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1. SUMMARY

CRAE is exploring the Balfour and Mount Frankland EL's for sediment hosted Cu deposits in a range of lithological and structural settings. Numerous small vein-hosted Cu workings along a 30 km NNW trend centred on Balfour indicate that Cu bearing fluids have accessed the area. A basal quartzite unit and several major interpreted faults are considered possible fluid conduits. The Balfour pyrrhotitic siltstone is considered a potential "chemical trap" prospective for stratiform replacement Cu deposits analogous to the Kupferschiefer, White Pine etc.

Initial work involved data compilation and appraisal and reconnaissance field investigations. This work includes:

- A review of previous exploration undertaken by ACI and CRAE in the Balfour area. Test IP surveys carried out by ACI over "The Clump" and other known Cu deposits on the Balfour Trend showed a very strong response from the mineralised zones. Eight holes drilled by ACI at The Clump showed the mineralised zone to be up to 20m wide with an average grade generally less than 0.5% Cu.
- Recovery and duplication of the IP profiles from test surveys carried out by ACI
- Appraisal of all pre-existing IP profiles for the Balfour area. The profiles show major conductors with a high PFE (percentage frequency effect) apparently corresponding to lithological boundaries. These lithological contacts have also been shown to be Cu anomalous at The Clump and Specimen Hill
- Compilation of pre-existing CRAE and competitor rock and soil geochemistry
- Orientation soil and wacker geochemical traverses over The Clump. The work demonstrated that the known Cu line is completely leached at surface with Cu values in soil and wacker all less than 50ppm with no coherent pattern.
- Rockchip sampling at Murrays Reward. The samples showed that mineralisation is confined to quartz-sulphide veins within otherwise barren siltstones.

Following initial investigations an area of approximately 16 sq km (6 sq km of which lie within the Balfour EL 4/94), with potential for sediment hosted Cu deposits in a range of lithological and structural settings, has been defined. A comprehensive programme of gridding, geological mapping, ground magnetometry, soil and wacker geochemical sampling and IP has been carried out over this area, the "Nelson Prospect". In detail, the work pertinent to the Balfour EL 4/94 includes:

- Establishment of seven grid lines at 400 to 800m spacing totalling 10.2 line km
- Acquisition of ground magnetic data along the grid lines
- Detailed geological mapping and outcrop sampling (52 samples) along grid lines, the Heemskirk Road and Cassiterite Creek
- Five lines of soil and wacker geochemical sampling at 25m sample spacing (120 hand auger samples and 142 wacker samples)
- Acquisition of three lines of IP data totalling 5.4 line km (50m dipole spacing)

Geochemical assays for all outcrop, hand auger soil and bedrock wacker samples have been received. No significant values were returned. IP data are currently being processed. All the data must be processed and assimilated before follow up work, if any, is proposed.

2. INTRODUCTION

CRA Exploration Pty Limited (CRAE) was granted the Balfour EL 4/94 on June 3rd 1994. The lease is contained within the pre-existing Mount Frankland EL 18/92 at Balfour in north-western Tasmania, and covers 25 sq km (Plan Tv 643). The minimum expenditure commitment over the first two years of the licence is \$35,000.

CRAE applied for the Balfour EL 4/94 when the area was released by a previous explorer. CRAE was already active in the area exploring for the Mount Frankland EL 18/92 for sediment hosted Cu deposits. Studies of the Cu potential of Australian Proterozoic sequences by CRAE highlighted the Rocky Cape Group and the Smithton Trough of north-western Tasmania as prospective for stratiform/stratabound Cu mineralisation. Numerous small, vein hosted Cu workings along a 30km NNW trend centred on Balfour indicated that Cu mineralising processes were active in the area, hence there may be some potential for larger Cu bodies of interest to CRAE.

This report details the first twelve months of work within Balfour EL 4/94 to satisfy statutory requirements.

3. CONCLUSIONS

The conceptual model for the Nelson Prospect involves Cu-rich hydrothermal fluids migrating through the Lagoon River Quartzite and/or via faults and replacing Fe in the overlying pyrrhotitic siltstone to form a Cu sulphide horizon. Replacement of the pyrrhotite would destroy the magnetic character of the siltstone, and displaced Fe would form a haematitic or chloritic alteration halo.

Investigations suggest the Murrays Reward-The Clump Cu mineralisation had a different evolution to the directly granite related Specimen Hill Sn-Cu mineralisation, supporting the concept of a discrete Cu mineralising fluid accessing the sediment pile. Unfortunately the Nelson Prospect hand auger soil/wacker bedrock survey shows no evidence for a large, stratabound Cu sulphide horizon. However the IP, magnetic, geological and geochemical data must be assimilated, and any zones of coincident disturbed magnetic character and IP anomalism assessed, before the model is dismissed.

4. RECOMMENDATIONS

Work planned for the second permit year of the Balfour EL 4/94 includes:

- Processing and interpretation of the IP data acquired over the Nelson Prospect.
- Assimilation and evaluation of all available data over the Nelson Prospect to highlight areas worthy of follow-up work (if any)
- Planning and execution of a follow-up work programme (infill IP, close spaced auger/wacker sampling, RC/diamond drilling?) if warranted

- Four lines of soil geochemical sampling at 400m spacing to test the carbonaceous siltstone-chloritic siltstone contact at The Clump
- Investigation of the disseminated Pb-Zn mineralisation observed in a quartz sandstone near The Clump. The mineralisation is unlike the vein style base metal mineralisation around Specimen Hill.
- Further work to establish the nature and significance of the various Pb-Zn occurrences in the area.
- A detailed review of past exploration over the Balfour Cu line by an internal CRAE consultant. The objective of this work is to find evidence for, or the most likely location of, statabound Cu mineralisation cross-cutting the Cu trend.

5. REGIONAL GEOLOGY

There are no recent detailed published descriptions of the regional geology of the Balfour area. The regional framework is summarised in Turner (1989).

The Proterozoic Rocky Cape Association

The Rocky Cape Association forms the Proterozoic basement sequence in north-western Tasmania. To the east of the Smithton Trough four alternating siltstone-quartzite units, the basal Cowrie Siltstone, the Detention Quartzite, the Irby Siltstone and the Jacob Quartzite, comprise the Rocky Cape Group. To the west and south of the Smithton Trough the Proterozoic succession of similarly alternating siltstone-quartzite units is less well defined. Here the sequence includes the basal Pedder River Siltstone, the Lagoon River Quartzite, the Interview Siltstone, and an upper unnamed quartzite unit. At present it is not possible to correlate these units across the Balfour Transform and Smithton Trough to the Rocky Cape Group.

The Pedder River Siltstone (unknown thickness) is a distinctive unit of predominantly dark grey, poorly bedded siltstone with prominent slump, and scour and fill structures. Pyritic and graphitic siltstones have been recorded within the sequence at several localities. Interbedded sandstones and siltstones with minor conglomerate occur at the upper transition to the Lagoon River Quartzite. Adjacent to the Interview Granite a hornfels lens with associated rhyolitic rocks has been recognised at this transition. The Pedder River Siltstone has a characteristically quiet magnetic expression in the mapped sections.

The overlying Lagoon River Quartzite (unknown thickness) is a distinctive white, generally massive, recrystallised, but in part cross bedded and well sorted, quartz sandstone to quartzite, with rare shale interbeds. North of Temma mudstones are recorded within the predominantly quartzite sequence, particularly near the west coast. The mudstones may represent a lateral interdigitation of the Pedder River Siltstone and the Lagoon River Quartzite as the former is not known in the area. Alternatively structural analysis indicates that the bulk of the Lagoon River Quartzite is located on the eastern limb of an anticlinorium with a submarine hinge zone just to the west of the coastline.

The Pedder River Siltstone may form the core of this anticlinorium. Between the Arthur River mouth and Cape Grim the outcropping Rocky Cape Group is predominantly a quartz arenite, although there are a few relatively thick (>125m) intercalated mudstone and siltstone bands and some conglomerates. The Lagoon River Quartzite is characterised by a predominantly noisy magnetic signature with a quiet upper zone.

The Interview Siltstone (unknown thickness) is a light to medium grey, finely laminated chloritic siltstone and mudstone with relatively thin interbedded quartzite bands. The basal sections of the Interview Siltstone appear to lens to the north into the upper Lagoon River Quartzite. A pronounced magnetic band, representing up to 5% disseminated pyrrhotite or magnetite within grey shales and lesser interbedded quartzites, is apparent at the Lagoon River Quartzite-Interview Siltstone transition. Sections of the lower Interview Siltstone above this magnetic band comprise black carbonaceous (to graphitic) and pyritic siltstone and shale, particularly from the Arthur River to around 10 km south-southeast of Balfour. A similar magnetic unit is indicated at the top of the Interview Siltstone. Between 41° 45' and 41° 30'S the main Interview Siltstone is overlain by micaceous quartz sandstones to quartzites and crossbedded quartz arenites with interbedded siltstone as mapped on the Corinna and Pieman Heads 1:50 000 sheets.

The Late Precambrian Rift Sequence (informally known as the "Togari Group")

In the late Precambrian, around 700Ma, shallow, rift related, intracratonic basins formed between the Rocky Cape and Tyennan regions and within the Rocky Cape area itself. Coarse clastic sediments of the Forest Conglomerate, lower Donaldson Formation and base of the Timbs Group were deposited.

In the Smithton area, the sequence is best observed where the Bass Highway crosses the Black River. Here the basal angular unconformity with the Cowrie siltstone is exposed, and the overlying Black River Dolomite is visible. The Forest Conglomerate is preserved on the west side of the basin at Marrawah and to the south on Mount Frankland.

Turbiditic sands and silts of the upper Donaldson Formation, Timbs Group and ?Oonah Formation were laid down as the intracratonic basins deepened. The Smithton Trough formed a shallow shelf at this time and did not receive this phase of deeper basin sedimentation.

As the rift phase drew to a close, sag phase sediments comprising the Black River Dolomite, Savage Dolomite, ?Timbs Group magnesite horizons and Success Creek Group limestones were deposited. The Black River Dolomite is extensively exposed on the eastern side of the Smithton Trough from Forest, south-southwest to beyond the Arthur River. It most commonly occurs as a laminated chert of unknown derivation. Stratigraphic hole Forest No. 1 intersected 295m of Black River Dolomite comprising locally pyritic carbonate and black mudstone units (Brown, 1989a). The presence of algal laminated units indicate shallow water conditions. Within the Balfour area a black laminated siltstone marks the boundary between the Black River Dolomite and overlying basalt and lithic wacke sequences.

Following the sag phase sedimentation rift tholeiites and associated mafic-derived sediments of the Smithton Volcanics, Bernafai Volcanics, Timbs Group and Crimson Creek Formation blanketed the basins. On the Trowutta 1:50000 sheet, the Smithton Volcanics and associated sediments have been named the Kanunnah Sub-group, comprising the Keppel Creek Siltstone, essentially a mafic-derived lithic wacke, and the Spinks Creek Basalt, a massive tholeiite (John Everard, pers. comm.).

Airborne magnetic images clearly show the distribution of the Kanunnah Sub-group. It is important to note that the magnetic stratigraphy is absent from the west side of the Roger River fault, indicating this structure had a major control on the extent of early Cambrian sedimentation and volcanism.

The Smithton Dolomite, a poorly exposed dolomitic limestone present in the drainages of the Duck and Montague rivers, overlies (probably conformably) the Kanunnah Sub-group.

It is proposed to formally name the intracratonic rift sequence from the Forest Conglomerate to the Smithton Dolomite the "Togari Group" (John Everard, pers. comm.).

The Phanerozoic Sequence

During the early to middle Cambrian, a postulated arc-continent collision caused overthrusting of ultramafic-mafic rocks and related sediments from a unplaced subduction complex that may lie buried within the Dundas Trough. No ultramafics are known in the area of the Smithton Trough, although it is worth noting that significant alluvial chromite occurs near Britton's Swamp (Kosseris, 1988).

Post-collision extensional tectonics then produced troughs in which the Dundas Group sediments and Mount Read Volcanics accumulated. In the Smithton Trough, a middle to late Cambrian correlate of the Dundas Group, the Scopus Formation, overlies the Smithton Dolomite with probable disconformity (John Everard, pers. comm.). The Scopus Formation is dominated by fossiliferous siltstones and forms the core of the presently preserved Smithton Trough.

No units from Cambrian to Tertiary age are preserved. Flat-lying Tertiary basalts and sediments, and Quaternary deposits partially obscure the older geology.

6. MINERALISATION

Extensive copper mineralisation is found in Rocky Cape Group sediments, particularly over a 25 km long interval from "The Clump" mine north of Balfour to the Norfolk Ranges south of Balfour. Virtually all of the known occurrences are present as transgressive veins developed within, or parallel to the NW-SE trending 'Balfour Transform' series of faults. A number of other prospects have been located in the Toner River area (AMG coordinates 5 410 000mN, 335 000mE) within quartzites and siltstones immediately east of the Interview Granite. Lesser copper with or without lead, zinc and abundant arsenopyrite, has been encountered in association with transgressive magnetite lodes in the Temma area near the coast west of Balfour.

The known mineralisation in the Balfour Trend largely comprises cross cutting quartz, dolomite and quartz-dolomite veins and vein systems developed within structures parallel to the 'Balfour Transform'. Cupriferous mineralisation consists essentially of chalcopyrite, with lesser amounts of 'secondary' copper sulphides (notably covellite and chalcocite), in a pyritic quartz-dolomite gangue. Chalcopyrite occurs as irregular and discontinuous blebs and stringers, commonly concentrated along incipient fractures and generally intimately associated with pyrite. Trace amounts of galena and sphalerite are associated with the cupriferous sulphides. Silver and gold values are negligible.

