Depth	s sample type **** Horizon	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W		Grid ref 92 N	Geological Observations 796052
											35	5	55	1		280		5	<10			Loop nr Murray's Rd)
819483	S	2																			10725E	0-1.5m peat + gravel
																						1.5-2m grey siltstone
484	S	1.5									10	5	55	1		3.56		5	<10		10700E	0-1m peat
																						1-1.5m grey siltstone
485	S	1									<2	5	45	1		3.24		<5	<10		10675E	0-1m yellow siltstone
486	"	0.5									<2	<5	5	2		0.10		10	10		10650E	0-0.2m peat
																						0.2-0.5m light grey siltstone
487	"	0.5									10	5	<2	1		480 ppm		15	<10		10625E	0-0.5m " " "
488	"	0.5									10	15	15	1		2.84		45	<10		10600E	0-0.5m " " "
489	"	3									5	5	50	1		1.28		10	10		10575E	0-2.5m (Tin Creek) peat
																						2.5-3m white-pale green siltstone
																					93N.	
490	"	0.5									30	10	40	1		2.52		15	<10		10600E	0-0.5m pale yellow siltstone
491	"	0.5									10	10	10	1		0.98		<5	10		10625E	0-0.5m gray siltstone (West ridge)
492	"	1									5	5	15	2		480 ppm		45	10		10650E	0-1m soft grey siltstone

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type ge = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R.A. EXPLORATION . GEOCHEMICAL SAMPLE LEDGER

Tenement name C.P.L. 781 No. Sample numbers 819624 – 819634 Collected by N.R.L. Sheet no. 60

Area / Prospect BALFOUR Date MAY 1980

Map / Photo reference Analysed by A.L.S. DPO no.

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type *** Depth s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W	Grid ref 89 N	Geological Observations 796053
819624	S	2						(m)		25	15	150	<1		0·32		5	<10	9300E	0-1m peat
																				1-2m dark grey siltstone
625	"	3·5								25	620	0·28%	2		0·38		75	10	9275E	0-2·5m peat gravel
																				2·5-3·5m stiff grey clay
626	"	2								<2	15	50	<1		0·18		5	<10	9250E	0-1·5m peat, gravel
																				1·5-2m light grey siltstone
627	"	2								5	440	470	<1		0·26		<5	<10	9225E	As above
628	"	1·5								5	55	190	<1		0·26		<5	<10	9200E	0-1m peat
																				1-1·5m brown sandy siltstone
629	"	1·5								5	10	40	<1		0·18		5	30	9175E	AS ABOVE
630	"	1·5								<2	10	40	<1		0·22		10	10	9150E	" "
631	"	2								2	25	45	<1		0·20		<5	10	9125E	0-1·5m peat, gravel
																				1·5-2m brown siltstone
632	"	2								<2	5	40	<1		0·10		15	20	9100E	AS ABOVE
																			94 N	
633	"	1								120	30	10	1		3·28		20	<10	9800E	(Read) 0-0·5m peat
																				0·5-1m yellow brown siltstone
634	"	1								45	80	145	1		0·70		15	<10	9775E	0-0·5m peat
																				0·5-1m dark brown siltstone

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

Tenement name EL 181 No. Sample numbers 819635 - 819646 Collected by N.K.E. Sheet no. 1

Area / Prospect POLFOUR Date MAY 1980

Map / Photo reference Analysed by A.L.S. DPO

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type *** Depth s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W		Grid ref 94 N.	Geological Observations 796054
819635	S	2	(m)							120	30	10	1		3·28		20	<10		9750E	0-1·5m peat, gravels
																					1·5-2m pale grey siltstones
636	"	2								45	80	145	1		0·70		15	<10		9725E	As above
637	"	1·5								30	45	100	1		1·14		10	<10		9700E	0-0·5m peat
																					0·5-1·5m pale grey siltstones
638	"	1·5								5	180	0·16%	2		1·32		30	10		9675E	As above
639	"	2								10	35	800	1		1·40		15	10		9650E	0-1m peat, gravels
																					1-2m pale grey siltstone
640	"	2								10	40	200	1		1·36		15	<10		9625E	0-1m peat, gravels
																					1-2m grey green siltstones
641	"	2								5	20	310	1		0·82		<5	<10		9600E	0-1m peat
																					1-2m brown green siltstones
642	"	2								35	80	300	1		1·28		25	<10		9575E	0-1m peat
																					1-2m yellow grey siltstones
643	"	1								20	50	10	1		0·24		5	40		9560E	0-0·5m peat
																					0·5-1·0m red brown siltstones
644	"	1								2	15	20	1		0·64		515	60		9525E	0·-0·5m peat
																				95N	0·5-1m pale yellow siltstones
645	"	2								2	20	5	2		0·68		20	10		9375E	0-1m peat
																					1-2m yellow ferruginous sandstone
* 646	MISSING																				

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

Area / Prospect BALFOUR 060 ... Sample numbers ... Collected by N K L Sheet no. 05

Map / Photo reference ... Analysed by A.L.S Date MAY 1980 DPO

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	Depth s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn Fe	Au	Sn	W		Grid ref	Geological Observations
																					108N.	796055
819680	S	2	(m)								15	15	25	<1		2·32		5	<10		10075E	(Tin Creek) 0-1·5m peat and alluvium
																						1·5-2m Dark grey siltstone
681	"	2·5									15	15	25	<1		2·36		5	<10		10100E	0-1·5m peat and alluvium
																						1·5-2·5m grey siltstone
682	"	0·7									5	15	15	1		3·32		5	<10		10125E	0-0·5m peat
															10150, 10175E			MISSING				0·5-0·7m hard yellow siltstone
683	"	2									2	15	15	1		2·00		<5	<10		10200E	0-1m peat
																						1-2m white siltstone
684	"	2									2	25	25	1		2·44		<5	<10		10225E	As above
685	"	2									10	15	30	1		1·26		40	10		10250E	0-1·7m peat
																						1·7-2m grey green clay
686	"	2									10	15	15	<1		1·08		35	<10		10275E	0-1·5m peat, alluvium
																						1·5-2m pale green siltstone
687	"	2									10	20	20	1		1·52		5	<10		10300E	As above
688	"	2									20	30	35	1		2·24		10	40		10325E	As above
689	"	2									35	25	85	1		2·48		15	40		10350E	As above
																		10375E		MISSING		
690	"	4·5									10	20	60	1		1·02		5	20		10400E	0-4m peat
																						4-4·5m grey siltstones

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

C.R. EXPLORATION . GEOCHEMICAL SAMPLE EDGER

Tenement name: SPL 781 No.: Sample numbers: 5201 – 5210 Collected by: N.R.L. Sheet no.: 68

Area / Prospect: ALFOUR Date: July 1980

Map / Photo reference: Analysed by: A.L.S DPO no.:

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	Depth	s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn	Au	Sn	W		Grid ref	Geological Observations 796056
TS 5201		1·6										60	15	10					25	<10	10400N	10000E	0 – 0·4m peat
																							0·4 – 1·6m grey yellow clay
5202												5	10	10					10	<10	10400N	10025E	0 – 0·5m peat
																							0·5 – 2m soft white to yellow clay micaceous and pyritic
5203		1·5										10	15	15					10	<10		10050E	0 – 1m peat 1 – 1·8m yellow to grey green weathered siltstone
5204		1										5	10	10					<5	<10		10075E	0 – 0·2m peat
																							0·2 – 1m grey mottled siltstone
5205		1·2										5	30	20					20	<10		10100E	0 – 0·2m peat
																							0·2 – 1·2m grey clay
5206		1·3										175	30	500					10	<10		10125E	0 – 0·2m peat
																							0·2 – 0·8m stamiferous muddy gravels
																							0·8 – 1·3m grey pyritic siltstone
5207		1·3										10	15	20					5	<10	10300N	10000E	0 – 0·7m peat
																							0·7 – 1·3m light grey shale
5208		2										20	25	290					35	<10		10025E	0 – 1m peat
																							1 – 2m light grey siltstone
5209		1·2										15	20	25					<5	<10		10050E	0 – 0·5m peat and rubble
																							0·5 – 1·2m light grey shale
5210		1·8										10	25	10					10	20	10200W	10000E	0 – 0·4m peat 0·4 – 1·3m gravel
																							1·3 – 1·8m Brown shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

UDI SPL 781 C.R. EXPLORATION GEOCHEMICAL SAMPLE EDGER

Tenement name UDI SPL 781 No. Sample numbers 5223 – 5234 Collected by N.R.L Sheet no. 70

Area / Prospect FOUR Date June 1980

Map / Photo reference Analysed by A.L.S DPO no.

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn	Au	Sn	W		Grid ref	Geological Observations 796057
5223		1									5	10	25					5	<10	10200N	10225E	0 – 0·7m qtz rubble
																						0·7 – 1m green brown shale
5224		1·5									60	50	680					90	10			0 – 1·2m peat, rubble
																						1·2 – 1·5m grey clay
5225		1·2									25	30	240					10	<10			0 – 0·5m peat
																						0·5 – 1·2m grey shale with pyritic qtzite
5226		1·5									110	30	75					530	<10			0 – 1·4m peat + gravel
																						1·4 – 1·5m hard grey shale
5227		0·6									10	10	10					40	10			0 – 0·4m peat
																						0·4 – 0·6m pale yellow qtzite
5228		1·2									15	20	340					65	<10			0 – 1m peat
																						1 – 1·2m stiff grey clay
5229		1·5									10	30	95					<5	<10		10375E	0 – 0·5m peat
																						0·5m – 1m light grey shale
5230		1·7									10	20	165					5	<10		10400E	1·7 light grey shale
5231		1·5									30	880	640					45	10		10425E	0·5 m qtzite rubble
																						0·5 – 1m brown shale
5232																						
5233		2									10	35	45					70	<10	10400N	10150E	0 – 1·7m peat
																						1·7 – 2m pale grey green shale
5234		3									10	25	25					15	<10		10175E	0 – 2·5m peat and gravel
																						2·5 – 3m white clay

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

050

CR EXPLORATION GEOCHEMICAL SAMPLE LEDGER

Tenement name SPL 781 No. Sample numbers 5235 - 5245 Collected by N.R.L Sheet no. 71

Area / Prospect Jetfour Date July 1980

Map / Photo reference Analysed by A.L.S DPO no.

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type ***	s sample type **** depth	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn	Au	Sn	W		Grid ref	Geological Observations 796058
5235		2									25	30	50					10	<10	10400N	10200E	0-1m peat and sand
																						1-2m pale grey shale
5236		1·8									25	20	200					50	<10			0-1·5m peat
																						1·5-1·8m stiff green clay
5237		2									10	20	65					10	<2			0-1m peat
																						1-2m pale green pyritic shale
5238		1·5									10	20	30					10	<10			0-1m peat
																						1-1·5m yellow shale
5239		2·5									2	5	5					<5	10	10400N	10300E	0-2m peat and quartz rubble
																						2-2·5m pale yellow sandy qtzite
5240		2									2	5	5					5	<10		10400E	0-1m peaty qtzite rubble
																						1-2m grey + brown clay with shale
5241		0·7									5	5	2					<5	10		10425E	0-0·5m peat qtzite rubble
																						0·5-0·7m white sandy qtzite
5242		1·2									2	10	20					<5	<10		10450E	0-1m peat qtzite rubble
																						1-1·2m white qtzite
5243		2									2	5	2					<5	<10		10475E	0-1m peat, quartz rubble
																						1-2m brown shale
5244		1·7									2	10	20					<5	<10			0-1m peat, quartzite rubble
																						1-1·7m white siltite
5245																						

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

045 C.R. EXPLORATION . GEOCHEMICAL SAMPLE EDGER

Tenement name S.P.L. 781 No. [redacted] mple numbers 5257 - 5269 Colle[redacted] by N.R.L. Sheet no. 73

Area / Prospect ALFOUR Da[redacted] July 1980

Map / Photo reference Analysed by A.L.S DPO no.

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type *** depth	s sample type ****	Carbon	Cu	Pb	Zn	Ag	Mo	Mn	Au	Sn	W		Grid ref	Geological Observations 796059
5257		1·2									10	25	10					550	10	10200N	10475E	0-0·2 road
																						0·2-1·2m orange clay
5258		1·2									60	30	20					50	<10		10450E	0-0·7m peat
																						0·7-1·2m orange clay
5259		2·5									2	15	2					160	10	9400N	10000E	0-1·5m tin bearing wash. 1·5-2·5m pale
																						grey to brown silty shale
5260		2									2	5	2					40	20		10025E	0-0·5m qtzite rubble
																						0·5-2m soft white siltstone
5261		1·2									2	10	2					235	60		10050E	0-0·7 qtzite rubble
																						0·7-1·2m white siltstone and qtz
5262		1·4									2	15	2					75	20		10075E	0-1m gravel
																						1-1·4 dark brown weathered shale
5263		0·5									2	5	2					55	20		10100E	0-0·5m white qtzite
5264		3·5									2	15	2					145	10		10125E	0-3m wash
																						3-3·5m dark brown shale
5265		0·7									5	15	2					50	10	9500N	10000E	0-0·5m peat
																						0·5-0·7m brown shale
5266		1·2									2	10	5					0·1%	60		10025E	0-0·7m peat, gravel
																						0·7m-1·2m dark brown sandy shale
5267		0·8									2	10	2					35	50		10050E	light brown shale
5268		0·5									2	10	2					40	<10	9600N	10075E	" " "
5269		1·5									5	5	2					145	50		10100E	light brown sandy tourmulinised qtzite - poss. fault zone

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

050 C.R. EXPLORATION GEOCHEMICAL SAMPLE EDGER

Tenement name S.P.L. 781 No. Sample numbers 5270 — 5282 Coll. by N.R.L Sheet no. 74

Area / Prospect OLFOUR Da: July 1980

Map / Photo reference Analysed by A.L.S DPO no.