Surface leaching of dolomitic and copper components is strong, with little evidence of dolomite at the surface and only weak Cu values in costeans.

Testing of the Balfour prospects has generally been directed at the transgressive vein systems, with only the visible mineralisation being assayed. However a few drill holes have been assayed over substantial thicknesses returning intersections in the order of 30m @ 0.3% Cu.

Some of the better intersections obtained in the 37 diamond holes drilled by ACI include:

DDH 14	84.43 - 105.61m	16.6m true	@ 0.95% Cu
DDH 16	63.39 - 84.13m,	20.74m	@ 1.44% Cu,
	including	8.1m	@ 2.49% Cu
DDH 17	30.48 - 37.64m,	7.16m	@ 0.95% Cu,
	including	1.52m	@ 3.46% Cu
DDH 23	56.99 - 60.81m	3.1m true	@ 2.1% Cu
DDH 33	118.11 - 124.35m	5.4m true	@ 1.31% Cu

ACI outlined a deposit of 0.5mt @ 0.8% Cu with dimensions of 220 x 220 x 7m at Murrays Reward. The deposit strikes at 140 degrees and dips at 50 to 60 degrees to the SW. The enclosing sediments strike N-S and dip steeply E.

Despite the fact that virtually all of the lodes known and drilled are transgressive, they align well along the strike of the host sequence and are largely within the Carbonaceous Shale centred on the 'Balfour Transform'.

Tin mineralisation is found in the Rocky Cape Group in the Balfour area where it accompanies pyrrhotite bearing tourmalinitic siltstones and interbedded quartzites at the transition from the Lagoon River Quartzite to the Interview Siltstone. Only low grade mineralisation has been located, mainly as vein swarms within this unit at Specimen Hill.

7. PREVIOUS EXPLORATION BY COMPETITORS

This summary of previous exploration activities within the Balfour area is not all inclusive and only lists the more significant efforts.

BHP drill tested the Specimen Hill Sn-W prospect with seven vertical diamond holes in the early 1960's.

Pickands Mather & Co International geochemically sampled an extensive area of the Rocky Cape Group from 1965 onwards and drilled a number of strong magnetic anomalies, mainly discordant magnetite lodes, in the sequence to the west of Balfour. All the lodes were thin (10 to 15m) with no significant base metals mineralisation, although some narrow low grade Pb, Ag, Zn and Cu mineralisation was encountered. Title was held as EL 12/65.

ACI Ltd explored the Balfour area during the period 1968 to 1974. ACI tested eight Cu prospects centred upon old workings over a strike length of 17km with 37 diamond drill holes. Drilling at individual prospects comprised a single hole, or two or three holes testing a 100m strike length on most, with the longest strike coverage being in the order of 1 km at Murrays Reward. The targets were transgressive zones of veining. A resource of 0.5mt @ 0.8% Cu was delineated at Murrays Reward. Title was held as EL 16/68.

Esso Australia Ltd flew a Catalina borne INPUT EM survey on 800m spaced lines over most of the Rocky Cape Group south of the Arthur River. A cursory helicopter based follow up of a wide selection of anomalies explained virtually all as being due to pyritic and/or graphitic shales. No drilling was undertaken. Title was held as EL 2/73.

CRA Exploration Pty Limited, later joined in joint venture by **Geopeko Limited**, undertook a regional panned concentrate survey over much of the Rocky Cape Group during 1977, the principal target being Sn. Follow up work was carried out, generally testing magnetic targets accompanied by suitable geochemical responses. Eight diamond holes were drilled at Specimen Hill immediately to the west of Balfour and one at Mt Hazelton 10 km south-southeast of Balfour (there are no details of this hole in the CRAE report system). A further two diamond holes were drilled to test strong magnetic anomalies within the quartzites and mudstones near the coast west of Balfour (the Little Eel and Possum Creek prospects), with the best intersection being 3m @ 2% Pb and 1.3 g/t Ag. Most of the other magnetic anomalies within the Rocky Cape Group, particularly those to the east of the Interview Granite, were tested at surface with no positive results. In the early 1980's attention focussed on the base metal potential of the region, particularly Pb Zn within the Cowrie Siltstone east of Balfour.

A number of geochemical anomalies in this area remain unexplained. The only other drill hole tested a coincident magnetic and EM response with weak base metal soil geochemistry at the Red Prospect near the Arthur River 25 km north-northwest of Balfour. The tenements involved were El's 1/77, 1/79, 12/80, 36/80, 4/83 and 61/83.

8. EXPLORATION, PERMIT YEAR ONE

8.1 Exploration Philosophy

CRAE's principal commodity of interest in the Balfour area is Copper.

Regional CRAE studies of the Cu potential of Proterozoic sequences Australia-wide highlighted north-western Tasmania as prospective for stratiform/stratabound Cu mineralisation in a variety of lithological and structural settings. Three general areas were recognised as conceptually prospective for sediment-hosted Cu targets; the Balfour Trend, the Arthur Lineament, and the Smithton Trough.

Within the Balfour Trend, a pyrrhotitic band at the base of the Interview Siltstone is regarded as being prospective for Cu deposits analogous to major stratiform sedimentary Cu deposits such as the Kupferschiefer, White Pine etc. In these deposits, Cu mineralisation is generally localised within a sedimentary "chemical trap" such as a sulphidic, carbonaceous or evaporitic unit overlying a porous arenaceous unit. Copper-rich fluids migrating through the arenites are constrained by overlying impermeable horizons and react with the chemical trap to produce Cu sulphide-rich beds. This mineralisation may be developed in small quantities over vast distances, such as in the Kupferschiefer, Zambian Copper Belt or Belt Supergroup. Fluid focussing mechanisms such as basement highs or faults are necessary to produce large ore-grade accumulations.

It is important to note that an obvious source for the Cu mineralisation may not necessarily be present. At White Pine, the Portage Lake lavas are considered a potential source, but in the Zambian Copper Belt there are no known source rocks within the Lower Roan Group or underlying basement.

The Balfour pyrrhotitic siltstone occurs at the boundary between the porous sands of the Lagoon River Quartzite and the finer carbonaceous and chloritic silts of the Interview Siltstone. This horizon is a prominent magnetic marker as it contains up to 5% pyrrhotite (see plans Tv 673, 899 and 957). Copper mineralisation is developed parallel but adjacent to the pyrrhotitic siltstone over a strike length of 30 km as apparently discordant quartz-dolomite-sulphide veins.

Two major Cambrian structures, the Roger River Fault and the Balfour Transform, cut the Balfour pyrrhotitic siltstone in the vicinity of Murray's Reward and The Clump. The conceptual model being considered is that Cu-rich hydrothermal fluids migrating through the Lagoon River Quartzite or via these faults (or other major structures) have replaced Fe in the pyrrhotite siltstone to form a Cu sulphide horizon. Replacement of the pyrrhotite will cause the magnetic response to be destroyed, and Fe to be displaced forming a haematitic or chloritic alteration halo.

In addition the small discordant quartz-dolomite veins may, in favourable structural locations, develop into large silica-dolomite (-Cu) bodies similar to the irregular but broadly stratabound Mount Isa Cu orebody. Drilling by ACI at The Clump indicated quartz-dolomite mineralisation at this prospect may be conformable with the enclosing sediments.

8.2 Literature Review and Data Compilation

A review of previous exploration undertaken along the Balfour Cu Trend was carried out as summarised below:

- ACI drilled eight holes over a 750m strike length at "The Clump" Cu workings. The drilling showed that the quartz-carbonate-chalcopryrite mineralised zone is up to 20m wide with an average grade usually less than 0.5% Cu. Recoveries were poor and Au was not analysed.

- Test IP surveys carried out by ACI (1967) over "The Clump" and other known Cu deposits on the Balfour Trend show a very strong response from the mineralised zones. Profiles of subsequent systematic IP surveys carried out over 12km of the Balfour Trend were recovered from ACI and duplicated. The profiles show a major conductor with a high PFE (percentage frequency effect) extending the full length of The Clump grid (1000m). An identical response appears on two lines 4km south of The Clump at Cassiterite Creek and in Hudson Syndicate (1967) and CRAE IP data west of Specimen Hill. The conductor appears to correspond to lithological boundaries, the carbonaceous to chloritic siltstone transition at The Clump, and the sandstone to carbonaceous siltstone contacts at Cassiterite Creek and Specimen Hill. The lithological contacts at The Clump and Specimen Hill have been shown to be Cu anomalous. The conductor at Specimen Hill has not been effectively tested by drilling.

The ACI IP profiles are currently being digitised and re-interpreted as part of a review of all available IP data for the area (including that recently acquired by CRAE). Results will be included in the second annual report for the Balfour EL 4/94.

- All CRAE and competitor rock and soil geochemistry covering the Balfour EL 4/94 and Mount Frankland EL 18/92 were compiled. 1: 50 000 scale soil and rock geochemistry plans of Mn, Fe, As, Zn, Cu were produced (plans Tv 855 to 859 respectively). These plans exclude the soil/wacker and rockchip samples recently acquired over the Nelson Prospect.

8.3 Mapping and Rockchip Sampling

Contract geologist Nic Turner carried out detailed 1:10 000 scale mapping to establish the settings of the mineralised rocks near The Clump and Murrays Reward.

A total of 88 rock chip samples were assayed (Cu, Pb, Zn, Ag, Co, Ni, Fe, Mn by AAS-aqua regia/perchloric acid digest, As by hydride generation-AAS-aqua regia/perchloric acid digest, Sn and W by XRF and Au by Fire Assay) of which 80 fall within EL 4/94. The sampling was aimed at:

- Investigating the possible presence of stratabound or stratiform Cu mineralisation which may have been a source of the Cu and other constituents in the Murrays Reward-Clump style of Cu mineralisation
- Characterising the metals content of the Murrays Reward-Clump Cu mineralisation and the Specimen Hill Sn-Cu mineralisation so the two styles could be compared
- Investigating other styles of mineralisation in EL 4/94

The following conclusions were drawn:

- Detailed mapping has sharpened geological boundaries but has not appreciably changed the accepted view that Cu mineralisation near The Clump and at Murrays Reward is structurally controlled

- Metals content, uniformity and regional extent discriminate the Murrays Reward-The Clump Cu mineralisation from the complex, variable and regionally restricted Sn-Cu mineralisation around Specimen Hill. The two types of mineralisation are thought to have had different evolutions with the Specimen Hill style being fairly directly granite-related
- Disseminated Pb-Zn mineralisation observed in a sandstone near The Clump is of interest. The mineralisation is unlike the vein style base-metal mineralisation observed around Specimen Hill and may be stratiform in style. Further work is necessary to establish the nature and significance of the various Pb-Zn occurrences in the area.

A detailed report with geological maps and assay results, is included as Appendix 1.

8.4 "The Clump" Prospect

8.4.1 Orientation Soil and Wacker Geochemistry

Orientation soil and wacker geochemical traverses were completed over selected lines at The Clump. Samples were forwarded to Analabs and analysed for Ag, Cu, Pb, Zn, Fe, Mn by aqua regia/perchloric acid digest-AAS finish and As by hydride generation/AAS. Results of the orientation survey are summarised below:

- The wacker penetrates the ubiquitous quartz lag cover far more effectively than the hand auger.
- Hand augered soil samples test the B-C horizon producing a wide geochemical dispersion halo whereas wacker samples test bedrock producing a point result.
- The known Balfour Cu Trend is totally leached at surface. Cu values were all less than 50ppm with no coherent pattern.
- Elevated Cu to 214ppm and Fe to 35% in soils was recorded in the east of the grid where semi-massive pyrite and iron oxides occur in subcrop. Wacker sampling returned one sample of similar tenor. Semi-massive pyrite in subcrop occurs at the same stratigraphic position 500m to the north. The zone has not been drilled and is worthy of follow-up work.
- Depth to bedrock is generally less than 2m.

Geochemical analyses are included as Appendix 2.

8.5 Nelson Prospect

The Nelson Prospect covers an area of approximately 16 sq km (6 sq km of which lie within the Balfour EL 4/94) with potential for sediment hosted Cu deposits in a range of lithological and structural settings ie:

- The "Balfour pyrrhotitic siltstone" where it is displaced by the Roger River Fault and a splay fault
- The lithological contact of the Balfour pyrrhotitic siltstone with the more porous sands of the underlying Lagoon River Quartzite
- The lithological contact of banded, variably carbonaceous siltstones with chloritic siltstones

A comprehensive programme of gridding, geological mapping, ground magnetometry, soil/bedrock geochemical sampling and IP was carried out over the Nelson Prospect. Exploration pertinent to the Balfour EL 4/94 is detailed below:

8.5.1 Geological Mapping and Rockchip Sampling

Seven grid lines at 400 to 800m spacing totalling 10.2 line km were established (see Plan Tv 957). Detailed geological mapping and outcrop sampling was carried out along the grid lines, the Heemskirk Road and Cassiterite Creek. Initially 43 samples were collected and analysed by Analabs for Au by fire assay-AAS, As by hydride generation-AAS and Ag, Co, Ni, Pb, Zn, Fe, Mn by AAS. Sample 4142235, a graphitic, pyritic shale collected in Cassiterite Creek, returned 0.192ppm Au. The other 42 samples were geochemically bland. A further nine samples were collected to follow up the anomalous Au value. All samples returned <0.005ppm Au suggesting the anomaly was due to contamination or nugget effects.

Geochemical analyses are included as Appendix 3.

8.5.2 Ground Magnetic Survey

A total of 10.2 line km of Ground Magnetic data were collected along the established grid lines. Stacked profiles of the ground magnetic data show a general coincidence of high magnetic response with siltstones and shales and low magnetic response with quartzite (see Plan Tv 949).

8.5.3 Soil and Bedrock Sampling

A total 146 hand auger soil samples and 142 wacker bedrock samples were collected at 25m spacing along five lines over the Nelson Prospect (Balfour EL 4/94). Originally all samples were planned to be obtained by hand auger. However thick surface gravels over some areas of the grid severely hindered sample acquisition and progress. Hence the hand auger programme was abandoned and geochemical sampling of the grid was completed using a wacker.

All samples were forwarded to Analabs and analysed for Ag, Co, Cu, Ni, Pb, Zn, Fe, Mn by aqua regia/perchloric acid digest-AAS finish, As by hydride generation/AAS and Au by fire assay/carbon rod. The assay results returned were disappointing. Only three isolated samples exceeded 100ppm Cu with a maximum 108ppm Cu returned from a carbonaceous, argillaceous siltstone. Pb and Zn were weakly anomalous with a maximum 276ppm Pb and 452ppm Zn returned from laminated siltstone samples.

Soil and bedrock geochemistry maps for Cu, Pb, Zn, Fe, As and Mn are included as plans Tv 958 to 963. Geochemical analyses are included as Appendix 4.

8.5.4 IP Survey

Three lines of 50m spaced dipole-dipole IP data (5431600N, 5432000N, 5433600N) were acquired over the Nelson Prospect (see Plan Tv 957). A total of 5.4 line kilometres of the 10 line kilometre survey were acquired within the Balfour EL 4/94.

Originally a survey consisting of three fairly regularly spaced lines was planned to cover the Nelson Prospect. An unfortunate mixup resulted in the acquisition of IP data along the line 5432000N rather than line 5432800N. The data acquired along line 5432000N will be useful however data along line 5432800N would certainly have been preferable.

Processing of the IP data over the Nelson Prospect is currently in progress. The IP data will be interpreted and synthesised with all available geological and geophysical data to highlight areas worthy of follow-up work (if any). Results will be reported in the next annual report.

9. ENVIRONMENT AND REHABILITATION

Exploration having an environmental impact included minimal cutting of some grid lines, augered soil sampling, wacker bedrock sampling, digging of IP pits and the use of a wacker buggy and Bombardier along grid lines.

The following procedures were implemented to reduce environmental impact:

- When digging IP electrode pits the peat layer was removed and stockpiled separately from the underlying soil or gravel layers.
- Use of the Bombardier was restricted to the transport of IP equipment to prevent repeated use on the same track. Thick/high vegetation was avoided. A quartzite ridge was used to cross between grid lines in the western grid area to minimise damage to the more fragile heathland.
- The wacker buggy traversed grid lines twice maximum, and hand carried wacker equipment was used where the gravels were thin and easily penetrated.

The spread of *Phytophthora cinnamoni* from the roadside verges of the recently constructed

Heemskirk Link Road was a major concern. The following procedures were implemented to prevent the infection spreading along grid lines:

- The Bombardier was transported over the infected roadside verge on a trailer where possible, and unloaded onto uninfected ground. Elsewhere planks and tarpaulins were used to prevent track contact with infected plant and soil matter.
- The Bombardier tracks were thoroughly cleaned with ABF 42, a recommended fungicide, during transport to different sections of the grid to prevent cross infection.
- All digging equipment was thoroughly cleaned after digging IP pits in infected areas

During the IP survey the Bombardier was turned on its side whilst negotiating a difficult creek crossing. The accident resulted in a small fuel and oil spillage into the creek. An excavator was employed to retrieve the Bombardier and the appropriate precautions were implemented to prevent the spread of *Phytophthora* and other exotics.

Rehabilitation necessary is minimal:

- Grid lines will naturally regenerate over time
- Soil auger and wacker bedrock sampling leaves virtually no impact requiring no rehabilitation
- The IP pits were refilled in correct order (gravel/soil first followed by the peat) and foil removed on completion of the survey permitting rapid regeneration.

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KEYWORDS

Tasmania, Proterozoic, Literature Review, Soil Sampling, Rockchip Sampling, IP Survey, Ground Magnetic Survey, Copper

LOCATION

Burnie	1:250000	SK55-3
Sandy Cape	1:100000	7815
Bluff Point	1:50000	7815N
Balfour	1:50000	7815S
Dempster	1:25000	3243
Balfour	1:25000	3242

LIST OF DPO'S

81227, 81229, 81230, 77184, 77185, 77674, 77676, 77677

LIST OF PLANS

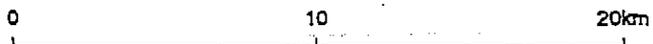
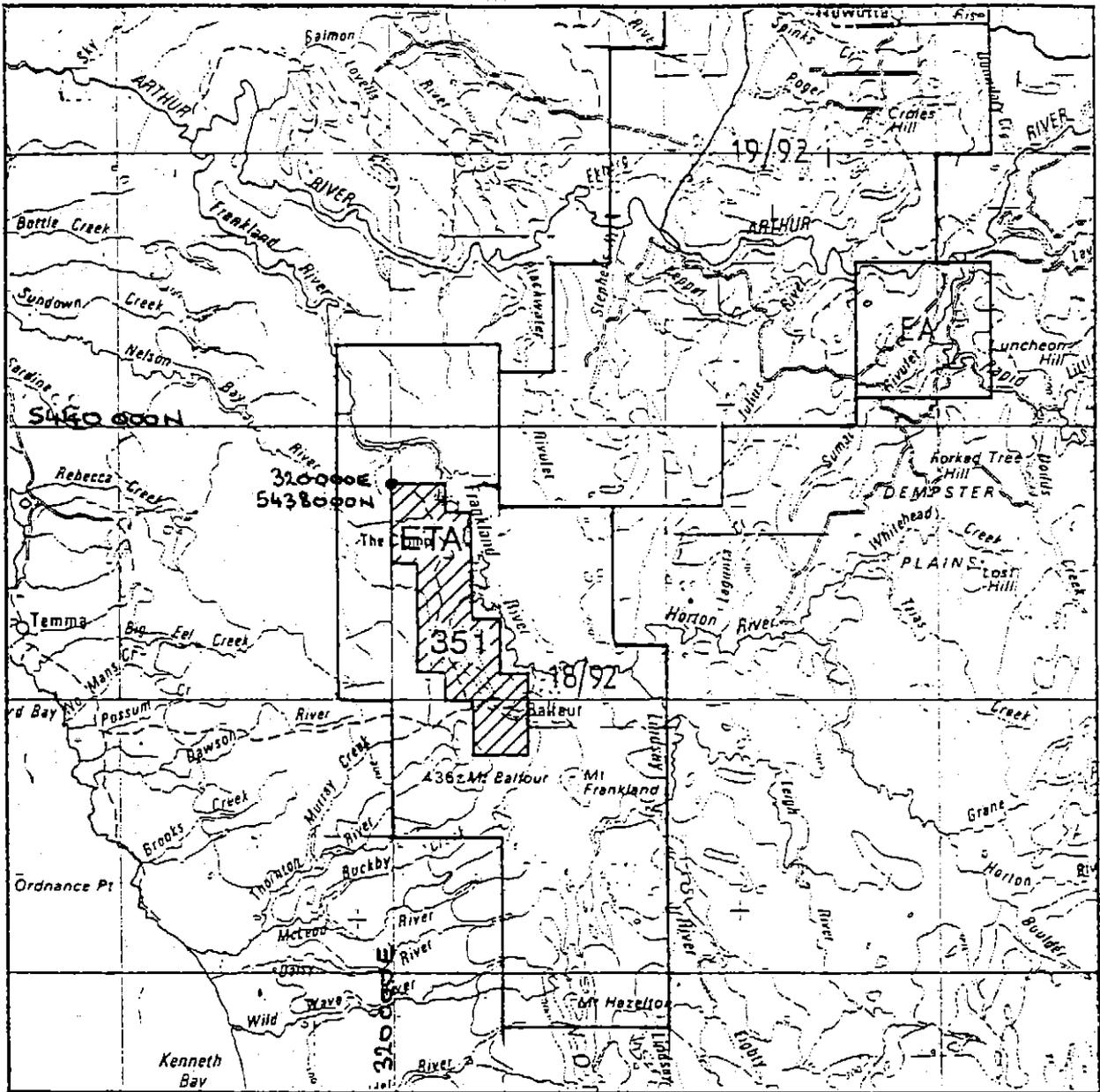
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Tv 899	Nelson Prospect Aeromagnetic Contours	1: 10,000
Tv 855	Balfour Cu Project, EL 18/92 and EL4/94. Soil and Rock Geochemistry : Mn (Sept 94)	1: 50,000
Tv 856	Balfour Cu Project, EL 18/92 and EL4/94. Soil and Rock Geochemistry : Fe (Sept 94)	1: 50,000
Tv 857	Balfour Cu Project, EL 18/92 and EL4/94. Soil and Rock Geochemistry : As (Sept 94)	1: 50,000
Tv 858	Balfour Cu Project, EL 18/92 and EL4/94. Soil and Rock Geochemistry : Zn (Sept 94)	1: 50,000
Tv 859	Balfour Cu Project, EL 18/92 and EL4/94. Soil and Rock Geochemistry : Cu (Sept 94)	1: 50,000
Tv 957	Nelson Prospect Geology	1: 10,000
Tv 949	Nelson Prospect Ground Magnetic Stacked Profiles	1: 10,000
Tv 958	Nelson Prospect. Soil and bedrock Geochemistry : Cu	1: 10,000
Tv 959	Nelson Prospect. Soil and bedrock Geochemistry : Pb	1: 10,000
Tv 960	Nelson Prospect. Soil and bedrock Geochemistry : Zn	1: 10,000
Tv 961	Nelson Prospect. Soil and bedrock Geochemistry : Fe	1: 10,000
Tv 962	Nelson Prospect. Soil and bedrock Geochemistry : As	1: 10,000
Tv 963	Nelson Prospect. Soil and bedrock Geochemistry : Mn	1: 10,000

Report on Geological Mapping and Rock Chip Sampling around The Clump, Murrays Reward and Other Localities in EL 4/94, Balfour District, North Western Tasmania.
Prepared by N J Turner:

<u>Plan No.</u>	<u>Title</u>	<u>Scale</u>
Tv 895	Map 1: Balfour EL 4/94 : Geological Setting of The Clump Copper Mineralisation	1: 10,000
Tv 897	Map 2: Mt Frankland EL 18/92, Balfour EL 4/94 : Geological Setting of The Murrays Reward Copper Mineralisation	1: 10,000
Tv 673	Map 3: Mt Frankland EL 18/92, Balfour EL 4/94 : Geological Plan	1: 25,000
Tv 898	Map 4: Balfour EL 4/94. Chip Sampling at the Southern End of the Open Pit at Murrays Reward Cu Mine, Balfour	1:100
Tv 893	Map 5: Mt Frankland EL 18/92. Frankland Road Area Geology and Sampling of the Py and Png	1:100
Tv 886	Map 6: Mt Frankland EL 18/92: Specimen Hill Prospect Aeromagnetics and Geology of the Py and Png	1: 25,000
Tv 616	Map 7: Mt Frankland EL 18/92: Soil and Rockchip Sample Locations	1: 25,000

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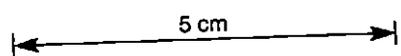
APPENDIX 1:	Report on Geological Mapping and Rock Chip Sampling around The Clump, Murrays Reward and Other Localities in EL 4/94, Balfour District, North Western Tasmania. Prepared by N J Turner
APPENDIX 2:	The Clump - Orientation Soil and Bedrock Traverses
APPENDIX 3:	Nelson Prospect - Rock Geochemistry
APPENDIX 4:	Nelson Prospect - Soil and Bedrock Geochemistry