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type *** depth	s sample type ****	Carbon	Cu	Pb	Zn	Ag	Mo	Mn	Au	Sn	W		Grid ref	Geological Observations 796060
5270		1·5									2	10	5					225	10	9800N	10125E	light grey green siltstone
5271		1·5									2	5	2					75	10		10000E	" " " sandy shale
5272		1·5									2	10	20					50	60		10025E	0-0·5m peat
																						0·5-1·5m pale yellow green sandy shale
5273		1									<2	10	5					195	70		10050E	thinly laminated grey green shale
																						and qtz veins
5274		2									<2	5	2					130	70		10075E	light brown-green sandy shale
5275		1·3									2	10	5					50	40		10100E	0-0·5m peat
																						0·5-1·3m pale yellow shale
5276		1·5									2	15	5					70	20		10125E	0-0·5m peat
																						0·5-1m pale yellow shale
5277		1									5	15	20					30	<10	10100N	9975E	0-0·5m peat
																						0·5-1m brown shale
5278		1·2									2	15	10					0·10%	10		9950E	0-0·7m peat
																						0·7-1·2m light grey shale
5279		1·1									10	15	20					15	<10		9925E	0-0·2 peat
																						0·2-1·1 kahki shale
5280		1									10	15	15					145	20		9900E	0-0·5m road
																						0·5-1m grey shale
5281		0·9									5	30	260					575	10		9875E	0-0·5m peat
																						0·5-0·9m stiff green clay
5282		1·2									10	20	300					60	<10		9850E	0-0·7m peat
																						0·7-1·2m grey shale

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

046 S.P.L. 781

C R. EXPLORATION . GEOCHEMICAL SAMPLE EDGER

Tenement name ... No. ... Sample numbers 5316 — ... Collected by N.R.L ... Sheet no. 78

Area / Prospect BOUR ... Date July 1980

Map / Photo reference ... Analysed by A.L.S. ... DPO no. ...

A 02143

Sample No.	Type ss * oc f s	ss channel ** fl	wi	al	co	ca	pH	o/c sample type *** s sample type ****	Carbon	Metal content ppm or % Cu	Pb	Zn	Ag	Mo	Mn	Au	Sn	W		Grid ref	Geological Observations 796061
		depth																			
5316		0-7								45	20	2					5	40	9900N	9500E	0-0.5m peat rubble
																					0.5-0.7m hard light brown shale
5317		1								<2	10	<2					10	<10		9525E	0-0.5m peat
																					0.5-1m white silty qtzite
5318		1.5								2	5	<2					5	<10		9550E	0-1m peat, rubble
																					1-1.5m white silty qtzite
5319		2								<2	10	<2					<5	10		9575E	0-1m peat rubble
																					1-2m white silty qtzite
5320		3.5								2	20	<2					40	20		9600E	0-3m peat, rubble, white siltstone
																					3-3.5m hard black siltstone/shale
5321		2.3								20	20	170					10	10	9600N	10325E	0-1.8m peat, alluvium
																					1.8m-2.3m light grey shale
5322		1.5								2	35	280					25	10	9500N	10350E	0-1m peat
																					1-1.5m light grey green shale
5323		2.3								100	50	480					125	20.		10375E	0-2m peat wash
																					2-2.3m stiff green clay

* Sample type ss = stream sediment oc = outcrop f = float s = soil

** Stream sed. sample description fl = flow m3/sec wi = width m al = alluvial co = colluvial ca = catchment km2

*** Outcrop sample type gs = grab sample rc = rock chip (state interval & length) cs = channel sample (state length)

**** Soil sample type auger hole or pit depth m A, B or C horizon

APPENDIX 11

DIAMOND DRILL LOGS.

DD 81 BC 1
DD 81 BC 2

APPENDIX 2 DIAMOND DRILL LOGS

2.1 LOG OF BALFOUR DDB 11 ROCKY CAPE E.L. 1/77

Proposed:	A. McKay
Depth:	100m
Location:	Specimen Hill
Collar coordinates:	9630N 10075E
Collar inclination:	-45°
Collar azimuth:	227°M
Purpose of hole:	To test the best development of stanniferous quartz veins.
Final Depth:	119m
Summary Result:	The hole intersected a sequence of banded siltstones and quartzites. Veins intersected contained wolframite, but only minor cassiterite. The hole probably missed the best concentration of veining.

DRILLING DETAILS

Rig:	Boyles
Driller:	K. Parry
Commenced:	13/2/81
Completed:	16/2/81
Drilling conditions:	Generally good. Silicified zones caused drill bits to wear out quickly.
	Core recovery approximately 97%

064 796065

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No 1

TENEMENT NAME BALFOUR SPECIMEN HILL No.

PLAN – MAP REFERENCE

CO-ORDINATES 7430N 11075E AZIMUTH 227° MAG DRILLERS K. PARRY COMMENCED DEPTH 116m HOLE No. DD91 BC 1

RL COLLAR INCLINATION -65° DRILL TYPE COMPLETED CASING LEFT DPO No(s) 2657P-1

DEPTH From (M)	DEPTH To (M)	Tourm low high	So	S1	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by AMDEL) Sn	W	Cu	Pb	Zn	Ag	Bi	Mo
0	2.5					Casing		877401	2.5	3		10	-	15	-	10	-	-	9.0
2.5	4		Var.			White bleached quartzite	Thin contorted laminae containing tourmaline	402	3	4		15	-	10	-	T	-	1	6.0
4	5					Brown tourmalinized quartzite		403	4	5		40	35	40	-	5	-	10	5.5
5	6		68°			Brown to white f.g. quartzite	Thin tourmalinized silty laminae	404	5	6		25	25	110	-	55	-	3	4.5
6	8.5					Brecciated quartzite	Tourmaline fills cavities and forms	405	6	7		45	55	225	T	175	-	4	4.0
							anastomosing veinlets. Disseminated pyrite	406	7	8		25	25	170	T	170	-	3	6.0
8.5	13.5		45°			Banded silicified siltstone	1st 11.8-12m Quartz vein with muscovite	407	8	9		35	15	100	-	270	-	1	3.0
				45°		Bending laminae disrupted. Portions	and pyrite. Disseminated dendritic	408	9	10		55	20	190	-	110	-	3	2.5
			40°			of the banding are rotated. Crenulated	pyrite	409	10	11		60	30	150	-	145	-	5	3.0
						laminae are evident		410	11	12		50	260	230	T	105	-	14	4.0
13.5	17							411	12	13		45	120	215	25	85	-	9	2.0
						Grey white finely laminated silicified siltstone	Blebs of pyrite (1-2%) throughout	412	13	14		55	30	130	-	310	-	3	2.5
								413	14	15		70	25	85	10	485	-	1	2.0
						Broken core		414	15	16		110	45	105	5	110	-	1	2.5
								415	16	17		55	55	25	T	15	-	14	3.0
17	19		30°			White finely laminated quartzite. Thin		416	17	18		40	45	15	T	10	-	12	4.5
						silty laminae		417	18	19		30	40	315	T	55	-	3	4.0
19	21.63		50°			Dark grey finely bedded silicified siltstone	(20.9m) Quartz, pyrite, arsenopyrite vein	418	19	20		30	20	570	-	85	-	5	3.0
						Distorted convolute laminae. Frequent cleavage	30° to b.c.a. 5mm thick	419	20	21		45	-	280	5	150	-	-	2.0
						offsets bedding. Small siltstone	Fine disseminated pyrite	420	21	22		45	15	80	-	145	-	3	1.5
			60°			"cup up" clasts		421	22	23		65	15	155	T	70	-	5	2.5
								422	23	24		50	60	135	T	110	-	3	3.5
								423	24	24.8		30	45	80	-	55	-	2	3.5
25	31					White mg-f.g. well sorted silicified	(25.8m) 3 quartz, pyrite, arsenopyrite veins	424	24.8	26		10	-	70	-	10	-	3	5.5
			60°			sandstone. Becomes more chloritic	25° to b.c.a. 3mm thick. "Stylolithe"	425	26	26.8		10	55	75	T	20	-	-	9.0
						towards the base	Fractures contain sulphides	426	26.8	28		20	-	55	-	40		5	5.5
			60°					427	28	29		60	610	175	5	75	-	8	4.0
								428	29	30		45	1500	155	20	95	-	53	5.5
								429	30	31		40	30	315	T	105	-	3	4.0
31	33.7					Finely laminated banded siltstone. Grain size		430	31	32		25	10	85	T	65	-	-	5.0
						overall fining down words. Chloritic		431	32	33		100	55	70	T	145	-	7	3.5

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C R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

TENEMENT NAME BALFOUR SPECIMEN HILL No. ..... SHEET No. 4

PLAN – MAP REFERENCE .....

CO-ORDINATES 9630N 10075E AZIMUTH 227°M DRILLERS K. PARRY COMMENCED ..... DEPTH 116m HOLE No DPSH-BC

RL COLLAR ..... INCLINATION -45° DRILL TYPE ..... COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To (M)	Texture	So	S.	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....) Sn	W	Cu	Pb	Zn	Ag	Bi	Mo
37	42·8					F-g siltstone/mudstone. Massive	(38·7m) Quartz, pyrite, arsenopyrite 30° to C.A.	877432	33	34		250	85	75	-	800	-	6	20
						to finely laminated. Bedding	6mm thick.	433	34	35		390	100	210	T	325	-	41	3·0
						evident with beds 10-30 cm in thickness	(38·15m) Quartz, pyrite, wolframite 30° to C.A.	434	35	36		250	260	365	-	310	-	32	4·5
						with a sandy base	8mm thick	435	36	37		120	790	1000	5	275	-	150	3·5
							(39·2m) Quartz, pyrite, arsenopyrite, wolframite	436	37	38		90	15	105	-	160	-	8	2·0
							25° to C.A. 10mm thick	437	38	39		85	45	135	T	150	-	25	1·5
							(39·7m) Quartz, pyrite, arsenopyrite	439	39	40		140	140	340	T	115	-	83	1·0
						Limonite staining	20° to C.A. 10mm thick	439	40	41		95	40	170	T	140	-	31	1·5
							(41·8m) Quartz, pyrite, arsenopyrite, chalcopyrite	440	41	42		110	90	400	T	175	-	60	2·5
38	57					Graded white sandy siltstone	wolframite (minor) siderite 30° to C.A. 10mm thick	441	42	43		85	55	325	T	350	-	56	3·5
						to grey black argillaceous siltstone	(43·15m) Quartz, pyrite, arsenopyrite, chalcopyrite	442	43	44		95	190	155	T	160	-	33	1·5
			80°			Beds range from 1 to 20cm. Occurring	wolframite 30° to C.A. 15mm.	443	44	45		90	15	175	T	180	-	27	1·0
						oversteepened cross lamination. Sandstone	(48m) Quartz, pyrite, arsenopyrite	444	45	46		110	30	330	T	195	-	40	1·0
						dikelets. Numerous microfractures	wolframite 30° to C.A. 4mm thick	445	46	47		120	250	390	5	130	-	120	1·0
						Rounded "rip up" shale clasts	(51·2) Quartz, pyrite, arsenopyrite	446	47	48		150	170	380	T	120	-	58	1·5
						Pyrite cubes and dendrites in white	wolframite 20mm thick.	447	48	49		140	30	350	T	75	-	55	1·5
						sandier layers	(56·5) Quartz, pyrite, arsenopyrite	448	49	50		130	25	190	T	95	-	29	1·0
			60°	25°			wolframite 30° to C.A. 10mm thick	449	50	51		240	180	235	-	145	-	42	6·0
								450	51	52		100	160	575	T	175	-	128	1·5
								451	52	53		120	250	405	T	195	-	66	1·5
								452	53	54		90	40	180	5	150	-	41	0·5
								453	54	55		130	100	350	10	120	-	39	2·5
								454	55	56		120	75	380	10	50	-	53	1·0
								455	56	57		230	170	560	15	70	-	83	0·5
57	60					Dark grey massive to finely laminated	Blebs of pyrrhotite rimming a	456	57	58		85	15	145	5	110	-	30	-
						siltstone.	pyrite core	457	58	59		250	190	235	5	125	-	39	-
								458	59	60		90	130	180	5	55	-	4·9	0·5
60	73·2					Graded white sandy siltstone to	(62·5) Quartz, pyrite, arsenopyrite	459	60	61		95	25	295	10	85	-	41	1·0
			45°			grey black argillaceous siltstone	1cm thick 30° to C.A.	460	61	62		70	50	150	5	60	-	40	1·5
						Well developed cross lamination	Pyrrhotite/Pyrite blebs and euhedra	461	62	63		100	75	280	30	125	-	67	3·0
						"dikelets" and scour and fill structures		462	63	64		60	-	50	5	135	-	27	1·0

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C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. 3

TENEMENT NAME BALFOUR SPECIMEN HILL No.