Scale 1:250000

BALFOUR ETA - 25 SKM

794019

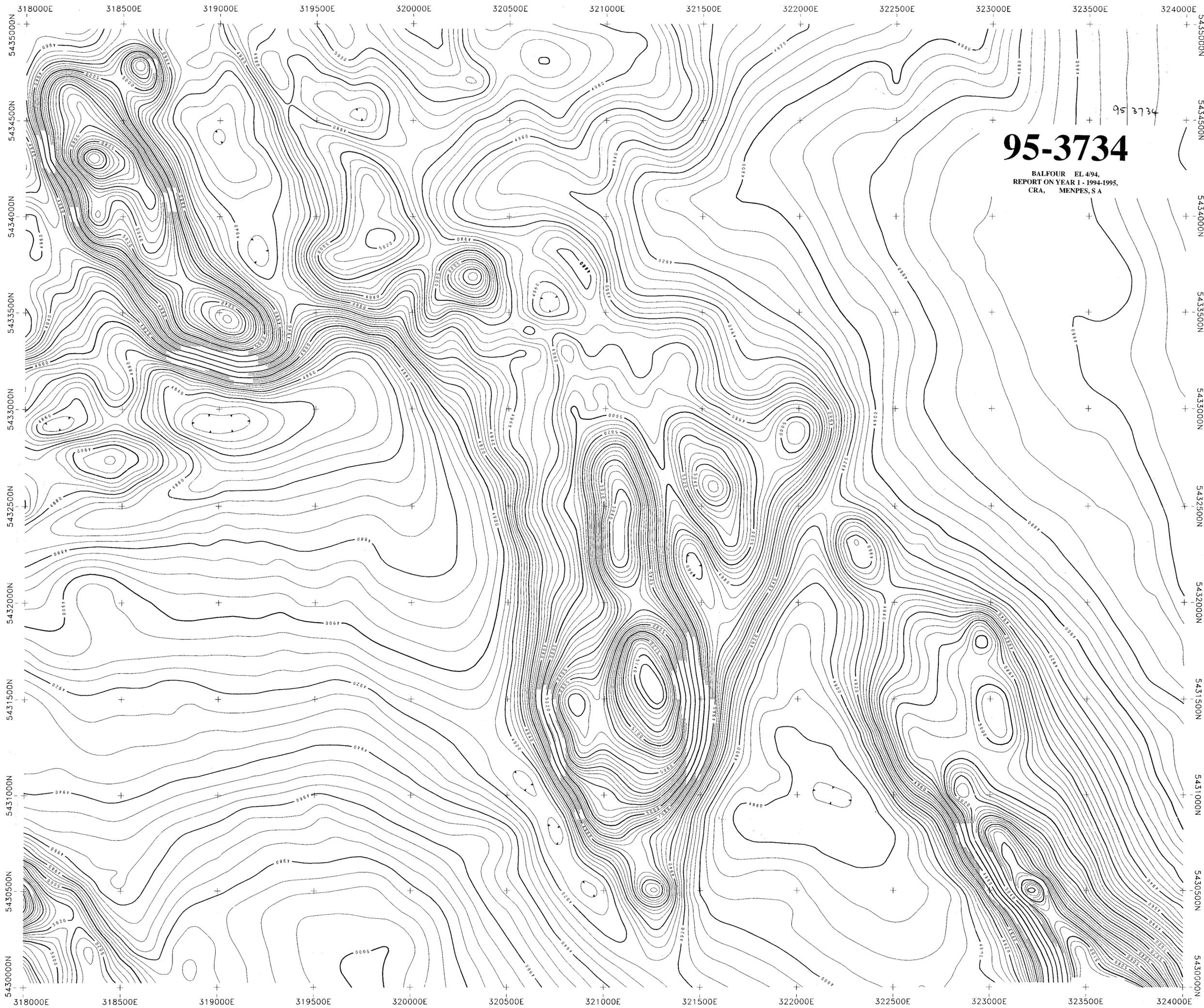


AREA APPLIED FOR

95-3734

BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A

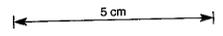
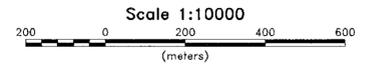
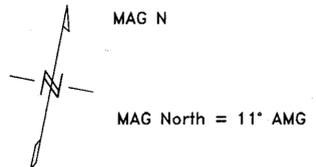
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Drawn: RGP	Plan No.: Tv 643



95 3734

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BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, SA



NOTE: Taken from the
1993 Mt. Frankland airborne
geophysical survey.

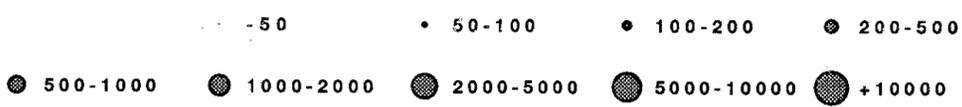
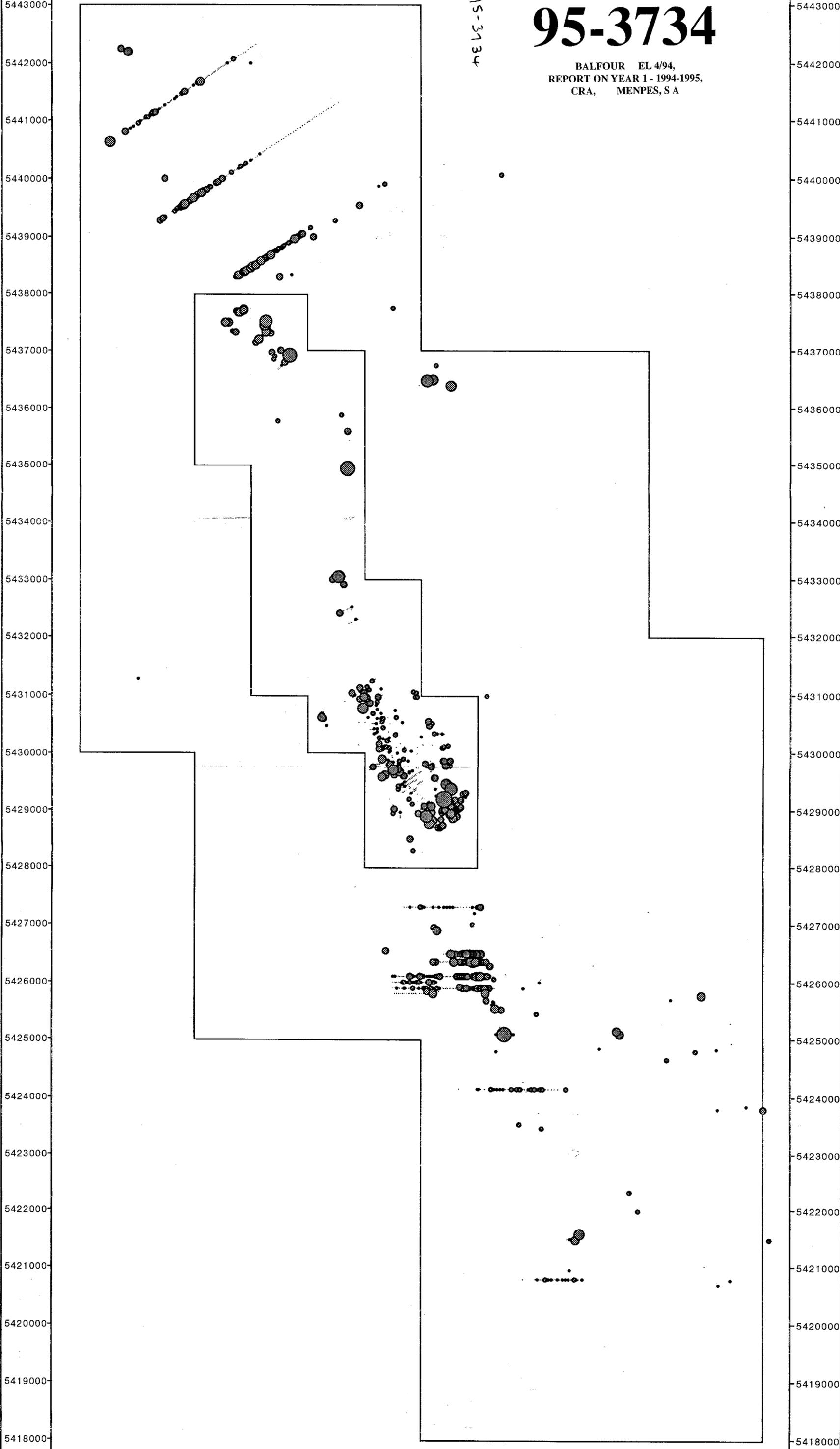
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CRA EXPLORATION PTY. LIMITED			
MT. FRANKLAND EL18/92 & EL4/94			
NELSON PROSPECT			
AEROMAGNETIC CONTOURS			
BURNIE		SK55-03	
GEO: TA	SCALE: 1:10000	REPORT: 20878	
DRAWN: TA	DATE: 10/2/95	PLAN: Tv 899	

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BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A



794022

CRA Exploration Pty Limited

BALFOUR Cu PROJECT - EL18/92 & EL4/94
SOIL & ROCK GEOCHEM - Mn ppm

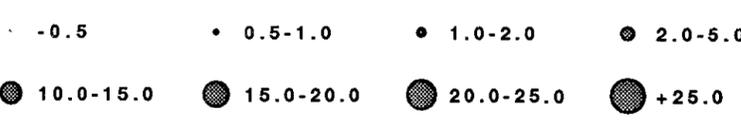
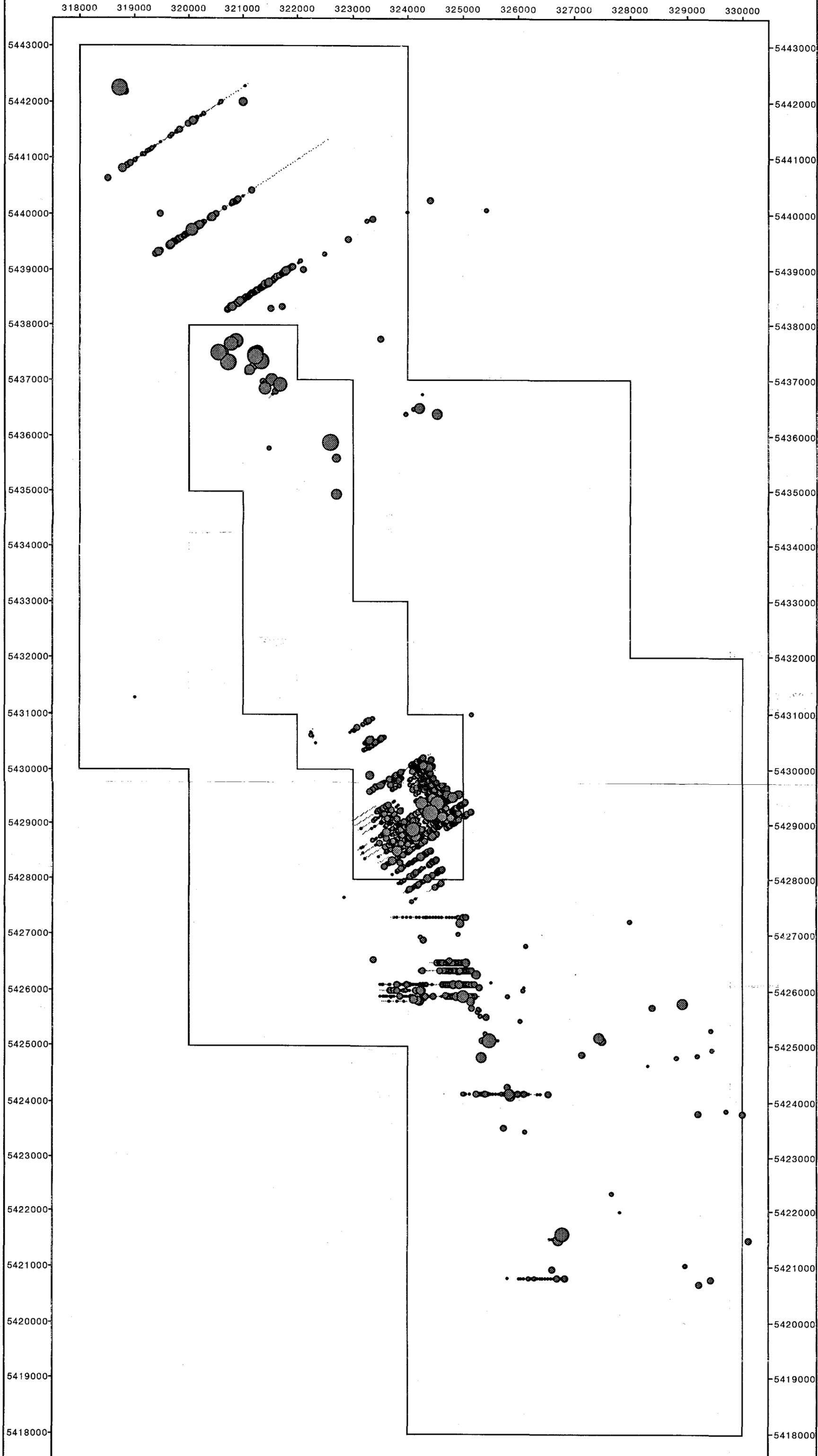
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All Samples

jmap

1000m

5 cm

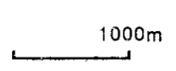
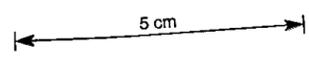


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BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A

CRA Exploration Pty Limited		
BALFOUR Cu PROJECT - EL18/92 & EL4/94		
SOIL & ROCK GEOCHEM - Fe%		
Geol: RGP	Scale: 1:50000	Report: 20878
Drawn: RGP	Date: 26/9/1994	Plan: Tv 856



All Samples

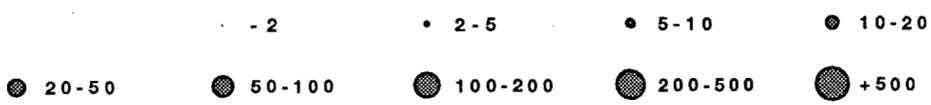
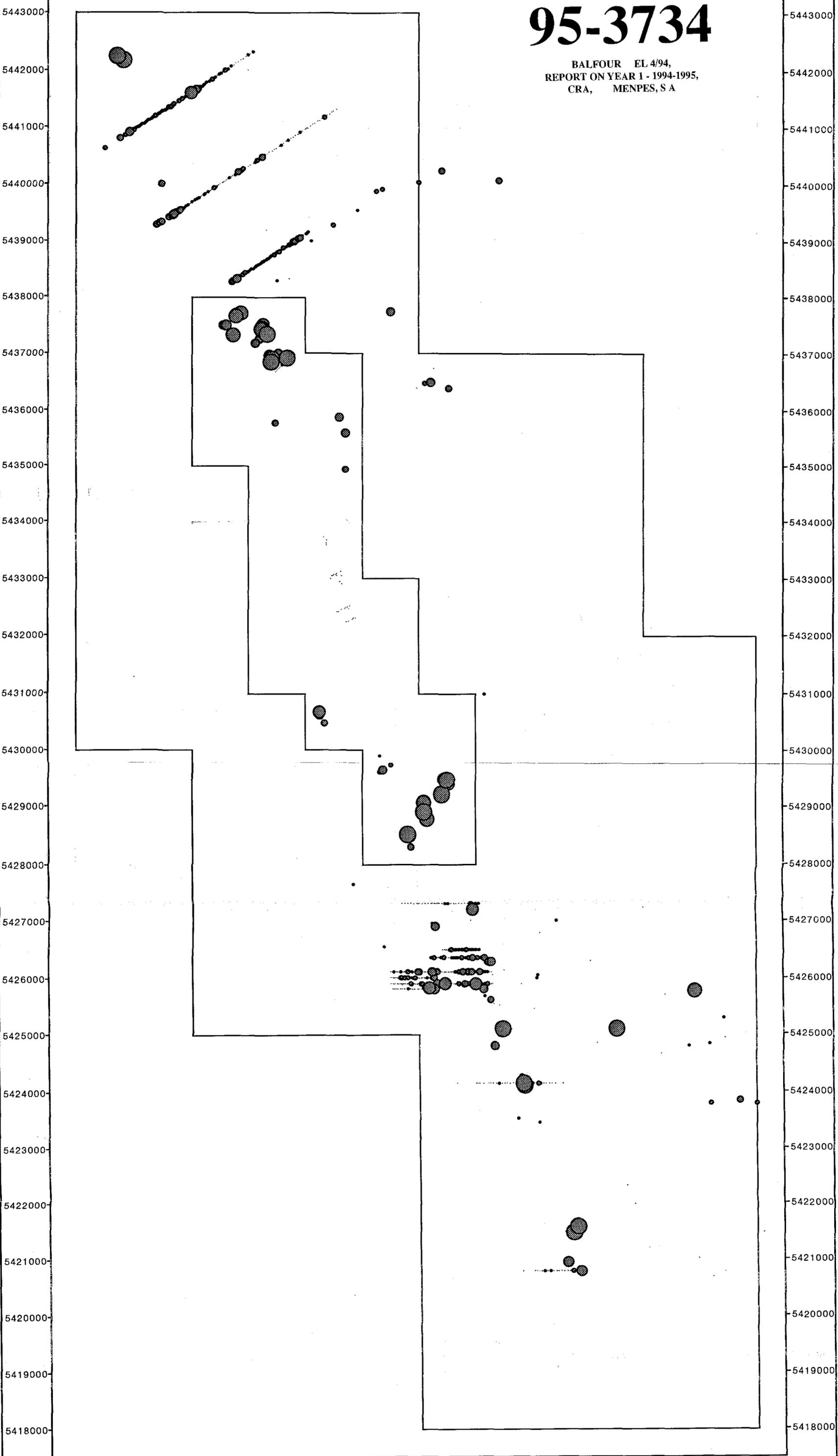
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BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A



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CRA Exploration Pty Limited

BALFOUR Cu PROJECT - EL18/92 & EL4/94
SOIL & ROCK GEOCHEM - As ppm

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All Samples

jmap

1000m

5 cm

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BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A



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- -10
- 10-20
- 20-50
- 50-100
- 100-200
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- 500-1000
- 1000-2000
- +2000

794025

CRA Exploration Pty Limited		
BALFOUR Cu PROJECT - EL18/92 & EL4/94		
SOIL & ROCK GEOCHEM - Zn ppm		
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All Samples

1000m

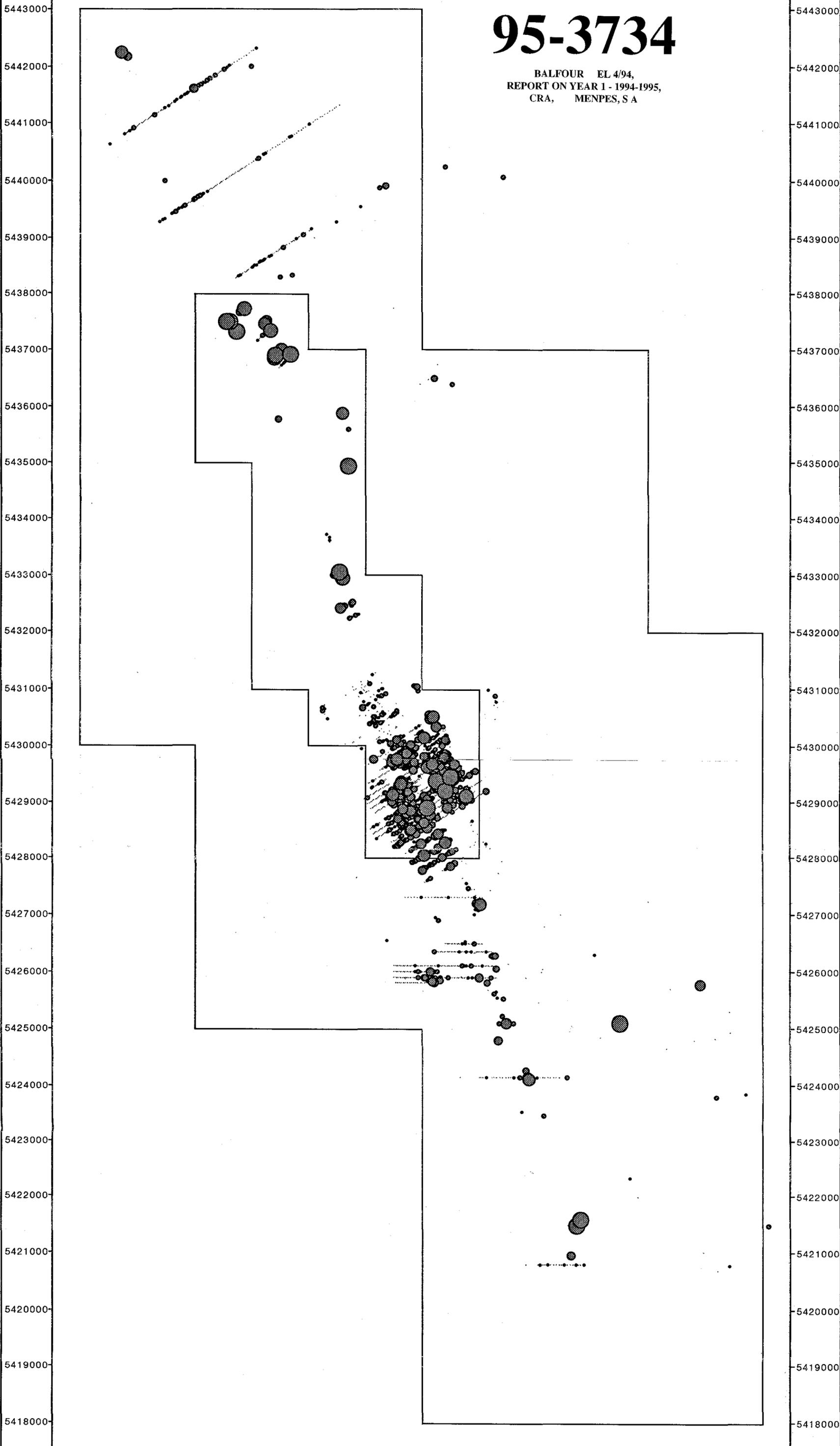
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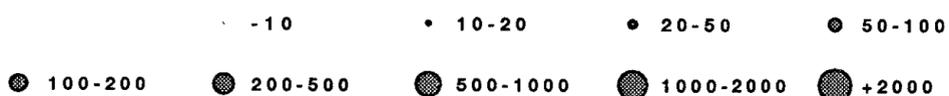
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BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A



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794026

CRA Exploration Pty Limited

BALFOUR Cu PROJECT - EL18/92 & EL4/94
SOIL & ROCK GEOCHEM - Cu ppm

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All Samples

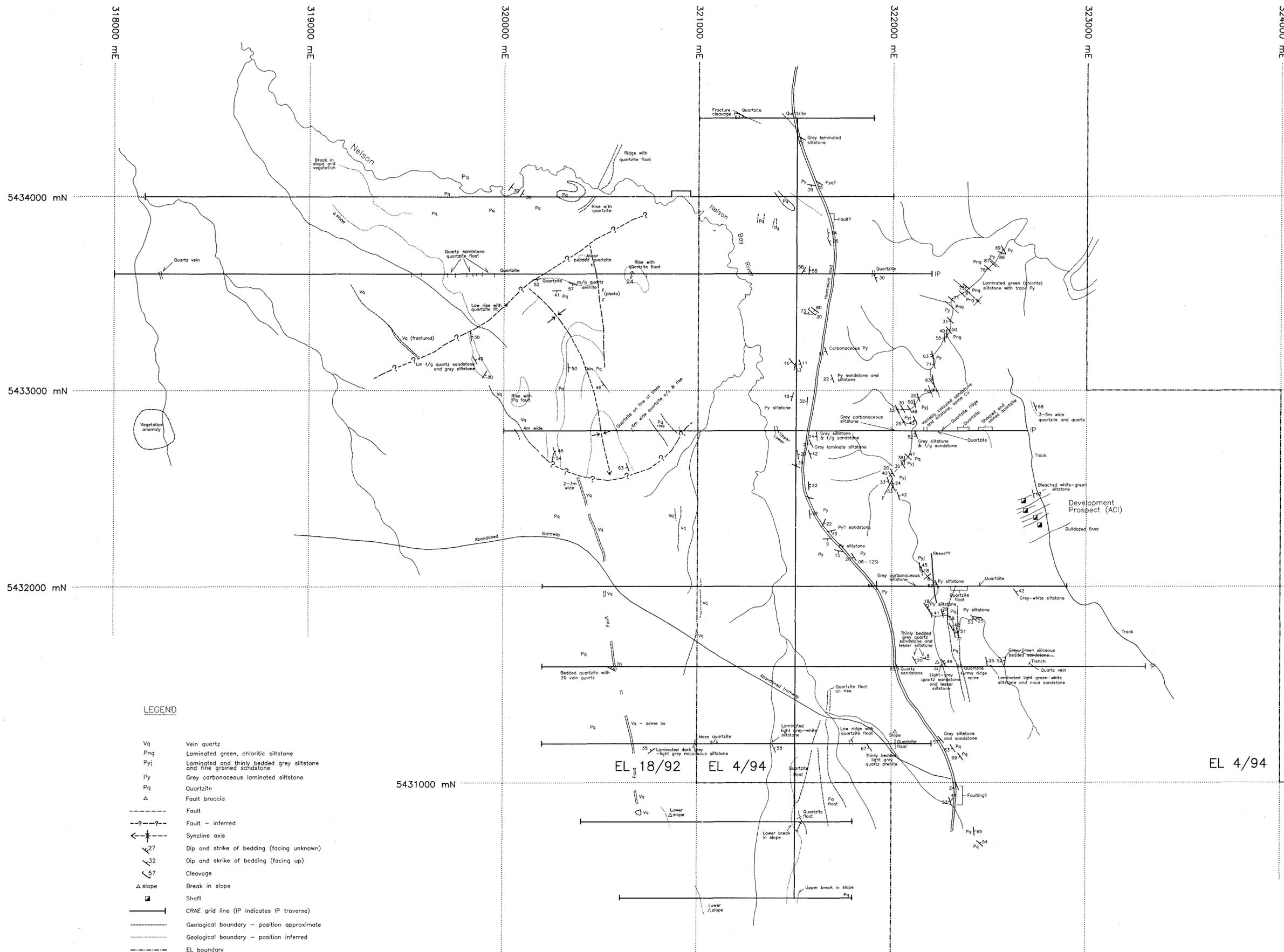
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1000m

5 cm

95-3734

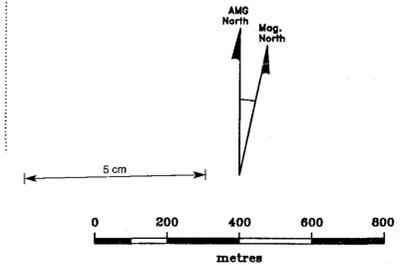
BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, SA