PLAN – MAP REFERENCE

CO-ORDINATES 9650N 10075E AZIMUTH 227°M DRILLERS K. Fanny COMMENCED DEPTH 116m HOLE No. DDH DC 1

RL COLLAR INCLINATION -45° DRILL TYPE COMPLETED CASING LEFT DPO No(s)

DEPTH To(M)	Form	S.	S.	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by ..... Sn	W	Cu	Pb	Zn	Ag	Bi	Mo	As
						63.5 - 64.5 Reddish alteration	977463	64	65		120	-	75	5	155	-	29	1.5	1A
						due to v.f.g. pink red mineral	464	65	66		65	10	95	T	270	-	26	2.0	-
							465	66	67		55	-	75	5	165	-	29	1.5	1A
							466	67	68		25	10	105	5	120	-	53	0.5	13
							467	68	69		40	15	75	5	640	-	29	1.0	30
							469	69	70		50	-	65	10	145	-	26	1.0	-
							469	70	71		60	20	85	15	160	-	34	1.0	14
							470	71	72		50	-	60	5	120	-	23	1.5	-
							471	72	73		55	-	60	65	40	-	26	2.0	9A
79		55°			Grey to black vf g siltstone/mudstone	Reddy white alteration follows bedding	472	73	74		85	-	70	T	265	-	18	1.0	50
						laminae. White blotches also evident	473	74	75		100	15	30	T	510	-	17	1.5	-
		10°	30°				474	75	76		120	85	105	T	120	-	22	1.5	2A
							475	76	77		140	30	215	T	80	-	36	1.0	17
							476	77	78		130	15	85	5	70	-	21	1.0	-
85					Graded grey white to dark grey siltstone	(78.3) Quartz, pyrite, arsenopyrite	477	78	79		550	240	435	25	120	-	37	1.5	76
					Beds are 1cm to 10cm thickness	chalcopyrite vein 6mm thick Parallel	478	79	80		190	160	745	70	55	-	93	3.0	11
					Current and parasedimentary features	to CA	479	80	81		60	50	340	15	90	-	76	3.0	16
							480	81	82		220	30	140	5	125	-	25	2.5	27
							481	82	83		75	250	230	10	75	-	41	2.0	11A
		40°					482	83	84		110	60	235	15	70	-	50	2.5	12
							493	84	85		170	70	285	40	70	-	51	2.5	25
86.5					Brecciated finely laminated siltstone		484	85	86		110	230	750	50	130	-	90	3.0	26
						(87.3) Quartz, pyrite, arsenopyrite	485	86	87		160	65	480	10	145	-	72	2.0	28
91					Finely laminated dark grey siltstone	1cm thick	486	87	88		260	100	340	50	100	-	86	2.0	43
					Minor "gleidels" Bedding laminae		487	88	89		170	100	320	25	70	-	51	2.0	31
					disrupted	(92) Pyrite, arsenopyrite, quartz, calcite vein 2cm thick 30° CA.	488	89	90		470	160	425	45	65	-	54	2.0	17
							489	90	91		110	360	830	65	155	T	38	6.0	54
93					Altered Zone - White bleaching alteration overprints the grey siltstone		490	91	92		440	260	410	40	160	-	40	2.5	100
					Remnant unaltered beds are evident - Brecciated silicified pyrite and pyrrhotite		491	92	93		290	60	125	20	145	-	17	1.0	30
					Finely laminated grey to black siltstone		492	93	94		220	85	390	-	115	-	11	..	36

067 796068

C.R.A. EXPLORATION PTY LIMITED
DRILL CORE LOG

TENEMENT NAME BALFOUR SPECIMEN HILL No. SHEET No. 4

PLAN – MAP REFERENCE

CO-ORDINATES 9630N 10025E AZIMUTH 227° M DRILLERS K. Parry COMMENCED DEPTH 116.m HOLE No. 22.81.35.1

RL COLLAR INCLINATION -45° DRILL TYPE COMPLETED CASING LEFT DPO No(s)

DEPTH To(M)	Texture	Sb	S.	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by ..... Sn	W	Cu	Pb	Zn	Ag	Bi	Flo	
					indicated by white sandier beds.	White alteration mineral associated	877494	95	96		270	410	710	50	115	-	195	2.0	8
					Bedding laminae disrupted in part	with fg. pyrite is disseminated	495	96	97		110	25	105	25	100	-	6	2.0	4
					indicating pre consolidation slumping	throughout	496	97	98		150	20	85	25	290	-	4	0.5	
					At 101m bedding is rotated 90°	(95:1) Quartz, arsenopyrite, pyrite, chalcopyrite	497	98	99		90	15	55	T	365	-	-	1.5	
					between 2 sandy layers	vein 2cm thick	498	99	100		60	10	70	20	150	-	1	0.5	
		56°				(95:6) Quartz, pyrite, arsenopyrite vein	499	100	101		90	10	25	20	295	-	-	1.5	
						1cm thick 25° to CA	500	101	102		95	-	75	25	370	-	4	2.5	16
							501	102	103		55	-	15	10	190	-	-	1.0	
					105:1 RR1454		502	103	104		75	25	75	20	95	-	4	1.5	
							503	104	105		140	45	125	15	65	-	-	2.0	16
						105.8 - 106.6 Disseminated pyrite	504	105	106		320	35	175	-	75	-	-	2.0	3
114.5					Grey to black finely laminated	approaches 30%	505	106	107		420	200	1500	25	345	-	41	1.5	17
					siltstone. Sandier component	At 106.6. sulfur sulphide vein containing	506	107	108		85	-	85	10	90	-	-	0.5	16
					present giving graded bedding.	pyrite, arsenopyrite, quartz, siderite	507	108	109		150	130	150	15	50	-	4	1.0	24
						wolframite	508	109	110		110	30	230	-	25	-	4	-	-
						110:2 Quartz, pyrite 6cm thick	509	110	111		140	180	565	5	170	-	53	4.5	36
						Sediment hornfelsised	510	111	112		55	20	60	10	70	-	-	2.0	-
116.		48				113.8. Pyrite vein filling fracture	511	112	113		100	60	245	T	105	-	9	3.0	12
							512	113	114		120	80	400	15	55	-	19	3.0	5
							513	114	115		70	15	100	5	70	-	-	1.5	2
							514	115	116		60	10	40	5	100	-	-	1.5	-
					End of Hole: 116m				EOH										

068

796069

KR 6454

D.D.B. 11 105.10m

Hand Specimen. Grey very fine grained silicified? siltstone with thin (1mm) creamy white laminae defining bedding. The laminae are wavy and are not sharply defined in detail. They are offset by an incipient cleavage. Small voids after pyrite? are disseminated throughout.

Thin Section Name:	Metasomatised Pelite
Composition:	Semi-sericitic muscovite and weakly recrystallized relict silt-sized clastic quartz. Semi-pervasive fine grained tourmaline and minor phlogopite. Traces pyrite.
Fabric:	Sub-to fine millimetric relict shale-parted bedding. Incipient dicordant cleavage.
Accessories:	Relict detrital zircon, leucoxenic semi-opaques. Traces late chlorite (after phlogopite).
Comments:	Mildly contact-matasomatised with schorl, phlogopite replacing shaly partings. Pyrite secondary after pyrrhotite, partly mobilised into late fractures.

2.2 LOG OF BALFOUR DDB 12 ROCKY CAPE E.L. 1/77

Proposed:	P. Heithersay
Depth:	150m
Location:	Specimen Hill
Collar Coordinates:	9585N 10060E
Collar inclination	-45°
Collar azimuth	260° M
Purpose of the hole:	To test the geochemically anomalous tourmaline zone.
Final depth:	210.5m
Summary Result:	The hole intersected variably tourmalinized, silicified banded siltstone. Veins intersected contained quartz, pyrite, arsenopyrite, siderite, chalcopyrite and wolframite. Only minor cassiterite was present. Taken together, the veins formed a zone from 29m to 115m (87m) with a grade of 0.14% WO_3

DRILLING DETAILS

Rig:	Boyles
Driller:	K. Parry
Commenced:	17/1/81
Completed:	31/1/81
Drilling conditions:	Generally good, core recovery overall about 95%. Narrow silicified zones caused rapid wear of the bits.

071 796072

DRILL CORE LOG

TENEMENT NAME..SPECIMEN..... No.....

PLAN – MAP REFERENCE.....

CO-ORDINATES..9585N,10,060E. AZIMUTH..260°M..... DRILLERS..K. PARRY..... COMMENCED..... DEPTH..210.5..... HOLE No..DDH2.....

RL COLLAR..... INCLINATION..... DRILL TYPE..... COMPLETED..... CASING LEFT..... DPO No(s).....

DEPTH To(M)	Sn	S.	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Wealth, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by.....) Sn	W	Cu	Pb	Zn	Ag	Bi	Mo	As
	65	30		Incipient cleavage offsets bedding	(31·9) Quartz, pyrite, chalcopyrite,	277914	30	31		45	770	680	55	150	1·5	76	3·5	270
				33·1m KRbld 5%	arsenopyrite, wolframite vein 1cm thick	913	31	32		170	1100	2260	70	75	2·0	100	3·0	1·8
					20° LCA	912	32	33		300	2900	1850	100	60	3·0	180	5·0	1·5°
35				Grey white v.f.g. quartz with minor		911	33	34		30	160	355	65	25	1·0	151	5·0	450
				pyrite.		910	34	35		25	15	165	5	30	-	5	5·0	200
38				Grey to black finely laminated silicified	(35·1) Quartz pyrite vein 2cm thick	909	35	36		40	140	495	45	45	-	130	5·5	250
				siltstone. Disseminated pyrite along bedding	90° LCA.	908	36	37		70	770	635	110	40	1·5	175	5·0	900
				planes. KRbld 0	(38·4) Quartz, pyrite, arsenopyrite	907	37	38		40	45	150	10	45	-	14	6·5	150
40				Broken grey white quartzite	wolframite. 1cm thick 20° LCA	906	38	39		45	930	455	90	50	0·5	110	6·0	160
						905	39	40		110	70	380	70	35	-	44	4·5	300
51·1				Gradational contact with dark	(40) 3 Quartz, pyrite, arsenopyrite	904	40	41		190	3300	780	70	35	1·0	200	5·0	300
				grey finely laminated silicified	wolframite veins. Intersects. Range	903	41	42		400	2100	835	25	30	-	115	3·0	200
				siltstone. Some sandy layers	from 5m - 2cm. Extend 30cm sub	902	42	43		500	710	1350	50	45	-	210	3·0	150
	50°	25°		give grading. Disseminated pyrite	parallel to LCA.	901	43	44		190	1500	1200	30	105	-			
				throughout showing dendritic patterns	(41·2) Broken quartz, wolframite vein	900	44	45		95	380	940	35	95	-	230	5·0	1150
				@ 47 - 47·2. Disseminated sulphide	2cm thick	899	45	46		100	140	645	5	30	-	75	2·0	200
				approaches 30%	(41·5) Broken quartz, wolframite vein	898	46	47		200	380	1500	20	35	0·5	115	3·0	250
				The siltstone becomes banded towards	1cm thick	897	47	48		130	130	385	20	25	-	34	3·0	700
				the base of this interval.	(42) Quartz, pyrite, wolframite vein	896	48	49		600	3300	630	100	50	1·5	168	5·5	2·3
					6mm thick 25° LCA	895	49	50		140	400	510	70	45	1·0	105	4·0	1·1°
					(42-43) Quartz vein with pyrite	894	50	51		140	90	575	20	80	-	21	1·5	1450
55·2				Broken and finely brecciated	chalcopyrite, arsenopyrite, wolframite.	893	51	52		150	160	700	50	190	1·0	93	1·0	550
				siltstone. Probable shear zone.	(43·2) Quartz, pyrite, chalcopyrite	892	52	53		120	80	890	-	15	-	25	1·0	400
				Some broken quartz, pyrite, wolframite	arsenopyrite, wolframite vein, 2cm thick	891	53	54		130	80	410	-	130	-	17	1·0	450
				veins	30° LCA.	890	54	55		110	190	510	25	95	0·5	32	1·5	400
				Grey finely laminated to bedded	(44·1) as above 45° LCA.	889	55	56		85	10	330	10	135	0·5	51	1·5	650
				siltstone. Minor deformed dikelets	(45) Quartz, pyrite, wolframite vein	888	56	57		110	90	430	15	105	-	19	1·0	600
				Variable intermingling. Cleavage	2cm thick 20° LCA.	887	57	58		95	1300	1500	150	135	4·5	200	4·0	400
	70			offsetting laminae and dikelets	(48·2) Quartz, pyrite, arsenopyrite	886	58	59		70	190	985	100	135	2·5	116	1·5	500
					selenite vein 1cm thick 22° LCA	885	59	60		100	95	410	35	50	0·5	24	1·0	400