LEGEND

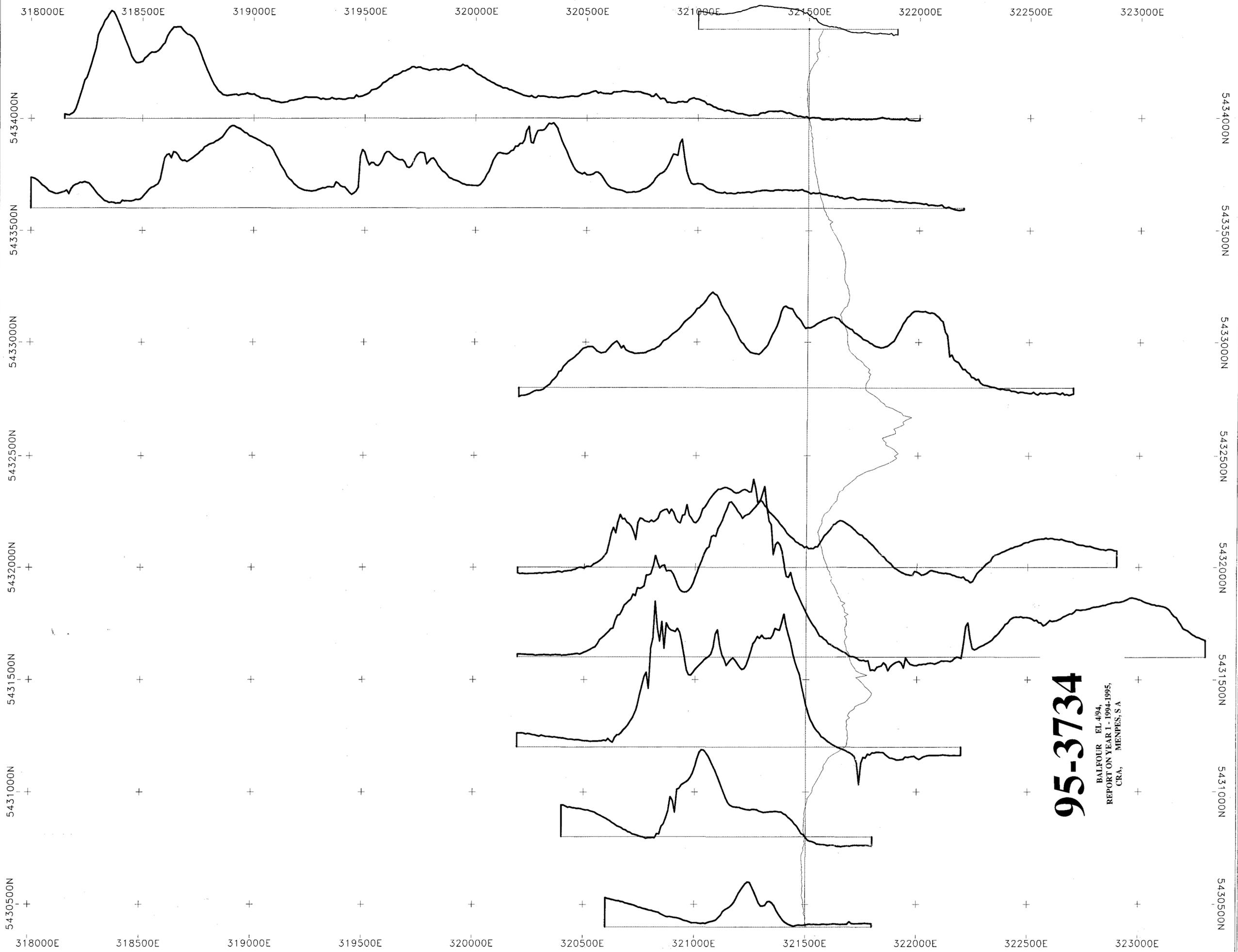
- Vq Vein quartz
- Png Laminated green, chloritic siltstone
- Pyl Laminated and thinly bedded grey siltstone and fine grained sandstone
- Py Grey carbonaceous laminated siltstone
- Pq Quartzite
- △ Fault breccia
- - - - - Fault
- - - - - Fault - inferred
- ← - - - - Syncline axis
- ↘ 27 Dip and strike of bedding (facing unknown)
- ↘ 32 Dip and strike of bedding (facing up)
- ↘ 57 Cleavage
- △ slope Break in slope
- Shaft
- CRAE grid line (IP indicates IP traverse)
- Geological boundary - position approximate
- Geological boundary - position inferred
- EL boundary

EL 4/94 EL 18/92

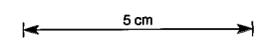
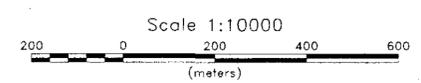
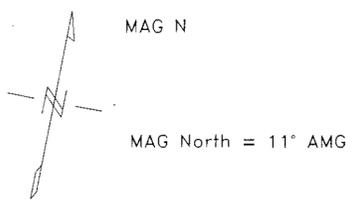


794027
CRA EXPLORATION PTY. LIMITED
**BALFOUR EL 4/94
MT. FRANKLAND EL 18/92
Nelson Prospect
Geological Fact Map**

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Scale: 1:10,000	Date: May 1995
Author: M. Donnelly	Report No.: 20878
Drawn: T. Sargeant	Plan No.: Tv957



Vertical scale: 50 nT/cm
 Base level: 62000 nT

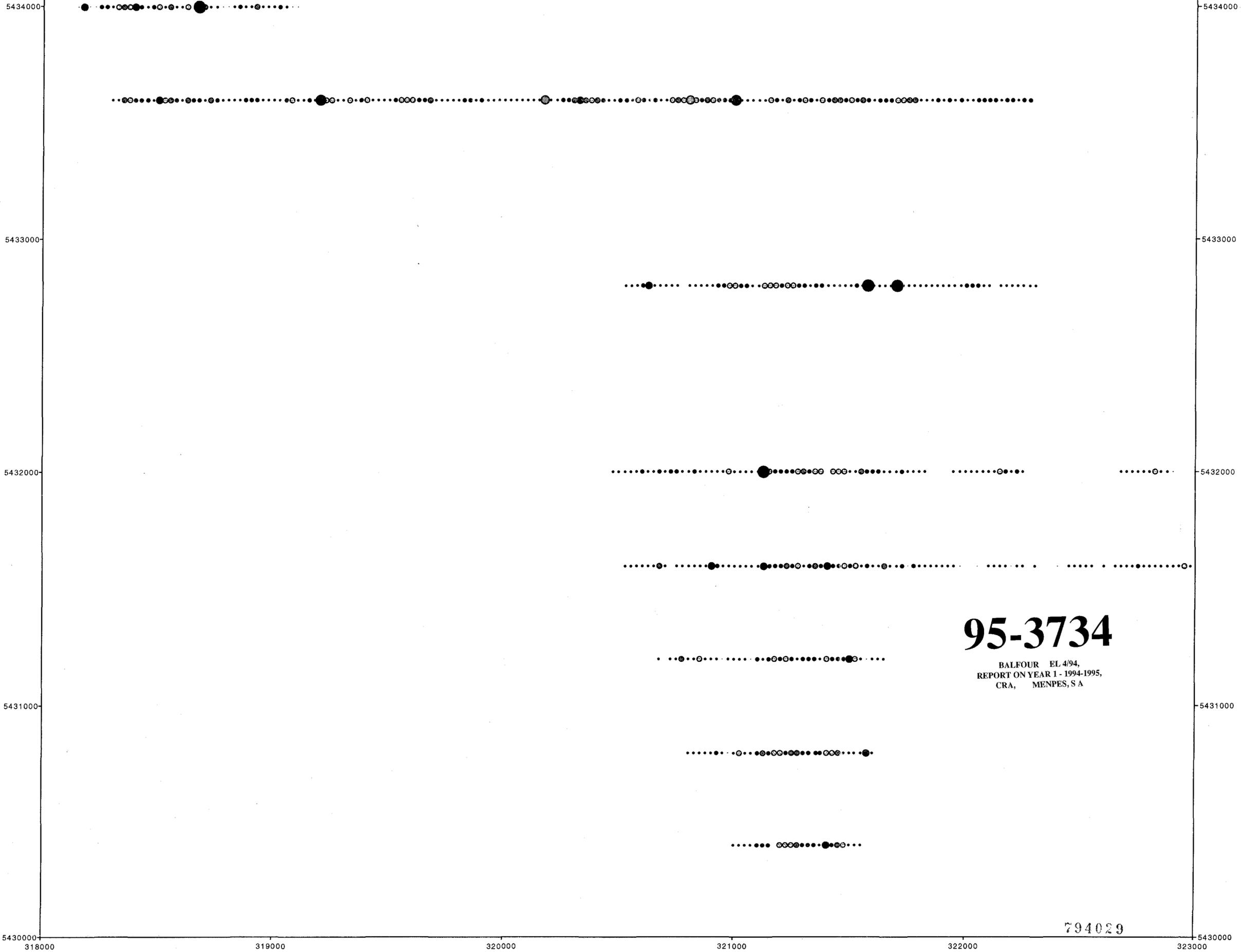


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 BALFOUR EL 4/94,
 REPORT ON YEAR 1 - 1994-1995,
 CRA, MENPES, SA

794028

CRA EXPLORATION PTY. LIMITED		
MT FRANKLAND EL 18/92 & BALFOUR EL 4/94		
NELSON PROSPECT		
GROUND MAGNETIC STACKED PROFILES		
BURNIE SK55-03		
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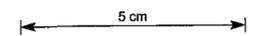
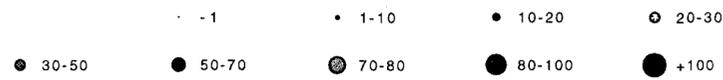
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95-3734

BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A

794029



CRA EXPLORATION PTY. LIMITED
 Nelson Prospect
 Cu
 All Samples
 Scale = 1:10000
 100m

CRA EXPLORATION PTY. LIMITED	
MT FRANKLAND EL 18/92 & BALFOUR EL 4/94	
NELSON PROSPECT	
SOIL AND BEDROCK GEOCHEMISTRY	
Cu	
Ref.: SK55-3	Scale: 1 : 10 000
Author: S.A.MENPES	Report No.: 20878
Drawn: MAY 1995	Plan No.: Tv 958

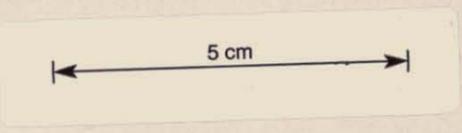
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APPENDIX 1

Report on Geological Mapping and Rock Chip Sampling around The Clump,
Murrays Reward and Other Localities in EL 4/94, Balfour District, North
Western Tasmania. Prepared by N J Turner



MAP 9
 CURRENT MINING LEASES IN EL 18/92
 SCALE 1:10000



794031

1M/76 ; 2M/76 : N.R. Langsford & M. Laan
 4M/74 : J.H. Holloway & R.J. South
 1M/87 : P. Cosmetto & B.C. Ling

Note: Langsford and Laan held most of the ground between Murrays Reward and 2M/76 under another lease numbered 8M/78 but this has lapsed.

EL 4/94

794032

**CRA EXPLORATION PTY LTD
1/23 Bell Street, Preston, 3072**

**REPORT ON GEOLOGICAL MAPPING AND ROCK CHIP SAMPLING
AROUND THE CLUMP, MURRAY'S REWARD AND OTHER
LOCALITIES IN EL18/92, BALFOUR DISTRICT,
NORTH WESTERN TASMANIA**

**Prepared by: N J Turner Geological Services
65 Lochner Street
West Hobart 7000**

Telephone: (002) 34 2652
Fax: (002) 36 9599

19 September 1994

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SUMMARY

- Near The Clump and at Murrays Reward copper mineralisation occurs in regional fractures that have experienced episodes of tension and of compressive shear.
- In detail the Murrays Reward deposit in the open pit consists of a swarm of thin quartz-sulphide veins that bulk out as a very low grade copper body of over 23 metres in width. Within the swarm there is a strongly sheared zone in which there are small, high grade lenses of remobilised copper ore.
- The sheared zone corresponds to a faulted contact between dark carbonaceous siltstone to the west and pale carbon-poor siltstone to the east. In the carbonaceous siltstone there are copper-anomalous beds rich in disseminated, syngenetic pyrite. These beds may have contributed substantial sulphur together with some arsenic and copper to the vein system. However, most copper in the deposit is thought to have been derived from elsewhere and transported in fluids circulating in the fracture.
- Markedly different metals content along with considerable uniformity and great regional extent set the Murrays Reward - Clump copper mineralisation apart from the complex, variable and regionally restricted tin-copper mineralisation around Specimen Hill. The two styles of mineralisation are thought to have had different evolutions with the Specimen Hill style being fairly directly granite-related.
- No evidence of copper has been found in the sandy formation (Pyq) in the west of the area of interest. However, the best section through the top of the formation is yet to be sampled.
- There are several interesting lead-zinc occurrences in the west of EL18/92. Previous exploration work defined a surface lead-zinc anomaly east of Mt Balfour and south of the Heemskirk Road. The anomaly is over carbonaceous siltstone and fine sandstone (Py) which occupy a stratigraphic position not far above the sandy formation (Pyq). Other early work showed anomalous lead-zinc in a position near the Balfour Track, stratigraphically similar to the southern occurrence. Further north, near The Clump, there is disseminated lead-zinc mineralisation in quartz sandstone in Py that is unlike the vein-style base metal mineralisation around Specimen Hill. Further investigation is needed to establish the nature and significance of these various lead-zinc occurrences.

RECOMMENDATIONS

- Early work by ACI has substantially tested the copper mineralisation near Murrays Reward but there is potential for usefully extending their work in The Clump area. They were concerned that sulphide losses during drilling at The Clump may have caused underestimation of copper grades. This possibility could be tested by re-drilling holes no. 6 and 9 using better techniques. Also, the ACI work did not test copper-anomalous rocks outside the fracture zone. In particular, geophysical work east of the fracture zone, aimed at rocks in the Py/Pn/Png zone, is desirable.
- Follow-up work should be undertaken on the unusual lead-zinc sample from beside the Heemskirk Road, south of The Clump.