072

796073

DRILL CORE LOG

TENEMENT NAME Balfour Specimen Hill SHEET No

PLAN – MAP REFERENCE DDH 12

CO-ORDINATES 958S N10,066E AZIMUTH 260°M DRILLERS K Parry COMMENCED 17/1/81 DEPTH 210·5 HOLE No. 4DDH 12

RL COLLAR INCLINATION 45° DRILL TYPE Boyles COMPLETED 31/1/81 CASING LEFT DPO No(s)

DEPTH Total	DEPTH From	S.	S. Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Wealth, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by) Sn	W	Cu	Pb	Zn	Ag	Bi	Mo	As
2·3				Cuttings. Weathered quartzite		B77939	0	2·3		60	-	10	-	15	0·5	-	3·5	-
6				Strongly leached white fg silicified quartzite or quartz vein. Thin sweated quartz veinlets cross cut core. Core is very broken	Cavities after wolframite and sulphides	938	2·3	4		100	-	10	-	5	0·5	-	50	-
						937	4	6		190	15	50	-	5	-	-	2·5	-
11·5				Grey brown finely laminated banded mineralised siltstone. Chocolate brown where maximum mineralisation occurs	Minor FeO staining with yellowy oxide after arsenopyrite	936	6	8		190	85	150	-	5	-	10	2·5	50
						935	8	9		110	65	90	-	15	-	-	2·0	-
						934	9	10		350	110	315	20	15	0·5	28	2·0	130
						933	10	11		160	110	690	5	20	1·0	67	2·0	200
18·3				White to pale grey quartz vein. Massive and broken in part. FeO staining along fractures. From 15m-18m very brecciated with a network of fine quartz veinlets. Thin silty layers at basal contact	(13·5) Lake sharp vein containing pyrite arsenopyrite 1cm thick 30° to CA	932	11	12		60	45	365	-	15	-	35	3·5	40
						931	12	14		35	220	75	25	10	0·5	33	5·0	550
						930	14	15		95	130	15	30	10	-	10	5·0	100
						929	15	16		35	240	10	55	15	0·5	14	5·5	50
						928	16	17		-	420	10	5	15	1·0	4	3·5	-
						927	17	18·3		-	60	30	30	150	-	8	3·5	-
				Thinly laminated and banded weakly mineralised siltstone. Alternating grey clay rich layers 1mm-5cm with pale silty layers 1mm-5cm thick	Disseminated pyrite in pale sandy layers	926	18·3	19		160	130	925	5	10	-	169	2·5	105
						925	19	20		55	35	170	45	15	-	26	1·0	200
						924	20	21		170	390	565	20					750
						923	21	22		55	150	275	10	15	0·5	58	2·0	460
28				Disrupted to brecciated intensely laminated siltstone. Bedding difficult to define SB 000/1	Numerous thin quartz veinlets with pyrite arsenopyrite and minor wolframite usually 20-30° to b.c.a.	922	22	23		150	100	565	15	45	0·5	126	2·0	1·1%
						921	23	24		95	1900	780	50	30	1·0	193	3·0	1·9%
						920	24	25		85	270	570	25	25	0·5	91	3·0	1300
					(23·5) Quartz, pyrite, arsenopyrite wolframite vein 1cm thick 30° to CA	919	25	26		130	100	440	-	20	-	53	2·5	1400
						918	26	27		140	70	290	-	20	-	32	1·5	100
					(26) Quartz, pyrite arsenopyrite vein 5mm thick 30° to CA following cleavage	917	27	28		65	60	330	-	15	-	37	3·0	250
33				Thinly laminated banded siltstone		916	28	29		50	50	350	-	20	0·5	45	2·5	250
				Bedding very disrupted in part	(28·9) Quartz, pyrite, arsenopyrite minor wolframite	915	29	30		110	340	470	25	25	0·5	66	2·5	1950

073

796074

DRILL CORE LOG

SHEET No. .....

TENEMENT NAME ..... No. .....

PLAN – MAP REFERENCE ..... DDH 72

CO-ORDINATES 9585N 10,000E AZIMUTH 260°M DRILLERS K. Parker COMMENCED DEPTH 210.5 m HOLE No. DDH 72

RL COLLAR ..... INCLINATION -45° DRILL TYPE Boyles COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH To(M)	Tourm	S_o	S_1	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by .....) Sn	W	Cu	Pb	Zn	Ag	Bi	Mo	As
						(58·9) Quartz, pyrite, arsenopyrite	877884	60	61		65	130	530	35	55	0·5			
63·2					Quartz vein or silicified quartzite	wolframite vein 1·5cm thick parallel	883	61	62		160	530	800	160	90	4			
					Numerous veinlets of pyrite, siderite, muscovite	to b.c.a	882	62	63		50	370	560	35	125	1			
78		45°			wolframite, Sulphides parallel to S_o or S_1	(50) Quartz, pyrite, arsenopyrite, chalco-	881	63	64		75	4650	860	260	100	7			
						pyrite 1cm thick parallel to b.c.a.	880	64	65		200	110	765	220	95	6			
					Thin light grey sandy siltstone	(57·8) Broken quartz, sulphide, wolframite	879	65	66		80	200	350	70	80	0·5			
					beds grading upwards to light	vein. High wolframite content	878	66	67		80	970	500	20	60	x			
					grey green siltstone. Laminae	(64·3) Thin quartz sulphide vein	877	67	68		85	790	710	20	140	x			
		60°	25°		often offset by microfaults/cleavage	(66·7) Broken quartz, pyrite, wolframite	876	68	69		100	120	425	x	45	x			
					Infilled dikelets. The grey sandy	vein	875	69	70		80	7900	540	15	80	x			
					bands contain disseminated	(69) Quartz, pyrite, wolframite vein	874	70	71		85	100	885	x	40	x			
					pyrite.	large wolframite crystals, 20cm thick	873	71	72		75	1200	930	40	130	0·5			
		60°				(71·6) Broken quartz, pyrite, siderite	872	72	73		120	100	400	30	75	x			
					Cockade, more tourmalinized	wolframite vein 1cm thick (approx)	871	73	74		330	230	820	940	520	0·5			
					and silicified. Abundant disseminated	(76·5) Broken quartz, pyrite, arsenopyrite	870	74	75								39	1·9	100
					sulphide. Deadcute patterns follow		869	75	76		170	100	800	x	70	x	94	1	190
		77°	30°		bedding planes and cleavage		868	76	77		260	60	355	1	45	x	19	1	220
							867	77	78		130	40	295	x	60	x	20	0·5	250
81·5					Shear zone. Brecciated grey		866	78	79		200	40	300	2	70	x	20	x	150
					siltstone with pale sandy beds		865	79	80		150	340	665	15	195	x	90	0·5	300
					Disseminated sulphides		864	80	81		140	40	450	1	80	x	39	0·5	150
		145°	90°				863	81	82		210	230	375	2	145	x	33	1	350
99·7					Grey silicified siltstone with		862	82	83		310	40	350	1	300	x	22	1·5	50
					light grey sandier layers. Bedding		861	83	84		190	50	100	1	345	x	1	0·5	x
					laminae are irregular. Disseminated		860	84	85		190	20	115	1	140	x	7	1·5	950
					sulphides in sandier layers.		859	85	86		200	15	135	x	195	x	5	1·0	50
					At 84–86m a green white coloured		858	86	87		150	140	135	1	135	x	23	2·5	1600
					alteration mineral is obvious along		857	87	88		160	60	135	1	110	x	9	1	x
					bedding laminae and sandstone		856	88	89		120	190	330	1	85	x	14	3·0	500
					dikelets (SR 6663). Also appears		855	89	90		160	530	170	1	110	1	21	2·0	300

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

796075

074

SHEET No. .....

TENEMENT NAME GALFOUR No. .....

PLAN – MAP REFERENCE 008 12

CO-ORDINATES 9585N, 10,696E AZIMUTH 260°M DRILLERS K. Parry COMMENCED ..... DEPTH 219.5m HOLE No. DD81-136

RL COLLAR ..... INCLINATION -45° DRILL TYPE Boyles COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To (M)	Tourm. Lenses	S_o	S_1	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	Sn	W	Cu	Pb	Zn	Ag	Bi	Mo	A
						speckled throughout.	(91) Edge of vein 1.5cm thick	877854	90	91		380	4.10%	765	5	105	x	125	4.5	4
						Individual beds of siltstone are	Quartz, pyrite, wolframite, chalcopyrite	853	91	92		110	530	225	x	70	x	17	1.5	2
						10 - 30 cm thick with light grey	muscovite	852	92	93		120	190	1690	T	155	X	88	3.5	5
			90°	30°		sandier layers at the base of the	(Approx 92.5 - 92.7m) Cellular pyrite	851	93	94		85	340	660	15	105	X	71	4.0	4
						beds	chalcopyrite, quartz concentrated along	850	94	95		90	530	275	T	35	X	19	1.5	4
						(94-98m) Typical "Pyjama Rock"	bedding laminae	849	95	96		160	130	440	T	40	T	10	2.5	9
						characteristics. Sandstone dikelets	(96) Edge of quartz/pyrite/arsenopyrite	848	96	97		100	180	395	10	120	T	66	2.5	3
						graded bedding, small scale slumping	pyrite, wolframite vein. Wolframite	847	97	98		120	100	320	T	315	X	41	2.0	6
						and overstepped cross lamination	forms coarse crystals.	846	98	99		230	85	380	20	485	T	67	2.5	4
						Evidence of pyrite in sandier layers	(98-99) Siltstone completely altered to	845	99	100		210	280	760	65	610	X	112	4	1
7	113.90		30°			Grey, black silicified siltstone	white alteration assemblage.	844	100	101		70	1500+	410	25	140	X	23	4.5	2
						Finely laminated to massive	Pyrite can be seen	843	101	102		150	110	515	10	435	T	69	2.0	1
						Individual beds 10-30 cm with	Pyrite can be seen to be replacing	842	102	103		150	470	450	6	135	X	56	4.5	-
			30°			light grey sandy layers at the	the sandy material in the deformed	841	103	104		170	500	580	5	55	T	57	2.0	-
						base. Some dilated dikelets	dikelets	840	104	105		170	840	2800	10	90	2.5	235	2.0	
						Some intraformation disruption	104.4 - 104.8 Sericitic alteration	839	105	106		190	110	285	T	45	X	25	1.5	1
						Minor tourmaline rich laminae	of siltstone. Remnants of unaltered	877901	106	107		260	480+	630	X	130	X	52	6.5	
						102.4 KB6413	siltstone remain	902	107	108		160	30	65	T	110	X	1	2.6	
			70°				Pyrrhotite and fine pyrite disseminated	903	108	109		120	40	40	T	185	X	X	2.0	
							throughout	904	109	110		100	15	70	T	140	X	X	4.0	
							White alteration mineral disseminated	905	110	111		120	25	70	T	230	X	4	3.0	
							throughout. Concentrated between	906	111	112		130	35	20	X	325	X	X	2.5	
							111 - 112m	907	112	113		150	240	190	X	160	X	6	3.0	
						Brecciated grey black finely laminated	(114.35m) Quartz, pyrite, wolframite vein	908	113	114		80	20	125	X	65	X	1	2.5	
						siltstone. Tourmalinised	1cm thick	909	114	115		100	2250	1250	X	70	T	78	5.5	
							(117.1m) Quartz vein 3cm thick 90° to CA	910	115	116		120	25	135	X	60	T	X	3.5	
						Intensely fractured tourmalinised	(117.8m) Quartz, pyrite 1cm thick 30° to CA	911	116	117		190	75	780	15	150	0.5	X	2.5	
						siltstone. Quartz and pyrite filling low		912	117	118		270	100	600	10	75	T	17	60	
.00	127.30					angle fractures		913	118	119		190	40	205	T	50	X	14	50	
								914	119	120		520	130	455	105	165	1.5	2	3.	
								915	120	121		120	250	310	30	40	0.5	175	3.5	

075 796076

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. .....

TENEMENT NAME Barraba Spearman Nth No. .....

PLAN – MAP REFERENCE .....

CO-ORDINATES 9555N 10060E AZIMUTH 260° DRILLERS K. Peary COMMENCED ..... DEPTH 210.50 HOLE No. Barraba DDH 862

RL COLLAR ..... INCLINATION -45° DRILL TYPE Boyles COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH To(M)	Term	S_o	S_1	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by Amdel) Sn	W	Cu	Pb	Zn	Ag	Bi	Mo	As
		15°	50°		Dark grey finely laminated to massive	119.8 75 Vein	822 816	121	122		140	90	390	30	35	T	21	3.0	X
					Siltstone Beds 10-30cm thick. Grading	At 121.9 Pyrite arsenopyrite vein 0.5cm	817	122	123		110	70	280	10	50	T	15	3.0	100
					Silicified. Brecciated and tourmalinised		818	123	124		40	20	40	X	70	X	X	2	X
		60			in part. Microfractures throughout. Pyrite		819	124	135		75	30	150	X	45	X	X	3.5	20
					and pyrrhotite occur as blebs throughout.		820	125	126		85	50	100	X	30	X	X	3.0	X
		30°					821	126	127		40	X	20	X	80	X	X	2	X
129.30		45°					822	127	128		50	10	35	X	85	X	1	3	X
					Finely laminated silicified siltstone	Orange and cream spalling	823	128	129		45	X	50	T	70	X	X	3.0	X
130 133.00					Brecciated zone. A broken silicified		824	129	130		20	X	140	X	135	X	5	2.5	20
					siltstone		825	130	131		170	30	215	T	75	X	8	2	30
							826	131	132		140	15	120	T	80	X	X	2	X
								132	133										
133.50					Silicified gluts/quartz Tourmaline along So	Blebs of pyrite and pyrrhotite	827	133	134		30	15	265	T	60	X	9	2.5	20
134.30					Very tourmalinised silicified rock. Brecciated		828	134	135		95	45	500	T	135	T	9	2.5	20
					with pyrite along fractures		829	135	136		100	95	1200	20	100	0.5	39	6.0	50
139.00					Brecciated chloritic silicified siltstone		830	136	137		85	20	330	T	50	X	8	3.0	30
							831	137	138		80	20	210	X	30	X	3	4.5	X
141.00							832	138	139		110	25	190	X	40	X	X	1.5	X
					Light grey silicified siltstone. Synsedimentary		833	139	140		70	20	105	X	35	T	X	2.5	X
					brecciation	141.6 Vein Quartz, arsenopyrite, wolframite	834	140	141		95	25	155	X	45	X	2	2	100
142.00					Brecciated green grey siltstone	2cm thick 30° LCA	835	141	142		1150	1150	495	50	85	1.0	95	3.5	3.9
							836	142	143		80	35	475	80	55	1.0	105	2.5	7.4
144.00					Green grey to dark brown silicified siltstone	Pyrite and pyrrhotite blebs Intense tourmalinisation	837	143	144		330	1160	435	15	205	T	29	2.5	99
					Laminae crumpled and displaced along	commented with vein at 144-145m 2-3cm thick	838	144	145		95	6500	605	155	210	2.5	235	4.5	4.1
					cleavage. Evidence of "rolling" of siliceous sandy	cm Parallel to LCA. Contains qtz, wolframite	839 940	145	146		95	X	410	20	100	X	12	39	65
					layers. Pyrite/pyrrhotite approximately	Tourmalinisation along some bedding laminae	941	146	147		180	710	400	20	105	1.0	43	16	36
					5%.	149.7 Vein Quartz, pyrite, sulphide, wolframite	942	147	148		80	45	215	X	55	X	11	5	5
						45° LCA 0.25cm thick	943	148	149		230	45	615	15	60	1.0	37	14	12
						150.1 Vein Quartz, pyrite, sulphide, arsenopyrite	944	149	150		90	170	235	30	50	X	44	8.5	40
						40° LCA	945	150	151		140	35	305	5	60	1.0	16	4.5	8.5
150							946	151	152		150	360	365	15	60	X	11	5.5	1

076 796077

C.R.A. EXPLORATION PTY. LIMITED
DRILL CORE LOG

SHEET No. .....
TENEMENT NAME Bauhinia No. .....
PLAN – MAP REFERENCE .....

CO-ORDINATES 9585N, 10046E AZIMUTH 260° DRILLERS K. Parry COMMENCED DEPTH 210.60 HOLE No. DD81-BH2
RL COLLAR INCLINATION -45° DRILL TYPE Boyles COMPLETED CASING LEFT DPO No(s)

DEPTH To(M)	Texture	S₀	S₁	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by Amdel) Sn	W	Cu	Pb	Zn	Ag	Bi	Mo	As
					As above. Laminae very disrupted	Good examples of pyrrhotite overprinting	947,947	152	153	1	110	50	195	15	30	0.5	21	4	500
					Bedding displaced along cleavage planes.	pyrite. Whole alteration mineral associated	948	153	154	1	100	35	230	15	40	1	37	6.5	10
					Pyrite/Pyrrhotite ~ 5%	with pyrite. Is blebb	949	154	155	1	95	110	160	X	40	X	6	4.0	550
						153.4 Vein Quartz, py, arsenopyrite 2cm 35°LCA	950	155	156	1	65	X	125	X	45	1	3	3.5	X
						156.3 Vein Quartz, py, arsenopyrite 5/6cm		156	157	1									
						158.8 Vein Quartz, arsenopyrite, pyrite 40°LCA	951	157	158	1	80	100	205	5	75	X	10	5.5	200
						20 cm thick, [redacted]	952	158	159	1	380	780	295	45	1800	0.5	38	5.5	930
						3a thin	953	159	160	1	110	45	260	10	120	1	2	3.5	850
90	161.40		50°				954	160	161	1	350	X	5900	145	1.2%	6.5	138	2.0	1500
40					Massive laminae Pyrite arsenopyrite chalcopyrite Siderite	162 ~1cm Quartz, pyrite, siderite	955	161	162	1	110	40	320	15	65	0.5	19	380	60
					Fine grained dark grey/white banded finely laminated		956	162	163	1	95	320	445	90	65	1	80	2.0	385
					siltstone. Laminae disrupted and in some		957	163	164.5	1	70	25	150	5	50	X	5	2.5	100
					cases rotated. Conspicuous leucocratic blebs		958	164.5	167	1.5m	85	320	370	70	70	X	176	5.5	375
					of pyrrhotite along bedding planes												118	3.5	1600
					of the clay rich layers. Bedding is disrupted	166 Vein Quartz, pyrite, arsenopyrite, wolframite 1cm													
					by early cleavage 70°LCA. Is kinks.	30°LCA. [redacted]	959	167	168	1	80	75	565	55	111	X	119	3.5	1660
		50°				166.5 Quartz, arsenopyrite, pyrite 1cm	960	168	169	1	75	50	330	25	100	X	22	2.5	901
		0°			Rapid change in bedding orientation.	167. Quartz, pyrite, siderite 1cm parallel to LCA.	961	169	170	1	45	X	85	10	90	0.5	1	1.5	X
						Extends 35cm ↓	962	170	172	2	35	X	40	X	135	X	X	0.5	X
							963	172	173	1	30	X	30	X	150	1	X	1.5	X
		0°	70°				964	173	174	1	35	X	35	5	120	X	X	1	X
							965	174	175	1	30	X	15	X	100	0.5	1	0.5	X
							966	175	176	1	20	X	25	X	90	X	3	1	X
							967	176	177	1	40	X	25	X	80	1	X	0.5	X
							968	177	178	1	50	10	50	5	190	X			
							969	178	179	1	95	X	60	X	100	X			
							970	179	180	1	80	X	105	X	35	X			
							971	180	181	1	160	470	340	30	35	0.5			
						181 [redacted] Quartz/pyrite/arsenopyrite/wolframite	972	181	182	1	160	55	245	25	35	0.5			
						20cm 45°LCA													

C.R.A. EXPLORATION PTY. LIMITED

DRILL CORE LOG

077

796078

SHEET No. .....

TENEMENT NAME Brown Hill No. .....

PLAN – MAP REFERENCE ..... Base

CO-ORDINATES 9585N 10016E AZIMUTH 260°M DRILLERS K. Percy COMMENCED ..... DEPTH 210.50 HOLE No. DDH 84-2

RL COLLAR ..... INCLINATION -45° DRILL TYPE Boyles COMPLETED ..... CASING LEFT ..... DPO No(s) .....

DEPTH From (M)	DEPTH To (M)	Texture	S_o	S_1	Graphic Log	CORE DESCRIPTION	SPECIAL FEATURES Weath, Alteration, Fracturing, Veining, Mineralization	Sample No.	From (M)	To (M)	Rec (M)	ASSAY VALUES (Analysed by Amdel) Sn	W	Cu	Pb	Zn	Ag	Bi	Mo	As
						As above. Banded finely laminated siltstone, laminae irregular. Some scour and fill and sandstone clasts. Pyrite and pyrrhotite along bedding laminae. Graded bedding common.		970 974	183	184	1	110	X	115	5	80	0.5			
							185.5m Vein Quartz, pyrite, siderite, arsenopyrite wolframite. 1cm thick 45°	975	184	185	1	110	25	135	15	40	X			
								976	185	186	1	100	50	175	5	25	0.5			
								977	186	187	1	100	190	410	75	45	0.5			
							187.2 3 veinlets 40° LCA.	978	187	188	1	110	70	365	50	105	0.5			
							188.75 Vein quartz, pyrite, siderite 30° LCA.	979	188	189	1	140	60	370	25	375	0.5			
			0°	45°			188.90 Vein quartz, pyrite, arsenopyrite, wolframite	980	189	190	1	190	70	340	30	115	0.5			
			0°				189.40 Vein quartz, pyrite, siderite	981	190	191	1	240	75	330	15	60	0.5			
								982	191	192	1	210	50	340	15	75	0.5			
							192.80 Irregular quartz arsenopyrite vein 0.7cm.	983	192	193	1	150	1000*	350	25	120	0.5			
								984	193	194	1	200	90	410	15	105	0.5		1	
							194.60 Vein quartz, siderite arsenopyrite chalcopyrite 2cm thick.	985	194	195	1	140	900*	330	15	90	0.5			
								986	195	196	1	210	140	395	30	290	1			
			20°	40°			195.40 Vein quartz, siderite, arsenopyrite pyrite sphalerite. 30° LCA.	987	196	197	1	140	20	105	X	50	X			
								988	197	198	1	140	20	105	X	35	X			
								989	198	199	1	150	X	75	X	905	X			
								990	199	200	1	120	90	80	X	115	X			
								991	200	201	1	120	30	100	X	110	X			
								992	101	202	1	100	15	80	X	95	X			
								993	202	203	1	100	30	60	X	125	X			
			0°	30°			202.7 Vein quartz/pyrite, arsenopyrite, siderite minor wolframite 45° LCA. <1cm thick	994	203	204	1	100	15	100	5	195	X			
								995	204	205	1	150	150	775	90	125	0.5			
							204.1 Vein quartz, pyrite, arsenopyrite, siderite minor wolframite 90° to cleavage & flat lying.	996	205	206	1	120	200	350	30	53	0.5			
								997	206	207	1	110	X	65	X	105	X			
							204.5 Vein quartz, pyrite, siderite 0.5cm 30° LCA.	998	207	208	1	100	X	55	X	190	0.5			
							204.55 Vein quartz 40° LCA 2cm	999	208	209	1	85	290	195	25	35	0.5			
			0°				204.6 Vein pyrite, quartz siderite 30° LCA <1cm	838000	209	210.5	1.5	100	30	205	20	60	X			
						E.O.H. 210.5m	205.3 Vein quartz, pyrite, arsenopyrite wolframite 1cm													
							208.9 Vein quartz, pyrite, siderite, chalcopyrite Minor wolframite 30°													

KR 6459

DDB 12 33.10m

Hand Specimen: Typical finely laminated siliceous siltstone. Bedding laminae defined by darker minerals. Exhibits contact with a fine grained siliceous siltstone which has no carbonaceous? component. Also has thin quartz, pyrite veinlet crosscutting the laminae.

Thin Section: Sericitic siltstone.

Composition: Very fine grained to fine-grained quartz with a sericite matrix. The "cleaner" siltstone contains significantly less sericite in the matrix. Concentrations of sericite make up the darker bands defining the laminae. May be phlogopitised. Fine pyrite cubes scattered throughout.

Fabric: Bedding laminae defined by muscovite lathes. Discordant cleavage evident.

Accessories: Relict, stubby crystals of detrital zircon. Leucoxenic semi opaques.

079

796080

KR 6460

DDB 12 35.2m

Hand Specimen: Grey finely laminated, homogeneous siltstone.

Thin Section: Sericitic Siltstone

Composition: Well sorted fine grained quartz, with sutured grain boundaries with sericite filling the interstices. Sericite/muscovite also forms layers defining bedding lamination.

Fabric: Quartz grains show undulose extinction and sutured grain boundaries. A preferred fabric is not obvious. Sericite/muscovite lathes define bedding lamination.

Accessories: Detrital zircon. Pyrite cubes.

Comments: This rock type is typical of one of the major lithotypes encountered in DDB 12.

080

796081

KR 6461

DDB 12 27.9m

Hand Specimen: Thinly laminated, banded siltstone. Tourmalinised and disrupted laminae.

Thin Section: Tourmalinised pelitic siltstone.

Composition: Fine grained quartz with tourmaline intermixed with sericite. Microfractures containing pyrite and other opaques.

Fabric: Bands of tourmaline define bedding lamination. However an incipient discordant cleavage is developed.

Accessories: Detrital zircon, pyrite.

Comments: Typical example of tourmalinised banded siltstone in DDB 12.

KR 6463

D.D.B. 12 102.4m

Hand specimen. Grey to grey-white siltstone showing graded bedding. Small clastic dikes are a feature with grey-white sandy siltstone intruding the grey clay-rich? unit below. Fine grained pyrite is obvious in the dike and may have replaced the matrix of the infilling sediment.