- There should be further assessment of the lead-zinc features east of Mt Balfour and near the Balfour Track. This work should include examination of drill core combined with further field inspection and sampling. The uppermost part of Pyq should also be sampled during this work.
- It seems likely that when some types of circulating fluids encounter the richly pyritic, carbonaceous siltstone they will deposit their metals. Further strategic mapping and sampling of the siltstone may be justified on this basis. The rock-type may also be worth further assessment in terms of primary lateral variations in metal content. In particular, siltstone in the belt of country between Blackwater Road and the Frankland Road localities should be investigated.

INTRODUCTION

Reconnaissance regional mapping and sampling in EL18/92 is described in previous reports (Turner, 1994, a, b, c). These reports outline the various rock units, their stratigraphy and structure, and give the analytical results for 38 rock chip samples.

The more detailed 1:10,000 mapping presented in this report has been aimed at establishing the settings of the mineralised rocks near The Clump and around Murrays Reward. In the Murrays Reward area considerable use has been made of a highly detailed set of 1:1,200 maps that were produced by ACI (Anon., 1973) during their investigation of the area.

A further 88 rock chip samples have been assayed. These have been aimed at:

1. Investigating the possible presence of stratabound or stratiform copper mineralisation which may have been a source of copper and other constituents in the Murrays Reward-Clump style of copper mineralisation.
2. Characterising the metals content of the Murrays Reward-Clump copper mineralisation and the Specimen Hill tin-copper mineralisation so the two styles could be compared and their relationship inferred.
3. Investigating other possible styles of mineralisation in EL18/92.

The locations of previous diamond drill holes in EL18/92 have been compiled and plotted at 1:10,000 scale. A preliminary assessment has been made of the drilling results with a view to determining their implications for further work.

SETTING OF THE CLUMP AND MURRAYS REWARD COPPER MINERALISATION

Near The Clump (Map 1) and at Murrays Reward (Map 2) copper mineralisation is located in regional fracture zones. In each area the fracture zone has experienced episodes of tensional opening and compressional shear. The copper mineralisation was probably emplaced during a tensional episode in association with quartz/carbonate veins. Emplacement was followed by shearing which was concentrated in particular intervals within the fracture zones and was apparently associated with remobilisation of sulphide ore.

In both areas the fracture zones vary in width from several metres to several tens of metres. The quartz veins they contain are usually intensely fractured and disrupted. There are disrupted blocks of siltstone and chloritic rocks which appear to be the products of alteration. In surface (costean) exposures the rocks are commonly deeply leached and the dolomite which exists at

depth (McIntyre, 1973) is represented by soft white sandy materials. Sulphide mineralisation is rarely discernible in the costeans though systematic sampling and analysis by previous workers (e.g. McIntyre, 1973) has clearly delineated chemically anomalous intervals.

Where it is exposed in the open cut (Map 4, Plate 1), the Murrays Reward copper mineralisation includes thin, high grade covellite-chalcopyrite ore and closely associated quartz veins occupying part of a sheared zone that is several metres wide (Plates 2, 3). In the country rocks on either side of the sheared zone there are common thin, sulphide-bearing quartz veins which contribute to a broad (>23m wide) zone of very low grade copper.

The high grade ore in the pit at Murrays Reward is located at a contact between dark carbonaceous siltstone and pale carbon-poor siltstone. The carbonaceous siltstone formation outcrops along the western side of the fracture zone, from south of Murrays Reward to north of Central Mt Balfour. In The Clump area the copper-bearing fracture zone is located almost entirely within a formation of dark carbonaceous siltstone.

At Murrays Reward the dark grey siltstone interval west of the main fracture zone contains short wavelength folds. The interval dips generally westward and the sedimentary facing is westward. In contrast, rocks around the mine show little in the way of short wavelength folds. They face eastward and either dip eastward or are steeply overturned (Map 2). Thus, it appears that the grey siltstone interval in the mine was rotated during fracturing and shearing. The sense of rotation indicates that movement on the sheared fracture had an east-side-up component. The rotated interval is narrow with rocks 40 metres west of the main fracture zone displaying the general regional orientation (Map 4). There are no mineralised quartz veins at this distance from the main fracture zone.

TIN-BEARING QUARTZ VEINS

There are other mineralised quartz veins west of the Murrays Reward fracture. They are characterised by the presence of tin as well as copper. The tin-bearing veins range east from Specimen Hill to within 100 metres of the Murrays Reward fracture at Tatlows Shaft. They range at least 0.8km south of Specimen Hill to where they occur in a sheared fracture of similar trend to the Murrays Reward fracture. A tin-bearing, tourmalinised breccia zone on Specimen Hill also appears to be related to a fracture system of similar trend to the Murrays Reward fracture. This general similarity of structural control suggests that the copper-bearing veins at Murrays Reward and the tin and copper-bearing veins to the west are parts of the same mineralising system, possibly a granite-related system. However, other factors need to be considered.

OTHER POSSIBLE SOURCES OF COPPER AND SULPHUR

Murrays Reward

In the mineralised zone at Murrays Reward there are copper-anomalous beds (highest 652ppm Cu - Map 4, Table 4) in the carbonaceous siltstone which are rich in disseminated, syngenetic pyrite. It seems likely that such beds would have contributed sulphur, copper and arsenic to the mineralised quartz-vein swarm. This would be consistent with previous sulphur isotope studies (McIntyre, 1973; Veska, 1993). However, elevated tin values in parts of the mineralised zone (Map 4) suggest that there was another, more dominant source of metals.

The Clump

East of The Clump fracture zone, near and above the top of the carbonaceous siltstone formation, there are chlorite/pyrite rocks which are mostly known from gossanous lag. They are not associated with quartz veining. They are anomalous in copper (highest 1,108ppm - Table 3) and may possibly represent another source for copper and sulphur in the main fracture zone.

Frankland Road

On Frankland Road near 318800E5442200N there is a well-bedded unit of dark grey to black, carbonaceous siltstone which rests against a probably faulted contact with pale, carbon-poor siltstone (Map 5). Much of the carbonaceous siltstone is rich in disseminated, syngenetic pyrite and there are a few small, nodular bodies of pyrite in some beds.

The pyritic siltstone has elevated or anomalous copper and arsenic values (Table 5). Gold is also present but the values are low. Chemically and lithologically the rocks resemble the beds with disseminated, syngenetic pyrite that are present in the mineralised zone at Murrays Reward. The Frankland Road rocks are not associated with a vein system but their presence demonstrates the regional extent of richly pyritic, carbonaceous siltstone and thus its widespread availability as a possible source of sulphur, plus some arsenic and copper to circulating fluids.

TABLE 1: Copper Prospects - assays of selected metals

SAMPLE	copper	lead	zinc	silver	cobalt	nickel	arsenic	gold	tin	tungsten
Blackwater Road										
3757823	98	10	42	<1	3	<3	240	0.028	11	17
3757826	5.21%	12	22	69	4	9	1.5	0.249	9	7
3757827	3571	44	26	10	16	23	28.5	0.059	7	5
Un-named Shaft - 321400E5436850N										
3757866	1338	5	44	<1	169	10	639	0.068	7	13
Mt Balfour Mining Co adit										
3757867	2.48%	<3	149	2	60	56	53.5	0.018	5	<5
3757868	8.84%	34	71	4	325	55	996	0.194	38	15
3757869	2.52%	<3	56	3	29	10	700	0.088	5	14
Gully Prospect										
3757832	6.53%	20	20	3	17	14	10	0.048	65	13
Murrays Reward										
3757894	35.4%	233	121	102	41	62	354	0.106	274	14
3757895	526	75	24	6	<3	14	668	0.026	62	8
399220	96	22	25	<1	<3	<3	283	0.010	123	5
3992213	309	8	14	4	6	6	212	0.021	49	29
Mt Frankland South										
3757804	0.7%	8	43	1	66	20	1800	0.019	7	<5

TABLE 2: Tin Prospects - assays of selected metals

SAMPLE	copper	lead	zinc	silver	cobalt	nickel	arsenic	gold	tin	tungsten
Tatlovs Costean										
3757880	5896	576	3374	37	<3	<3	1.38%	0.030	2433	164
3757881	6653	156	2222	17	<3	<3	1.77%	<0.008	798	0.30%
3757882	1.62%	1532	9.94%	135	10	<3	3.31%	0.024	9106	0.10%
Southern Shaft										
3757883	1306	69	582	10	4	<3	0.65%	0.023	1757	121
3757884	566	<3	1049	1	<3	3	140	0.012	32	<5
Near Southern Shaft										
3992210	413	<3	<3	<1	<3	<3	212	<0.008	60	34
Un-named Shaft & Costean - 323800E5428500N										
3992207	83	1.45%	327	14	<3	<3		<0.008	701	5
3992208	420	481	82	79	<3	<3	11.8%	0.011	1.6%	0.3%
Robbies Workings										
3757885	2497	350	68	37	15	<3	4.31%	0.048	8.6%	8.2%

TABLE 3: Chlorite/pyrite rocks of uncertain affiliation near The Clump copper zone - assays of selected metals

SAMPLE	copper	lead	zinc	silver	cobalt	nickel	arsenic	gold	tin	tungsten
3757821	1108	24	71	1	8	5	39	0.034	8	<5
3757870	280	16	165	<1	13	10	129	0.014	<3	<5
3757864	576	13	66	<1	4	<3	35	<0.008	3	<5
3757865	601	<3	48	<1	4	<3	25.5	0.015	7	<5
3757838	758	102	22	2	5	3	23	0.019	13	8

TABLE 4: Pyritic siltstone and fine grained sandstone in Py/Pn near The Clump and Murrays Reward zones - assays of selected metals

SAMPLE	copper	lead	zinc	silver	cobalt	nickel	arsenic	gold	tin	tungsten
3757862	45	5	76	<1	4	3	20.5	<0.008	7	6
3757837	31	19	99	<1	15	20	43.5	<0.008	8	5
3992218	652	9	48	10	9	17	715	0.020	13	9
3992217	349	5	42	2	<3	12	273	0.012	12	6
3757879	281	74	82	4	8	4	144	<0.008	16	9
3992237	200	7	61	<1	<3	5	104	0.008	4	7

**TABLE 5: Py against Png on Frankland Road - pyritic carbonaceous siltstone
- assays of selected metals**

SAMPLE	copper	lead	zinc	silver	cobalt	nickel	arsenic	gold	tin	tungsten
3757829	30	38	33	<1	32	42	180	0.024	8	<5
3757830	782	87	67	2	73	270	1230	0.028	6	<5
3757831	32	24	15	<1	<3	<3	3.5	<0.008	10	6
3757871	122	28	66	<1	81	85	696	0.012	9	9
3757872	66	4	78	<1	15	16	25	0.013	6	9
3757873	86	13	70	<1	6	5	11	0.016	7	7
3757874	49	17	66	<1	28	42	48	0.022	9	12
3757875	84	11	66	<1	55	53	38.5	0.022	11	<5
3757876	73	29	58	<1	34	51	102	0.028	12	<5
3757877	24	17	50	<1	3	<3	3.5	0.018	8	6
3757878	11	14	76	<1	<3	<3	3	0.012	8	8

COMPOSITIONS OF THE COPPER AND TIN-COPPER MINERALISATION

Limited assay data (Table 1) indicate that the mineralisation in The Clump fracture zone and at the Gully Prospect is anomalous in copper, mostly anomalous in arsenic and sporadically anomalous in zinc, silver, cobalt and tin. However, only copper and occasionally silver display high grades. Gold is present but the values are low. Copper mineralisation at Murrays Reward displays generally similar metal content to The Clump mineralisation. So does the minor mineralisation in Waratah Creek SSE of Mt Frankland. Thus, the style of mineralisation represented in these various localities appears fairly uniform and unzoned over distances of several kilometres in individual fractures and over much greater distances regionally.

The uniformity of the Murrays Reward-Clump copper mineralisation together with its simple mineralogy contrasts with the variability of the tin-copper mineralisation west of Murrays Reward (Table 2). The tin-copper mineralisation is anomalous in tin and copper and is mostly anomalous in lead, zinc, silver, arsenic and tungsten. Grades for these various metals are very variable but can be relatively high for any of them. In contrast cobalt and nickel contents are uniformly very low.

RELATIONSHIP OF THE COPPER AND TIN-COPPER MINERALISATION

The tin-copper mineralisation around Specimen Hill resembles granite-related mineralisation elsewhere in Tasmania, though no clear zoning has been recognised across the field. Also, there are copper deposits similar to the Murrays Reward deposit in granite-related fields elsewhere, for example, the Orieco deposit in the Scamander field.

However, the uniformity displayed by the Murrays Reward-Clump style of mineralisation and its regional extent from The Clump to the Toner River, a distance of over 30 kilometres, sets it

apart from the localised tin-copper mineralisation of Specimen Hill. It seems unlikely that the metals present in The Clump and Murrays Reward deposits could have been concentrated from the pyritic carbonaceous siltstone and sandstone though these rocks could have provided a large part of the sulphur and some metals in the deposits.

The work so far has not provided a satisfactory explanation of the source of copper in the Murrays Reward-Clump style deposits. A source else where in the Proterozoic rocks of north-western Tasmania remains a possibility.

Similarities of structural control suggest that the copper and tin-copper mineralisation at Murrays Reward and Specimen Hill are of broadly similar age. However, it seems that the fracture zones at The Clump, Murrays Reward and elsewhere tapped a different, regionally more extensive fluid system compared with the system represented in the veins and fractures around Specimen Hill.