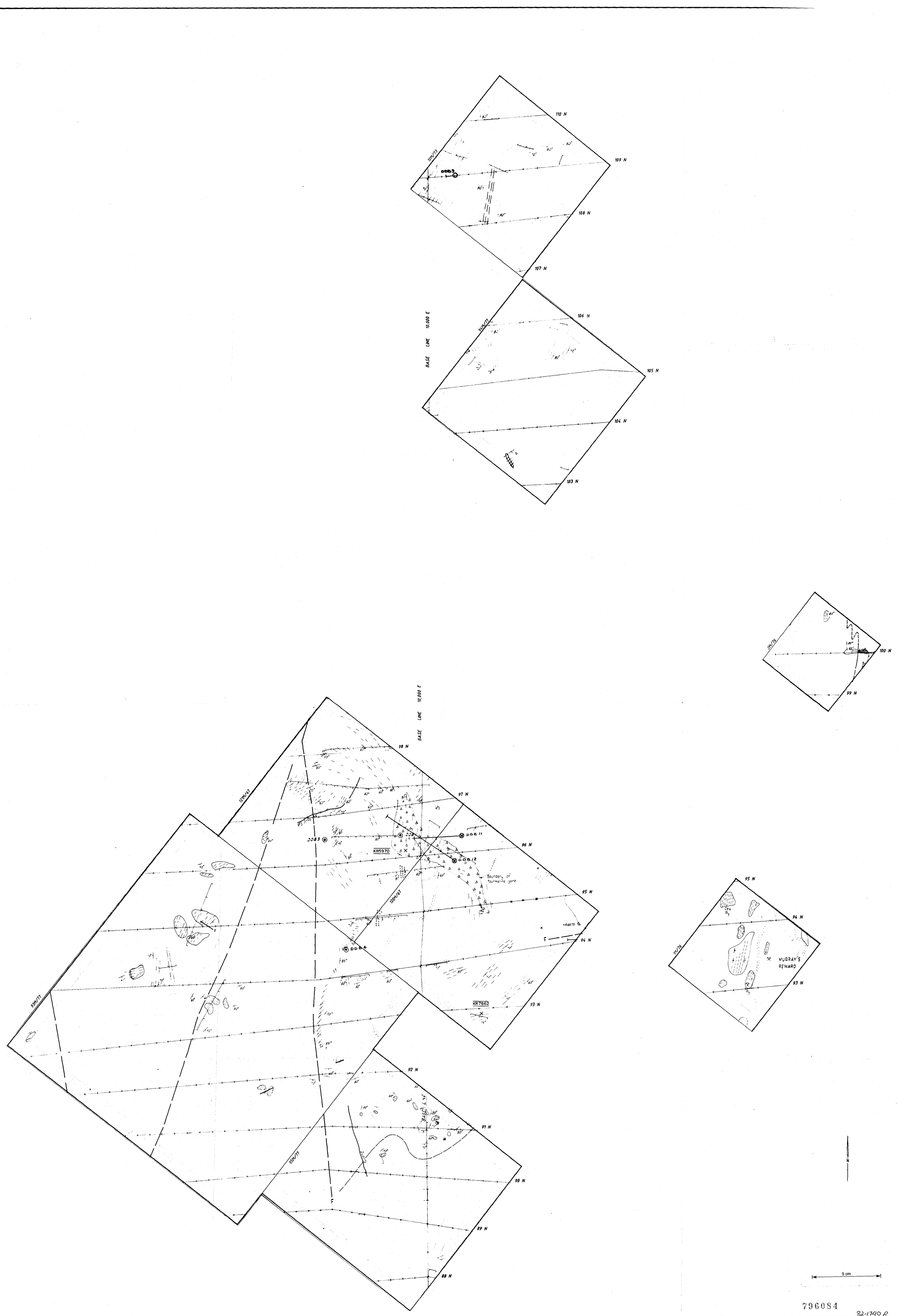
Thin Section Name:	Metasomatised Pelite
Composition:	Semi-sericitic muscovite and brown schorl with subordinate recrystallized quartz. Disseminated pyrite.
Fabric:	Disharmonically deformed pelite (sim. KR 6454) with quartz silt interbeds. incipient late cleavage.
Accessories:	Relict detrital zircon, leucoxenic semi-opaques.
Comments:	Soft style of deformation (? intraformational) with incipient cleavage postdating relatively marked tourmalinisation. Pyrite secondary after pyrrhotite (sim. KR 6454).

KR 6466

D.D.B. 12

Hand Specimen. Silicified siltstone grey colour, very fine grained with disseminated pyrite throughout. Pyrite rimming pyrrhotite noted. Very fine dendritic pattern cross cuts bedding.

Thin Section Name:	Metasomatised Pelite
Composition:	Semi- sericitic muscovite, quartz and brown schorl in varying proportions. Sporadic clots of sideritic carbonate. Minor quartz veinlets, pyrite.
Fabric:	Sub-to millimetric, laminated. Weak discordant cleavage parallelled by veinlets.
Accessories:	Relict zircon, leucoxenic semi-opaques. Traces pyrrhotite, chalcopyrite, marcasite, tennantite sphalerite.
Comments:	Close affinities with 6454, 6463. Shaly partings preferentially tourmalinised. Siderite possibly replaced diagenetic dolomite. Veinlets mildly stressed.



796084

82-1740 R

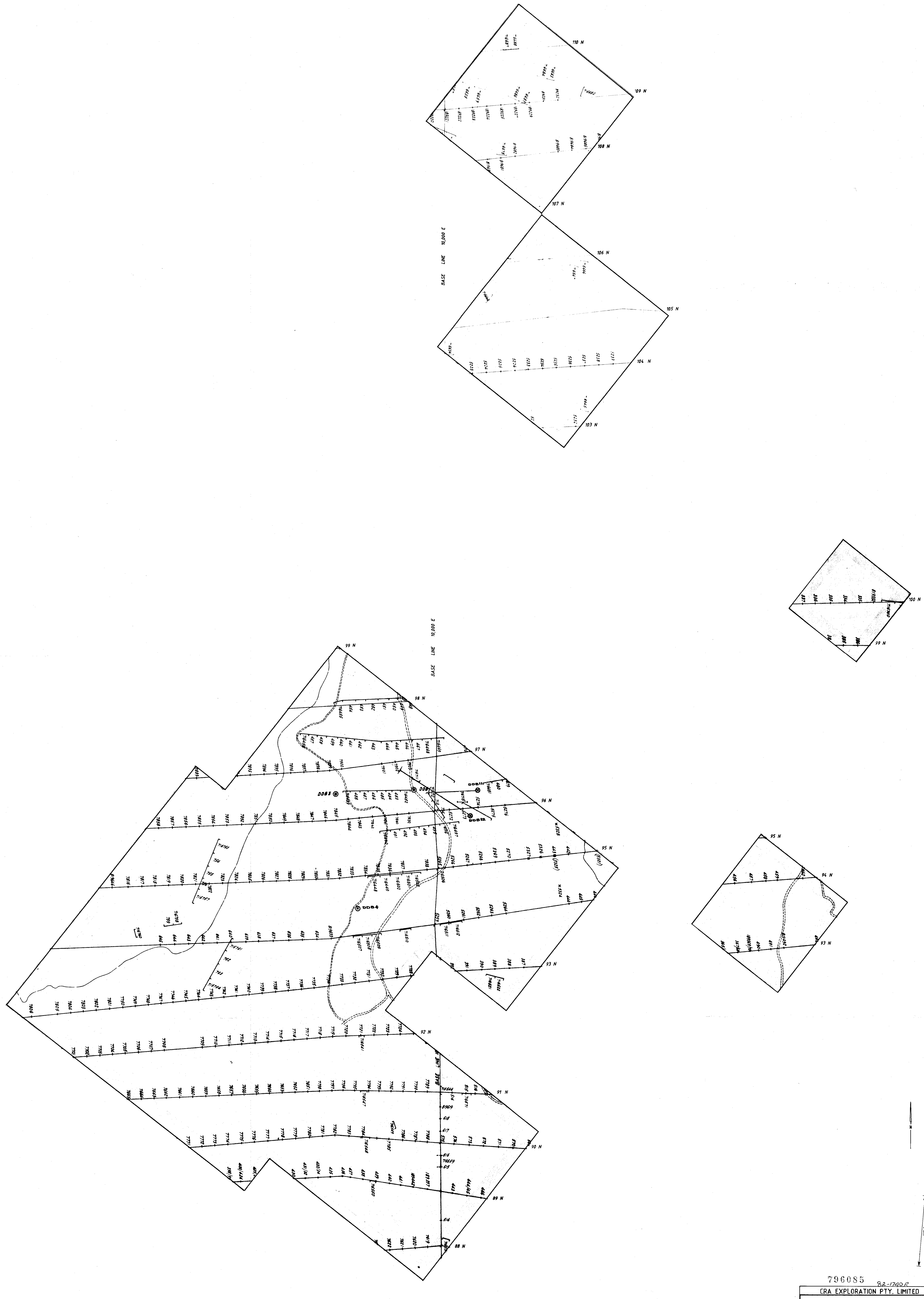
CRA EXPLORATION PTY. LIMITED

BALFOUR AGREEMENT
M. Laan & N.R. Langsford

GEOLOGY PLAN

SCALE 1 : 2 500	REF. SK55 - 5
AUTHOR T.W.D.	REPORT No. 11203
DRAWN R.T. FEB' 1982	PLAN No. TASh 631

6850



796085 82-1740R

CRA EXPLORATION PTY. LIMITED

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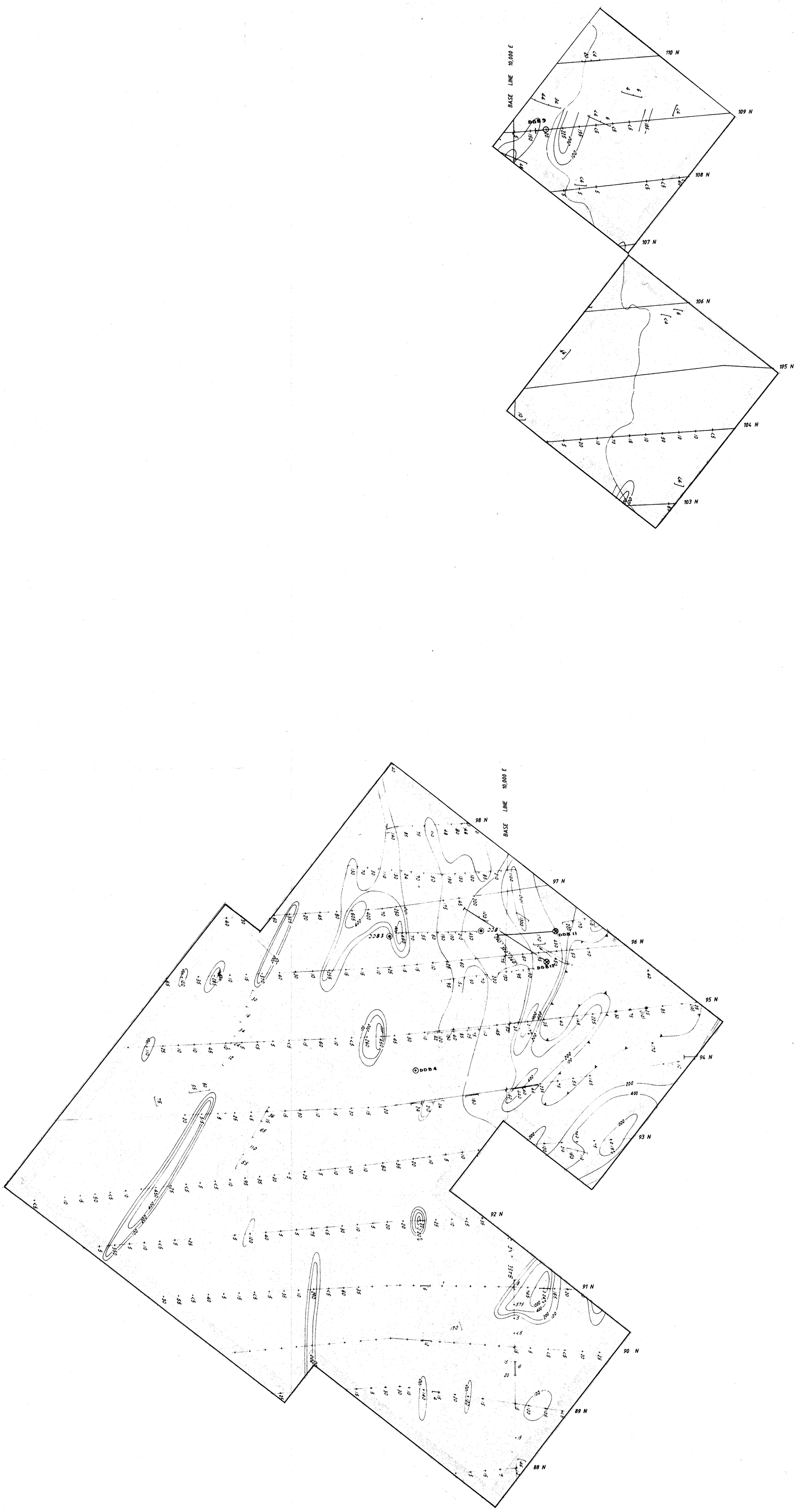
M. Laan & N.R. Langsford

SAMPLE LOCATION.

SCALE	1 : 2 500	REF.	SK55 - 5
AUTHOR	F.W.D.	REPORT Nº.	11203
DRAWN	R.T. FEB' 1982	PLAN Nº.	TASh 432



796086 82-1740 R

CRA EXPLORATION PTY. LIMITED

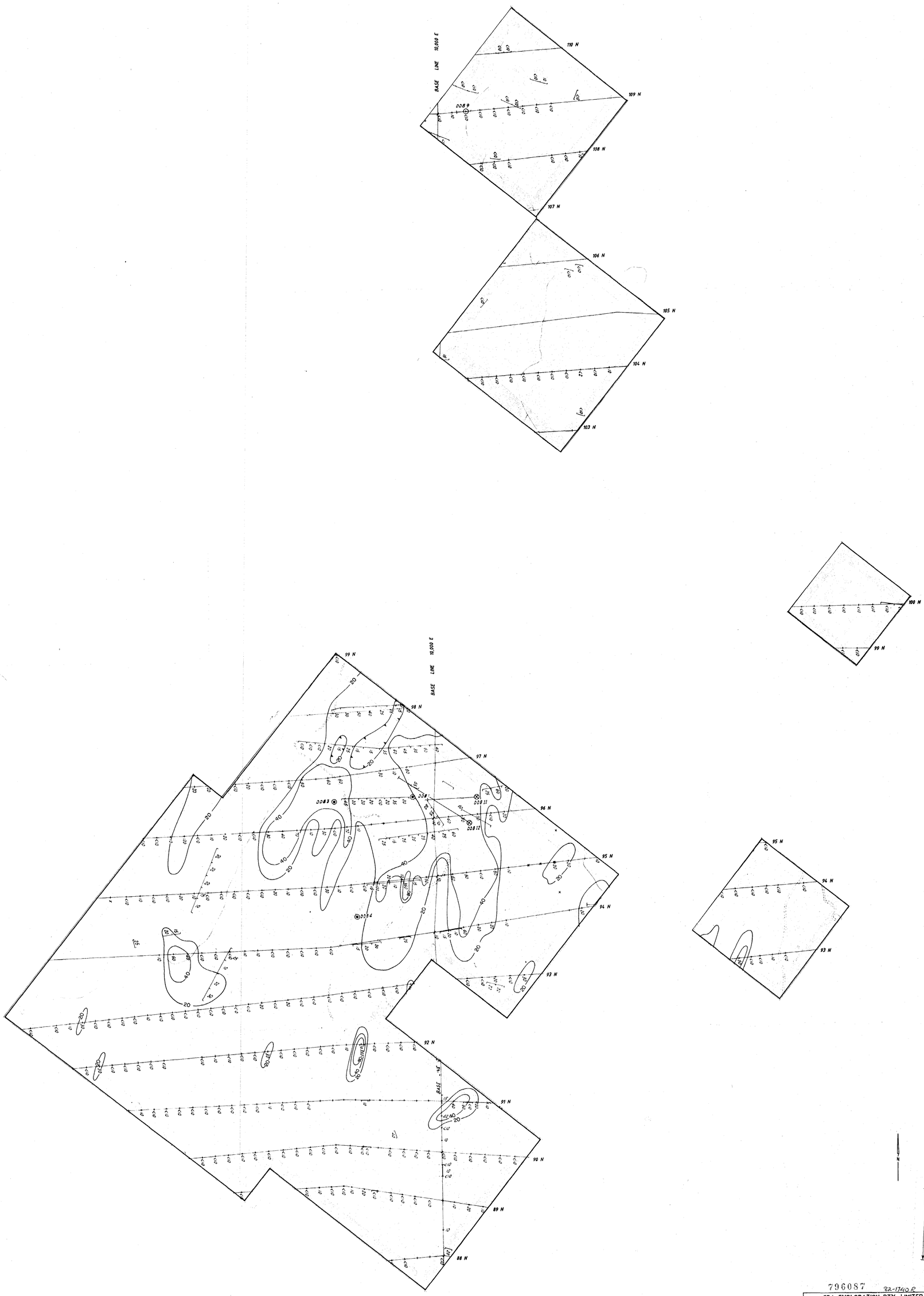
BALFOUR AGREEMENT
M. Laan & N.R. Langsford

Sn GEOCHMISTRY

SCALE 1 : 2 500	REF. SK55 - 5
AUTHOR T.W.D.	REPORT N°. 11203
DRAWN R.T. FEB' 1982	PLAN N°. TASh 638

5 cm

6852



796087 82-1740.12

CRA EXPLORATION PTY. LIMITED

BALFOUR AGREEMENT
M. Laan & N.R. Langsford

W GEOCHEMISTRY

SCALE 1 : 2 500	REF. SX55 – 5
AUTHOR T.W.D.	REPORT N°. 11203
DRAWN R.T. FEB' 1983	PLAN N°. TASD. 435

6853

BASE LINE 10,000 E

110 N
109 N
108 N
107 N
106 N
105 N
104 N
103 N
DDB9
DDB8
DDB1
DDB11
DDB12
DDB4
100 N
99 N
98 N
97 N
96 N
95 N
94 N
93 N
92 N
91 N
90 N
89 N
88 N

BASE LINE

N

Cu GEOCHEMISTRY

5 cm

796088

82-1740R

CRA EXPLORATION PTY. LIMITED

BALFOUR AGREEMENT
M. Laan & N.R. Langsford

Cu GEOCHEMISTRY

SCALE 1 : 2 500	REF. SK55 - 5
AUTHOR T.W.D.	REPORT N°. 11203
DRAWN R.T. FEB' 1982	PLAN N°. TASh 633

6854

BASE LINE 10,000 E

110 N
109 N
108 N
107 N
106 N
105 N
104 N
103 N
DDB9
100 N
99 N
98 N
97 N
96 N
95 N
94 N
93 N
92 N
91 N
90 N
89 N
88 N
DDB3
DDB4
DDB11
DDB12

5 cm

796089

82-1740 R

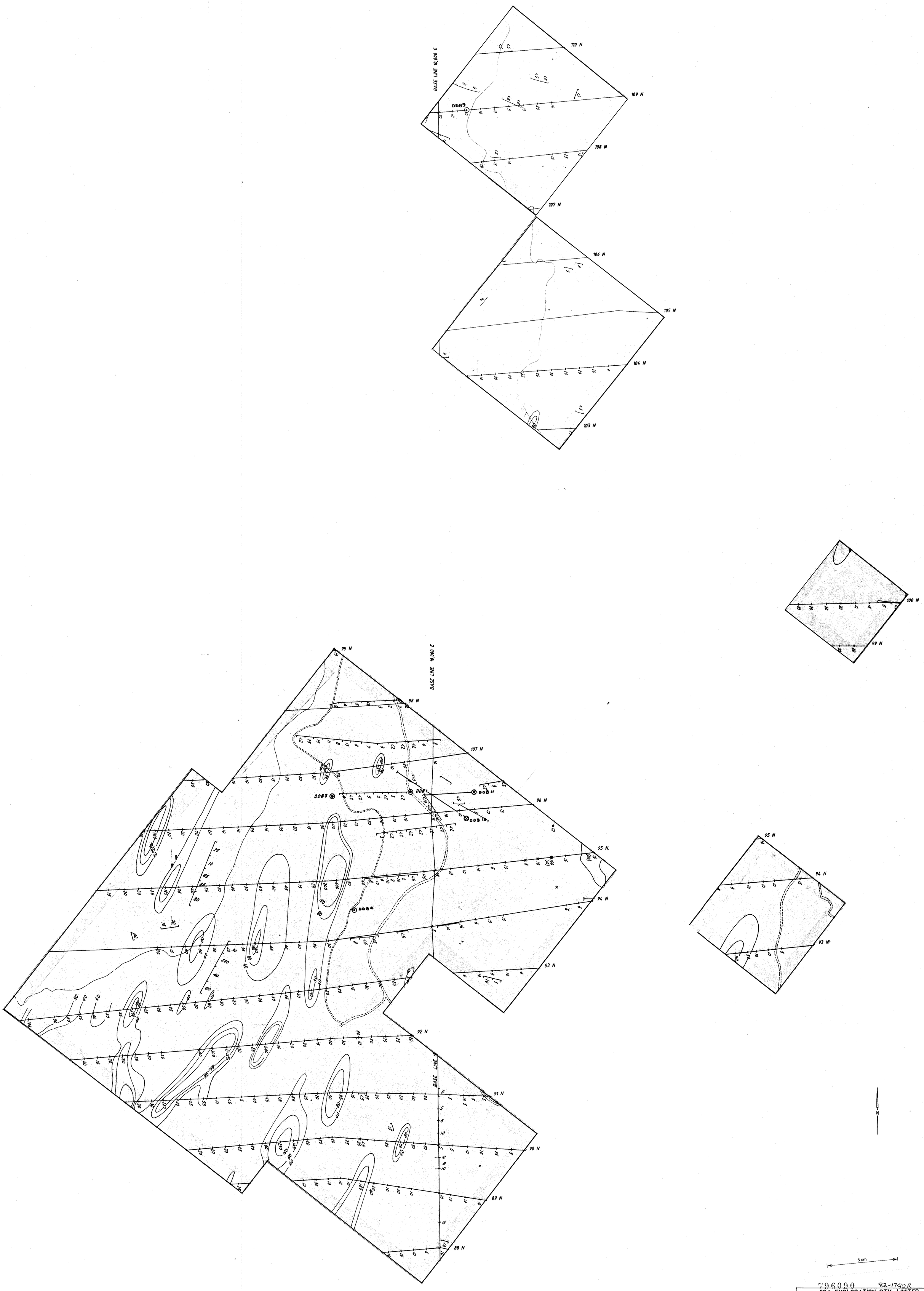
CRA EXPLORATION PTY. LIMITED

BALFOUR AGREEMENT
M. Laan & N.R. Langsford

Zn Geochemestry,

SCALE 1 : 2 500	REF. SRSS - 5
DRAWN R.T. FEB' 1982	REPORT N°. 11203
AUTHOR T.W.D.	PLAN N°. TASH 636

6855



296090 82-1740R

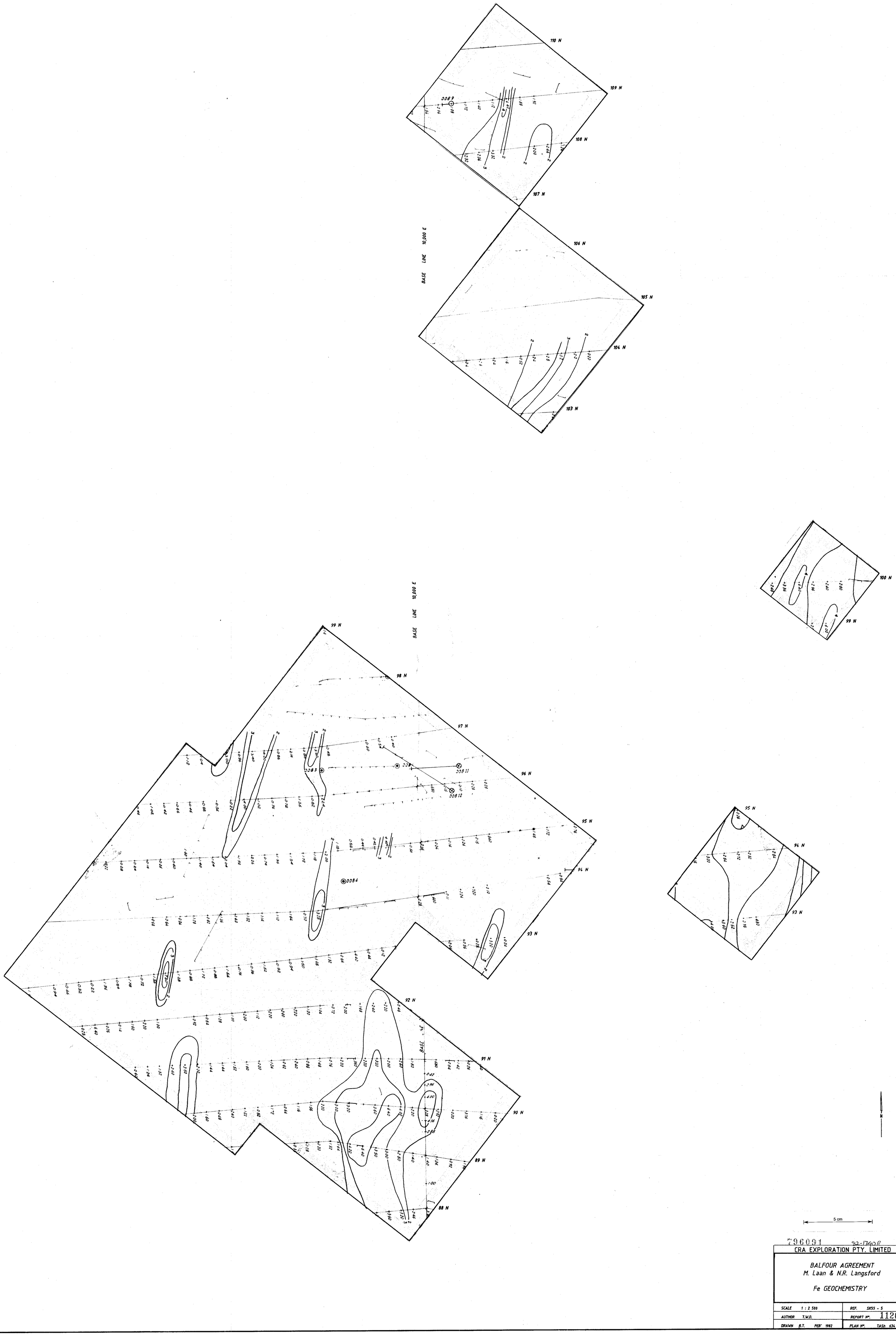
CRA EXPLORATION PTY. LIMITED

BALFOUR AGREEMENT
M. Laan & N.R. Langsford

Pb GEOCHEMISTRY

SCALE 1 : 2 500	REF. SK55 - 5
AUTHOR T.W.D.	REPORT No. 11203
DRAWN R.T. FEB' 1982	PLAN No. TASh 637

6856



5 cm

796091 82-1740R

CRA EXPLORATION PTY. LIMITED

BALFOUR AGREEMENT
M. Laan & N.R. Langsford

Fe GEOCHEMISTRY

SCALE 1 : 2 500	REF. SK55 - 5
AUTHOR T.W.D.	REPORT N°. 11203
DRAWN R.T. FEB' 1982	PLAN N°. TASh 634

6857

10,000E

10,050 E

10,100 E

Sn

W

C Horizon and Rock Chip Geochemical Profile

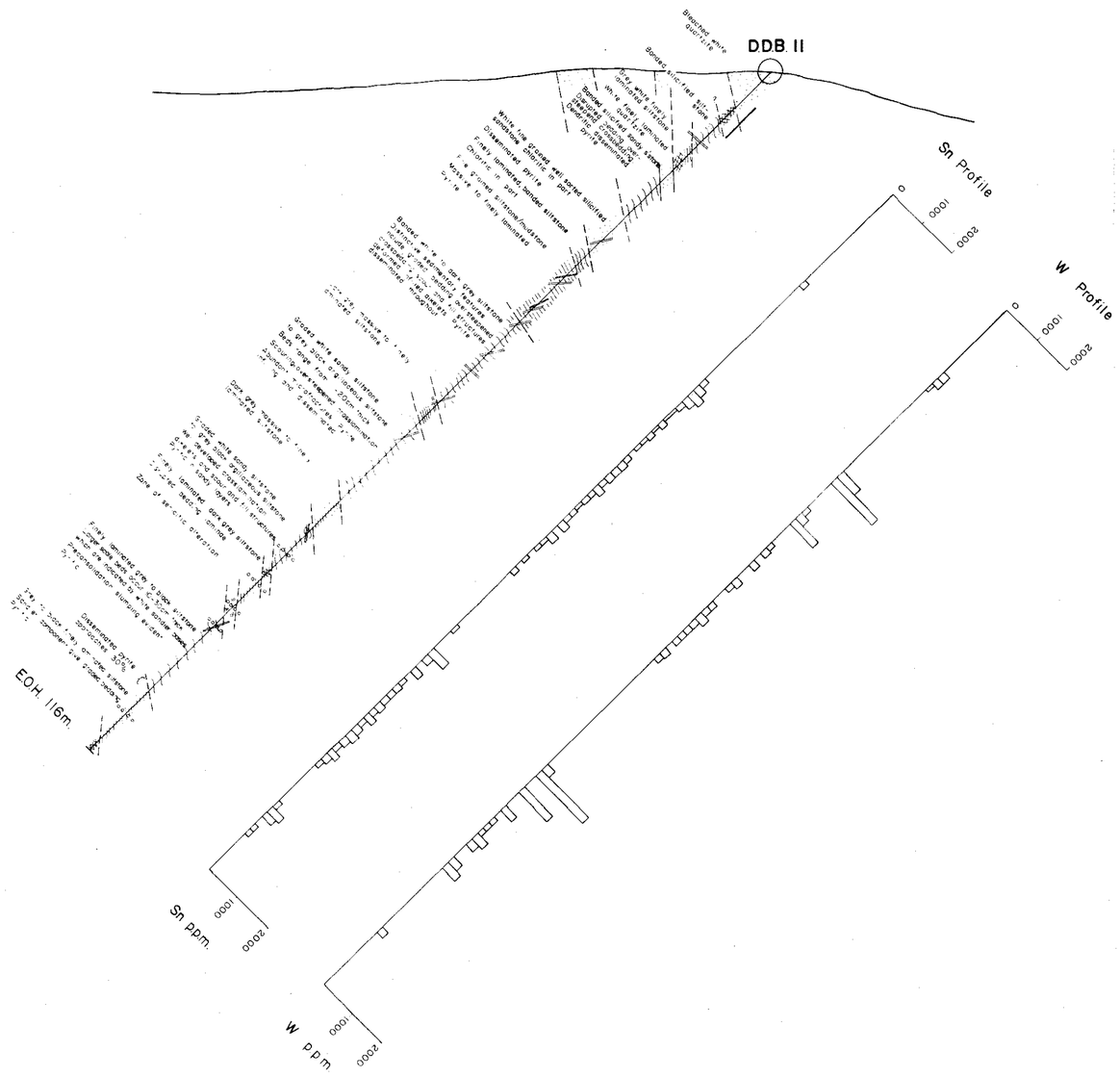
500

400

300 ppm

200

100



5 cm

5 0 5 10 15 20 25 Metres

SCALE: 1:500

796092 82-1740R

LEGEND

Vein >1cm thickness, showing orientation.

Vein >1cm thickness, indeterminant orientation.

Geological boundary, sharp; gradational

Tourmalinization Strong, weak.

8589

Balfour DDB11

Co-ordinates 9,630N. 10,075E.

Azimuth 227° Mag.

Declination 45°

Commenced 13-2-'81

Completed 16-2-'81

Depth 116m.

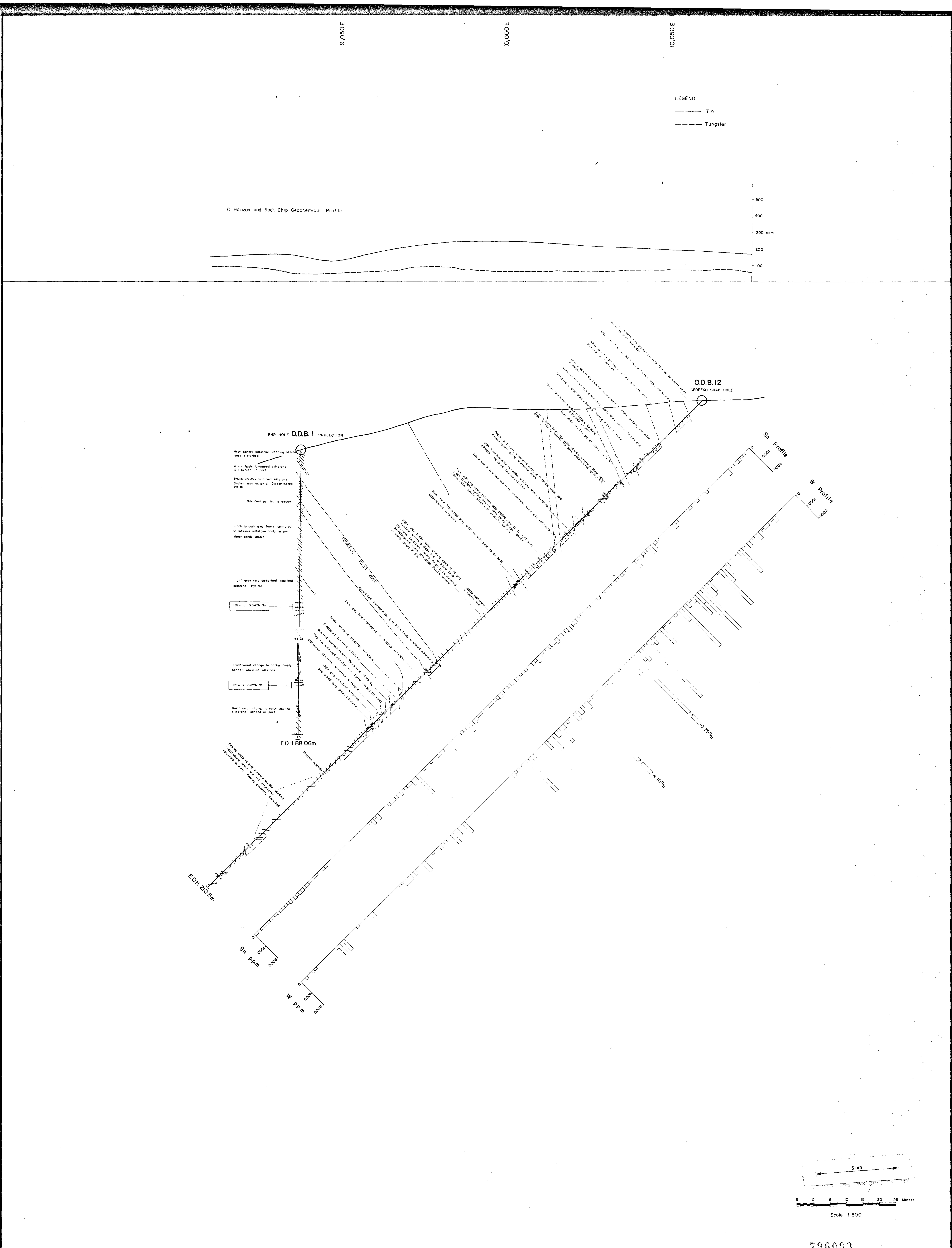
CRA EXPLORATION PTY. LIMITED

CRAE/GEOPEKO, J.V. BALFOUR GRID

PROFILE OF DDB II (DD 81 BC1)
GEOLOGY, GEOCHEMISTRY

11203

Geologist : P.S.H.	Scale : 1:500	Report No : 10
Drawn : T.G.D.S.	Date : Dec. 1981	TASh 682


9,050 E
10,000 E
10,050 E
LEGEND
Tin
Tungsten
C Horizon and Rock Chip Geochemical Profile
500
400
300 ppm
200
100
D.D.B.12
GEOPEKO CRAE HOLE
BHP HOLE D.D.B. I PROJECTION
Grey banded siltstone Bedding laminae very disturbed
White finely laminated siltstone Silicified in part
Broken variably silicified siltstone
Broken vein material Disseminated pyrite
Silicified pyritic siltstone
Black to dark grey finely laminated to massive siltstone Shaly in part
Minor sandy layers
Light grey very disturbed silicified siltstone Pyritic
1 89m at 0 54% Sn
Gradational change to darker finely banded silicified siltstone
1 82m at 1 022% W
Gradational change to sandy chloritic siltstone Banded in part
EOH 88 06m.
POSSIBLE FAULT ZONE
Brecciated tourmalinized grey black finely laminated siltstone
Dark grey finely laminated to massive siltstone
Finely laminated silicified siltstone
Brecciated silicified siltstone
Silicified quartzite/quartz Tourmaline along Se
Very tourmalinised silicified rock Pyrite infilling fractures
Brecciated chloritic silicified siltstone
Light grey silicified siltstone
Brecciated grey green siltstone
Massive sulphide
Banded white to grey siltstone Graded bedding crossbedding scour and fill structures sandstone dikelets Bedding generally disturbed
EOH 210 5m
coarse wolframite in quartz vein
Light grey sandy layers grading upwards to grey silicified siltstone Beds are 10-30cm thick Deformed sandstone dikelets Small scale slumping oversteepened cross lamination Pyritic common in sandy layers ≈ 5%
Shear zone Brecciated grey siltstone with pale sandy beds
Disseminated sulphides
Thin light grey sandy siltstone beds grading upwards to light grey green siltstone Infilled dikelets Grey sandy bands contain disseminated pyrite often with dendritic pattern
Quartz vein or silicified quartzite Incorporates veins with wolframite
Grey finely laminated to bedded siltstone Minor deformed dikelets Variable tourmalinization
Broken and finely brecciated siltstone Probable shear zone
Broken quartz pyrite wolframite veins
Grey to black finely laminated silicified siltstone Minor sandy beds increasing towards the base Disseminated pyrite ≈ 5%
Thinly laminated banded siltstone Bedding disrupted in part
Grey white very fine grained quartzite
Disrupted to brecciated, intensely tourmalinized siltstone
Grey green, finely banded tourmalinized siltstone Bedding disrupted in places
White very fine grained silicified quartzite Iron staining on fractures
Sn Profile
W Profile
0
1000
2000
0 79%
4 10%
Sn p.p.m
W p.p.m
5 cm
5 0 5 10 15 20 25 Metres
Scale 1 500

LEGEND

- Vein >1cm thickness, showing orientation
- Vein >1cm thickness, indeterminant orientation
- Geological boundary, sharp; gradational.
- Tourmalinization Strong, weak

6859

Balfour DD B12

Co-ordinates 10,060N 9,585E

Azimuth 260° Mag

Declination 45°

Commenced 17-1-'81

Completed 31-1-'81

Depth 210 5m

796093 82-1740R

CRA EXPLORATION PTY. LIMITED

CRAE/GEOPEKO J.V. BALFOUR GRID

PROFILE OF D.D.B1 & DD81 BC2 (DDB12)

GEOLOGY, GEOCHEMISTRY

Geologist P S H	Scale 1 500	Report No: 11203
Drawn TGDS	Date Dec 1981	TASh 683