OTHER POSSIBLE MINERALISATION STYLES IN EL18/92

Introduction

In the western part of the area of interest (Maps 2, 3) there is an extensive formation (Pyq) which contains well sorted, quartz arenite that was deposited in shallow water to possibly emergent conditions. This sandy formation is overlain by a formation rich in dark grey carbonaceous siltstone (Py).

Part of the rock-chip sampling programme was aimed at testing the upper levels of the sandy formation for possible copper enrichment.

Sampling

Quartz arenite samples were collected along part of the Heemskirk Road just south of the old Balfour-Temma tramline and in a creek just west of Matrix Creek, near the Balfour Track. No significant metal values were obtained (3992239-3992249 in Appendix 2, Map 7).

Compilation of the geological mapping has since shown that the best section through the top of the sandy formation is in a tributary of Matrix Creek some 400 metres WSW of Specimen Hill (Map 2). This section should be sampled in the future.

Previously (Turner, 2.5.94, Sample 3757835), quartz sandstone in Py was collected from the south cutting on the Heemskirk Road just south of The Clump. It contained scattered patches of pyrite and recognisable sphalerite. It assayed 799ppm lead, 755ppm zinc, 1ppm silver and 11ppm arsenic. The style of mineralisation is unknown elsewhere in EL18/92 and the sample warrants follow-up.

GEOLOGY AND AEROMAGNETICS IN A BELT THROUGH SPECIMEN HILL

In combination, the new aeromagnetics obtained by CRAE and the mapping presented here (Map 6) show that the linear aeromagnetic anomaly which passes north through Specimen Hill transects stratigraphic boundaries. The anomaly is not directly related to the grey siltstone unit (Py). Instead it is apparently related to a fault that has been mapped by various workers on Specimen Hill itself and whose northern extension is recognisable in ACI's very detailed mapping and in work by CRAE around diamond drill hole DD82BC7 (Dickson, 1983). Drill hole DD82BC7 identified the source of the magnetic anomaly as pyrrhotite in an interval corresponding to the

extrapolated position of the fault.

PREVIOUS DIAMOND DRILLING IN EL18/92

Programmes of diamond drilling were carried out on the tin-copper mineralisation around Specimen Hill by BHP, by GEOPEKO and by CRAE-GEOPEKO (Appendix 3, Map 8). In all 18 holes were drilled, of which most were directly concerned with testing the tin-tungsten content of the mineralisation on and around Specimen Hill.

However, GEOPEKO's hole 10 (Porter, 1980) was drilled into the dark grey siltstone formation (Py) where it overlies the sandy formation (Pyq) near the Balfour Track north west of Specimen Hill. Anomalous zinc values of 110-300ppm were obtained between 24 metres depth and the bottom of the hole at 39 metres. Some 1.4 kilometres to the south CRAE-GEOPEKO's hole 3 (Heithersay, 1982) was drilled in a similar stratigraphic position. It was aimed at testing the best developed lead/zinc anomaly west of Specimen Hill but was not thought to satisfactorily explain the surface anomaly. Further consideration and investigation of the possibly corresponding base metal features at the two drill sites is warranted.

ACI carried out a programme of drilling on the Murrays Reward-Clump copper mineralisation (Appendix 3, Maps 1, 3 and 8). They drilled eight holes at The Clump, one hole at each of the Gully and Development Prospects, three at the Blocks Prospect, three at Central Mt Balfour, 16 at Murrays Reward, one south of Murrays Reward across Tin Creek, two at the Pierpont Morgan Prospect and two at the Waratah Prospect. In all, ACI drilled 37 holes.

The pattern of drilling around Murrays Reward (Map 8) shows how ACI followed mineralisation that had been remobilised into an oblique fracture striking NW - and dipping 55° SW (McIntyre, 1973). This fracture was not identified on the surface during the present round of mapping.

ACI drilled relatively few holes at Central Mt Balfour. They only drilled one hole south of Tin Creek which returned an ore intersection of 3.1 metres at 2.1% Cu. This is comparable with intersections at Murrays Reward.

ACI's drilling in The Clump mineralised zone was not regarded as satisfactory. Core recovery was low and there was concern that friable supergene sulphides may have been washed away (McIntyre, 1973). In particular, redrilling of holes 6 and 9 (Map 1) with a better technique was thought desirable.

CURRENT MINERAL LEASES IN EL18/92

Only four mineral leases are current in EL18/92 (Appendix 4, Map 9). One (2M/76) is just north of Central Mt Balfour, another (1M/76) is at Murrays Reward, the third (4M/74) is between Specimen Hill and Tatlows Shaft, whilst the fourth (1M/87) is about 0.5 kilometres south of Murrays Reward.

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PLATES 1-6



PLATE 1: Looking generally SE across Specimen Hill (S) to Mt Frankland (F). Mt Hazelton (H) and the Balfour Track (BT) on the right. Earthworks at Murrays Reward (M) across the stripped top of Peters Ridge (P) with the white costeans of Central Mt Balfour (C), also Cassiterite Creek (CC) on the left. Balfour township is in the forest on the skyline ridge behind Central Mt Balfour.



PLATE 2: Southern end of Murrays Reward open cut. The tape marks AB in Map 4. CD in Map 4 runs along the shallow gutter in the right middle ground.



PLATE 3: Close-up of the main fracture zone which is just left of Martin Laan in Plate 2. The tip of the pick rests on the copper-rich interval of samples 7894, 7895.

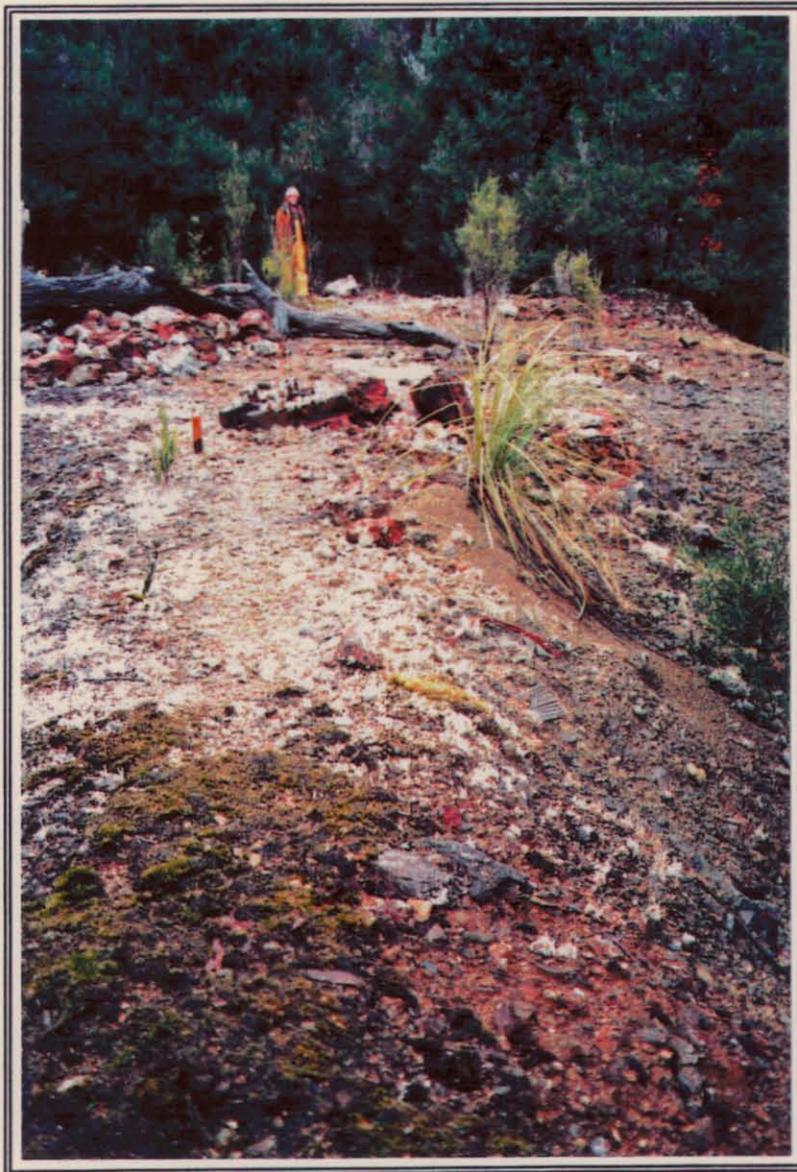


PLATE 4: The spoil dump just east of the old Mt Balfour Mining Co adit north east of The Clump. Access is down the creek from the shaft.



PLATE 5: Pyrite-rich quartz vein similar to sample 3757869. Spoil dump of Plate 4.

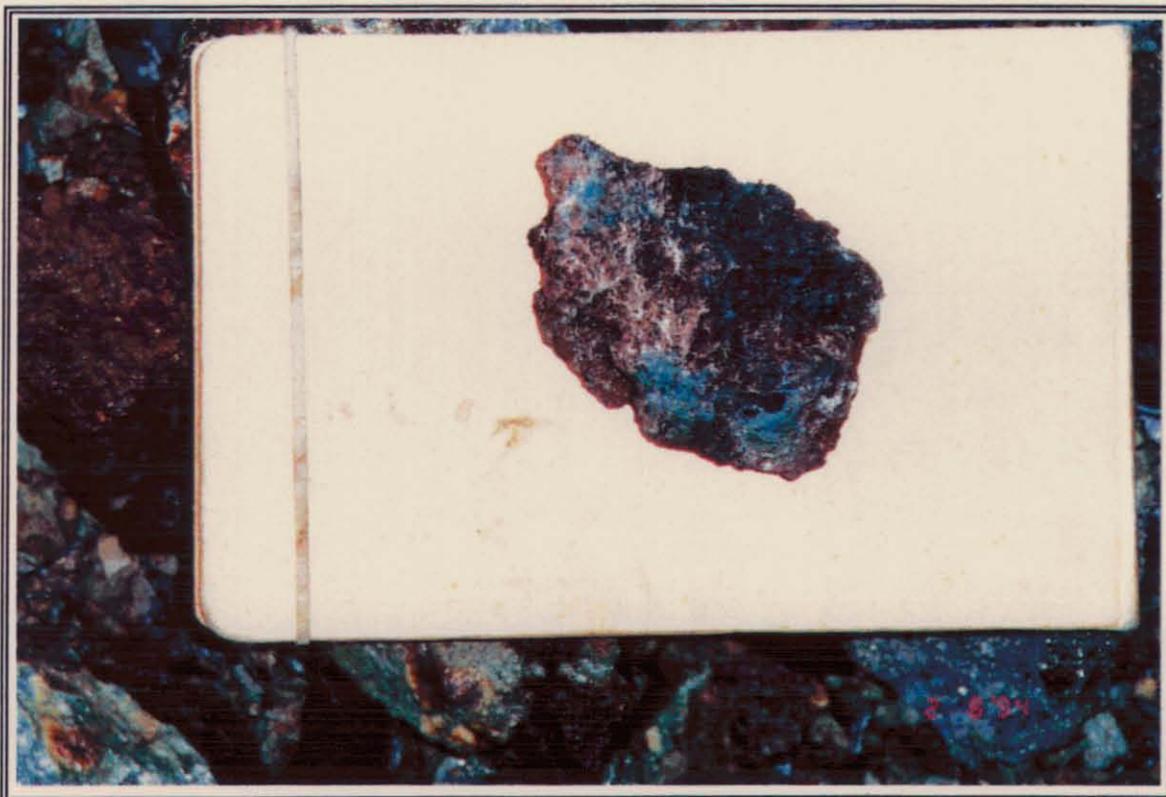


PLATE 6: Oxidised copper ore. The sample is resting on a field book which rests on relatively unoxidised ore. Spoil dump of Plate 4.

APPENDIX 1:
ROCK CHIP SAMPLES

CRA No	AMG	Remarks
3757862	321350E5437300N	Laminated sandstone with pyrite
3757863	321275E5437425N	Dark grey siltstone with limonite
3757864	321225E5437475N	Granular chlorite with pyrite
3757865	321525E5437000N	Chloritic siltstone with sulphide
3757866	321400E5436850N	Pyrite in quartz gangue
3757867	321675E5436925N	Chalcopyrite in chloritic siltstone
3757868	321675E5436925N	Pyrite/chalcopyrite in quartz
3757869	321675E5436925N	Pyrite/chalcopyrite in quartz
3757870	321250E5437525N	Chloritic siltstone with pyrite
3757871	318800E5442200N	Dark grey siltstone with 3mm pyrite band
3757872	318800E5442200N	Grey siltstone with 1-3mm pyrite bands
3757873	318800E5442200N	Grey siltstone
3757874	318800E5442200N	Grey to black siltstone with disseminated pyrite
3757875	318700E5442250N	Black siltstone with ? fine pyrite
3757876	318675E5442250N	Black siltstone rich in disseminated pyrite
3757877	318675E5442250N	Black siltstone, no visible pyrite
3757878	318675E5442250N	Black siltstone, no visible pyrite
3757879	324525E5429375N	Green pyritic sandstone
3757880	324400E5429200N	Pyrite, grey ? sulphide, quartz
3757881	324400E5429200N	Siderite with chalcopyrite, ? sphalerite
3757882	324400E5429200N	Grey ? sulphide, minor chalcopyrite, quartz
3757883	324075E5428900N	Quartz vein with pyrite, ? sphalerite
3757884	324075E5428900N	Black, vitreous mineral/rock, no sulphide apparent
3757885	324075E5428900N	Quartz vein with pyrite, ? sphalerite
3757886	324500E5429450N	Pale siltstone with quartz veins
3757887	324500E5429450N	Pale siltstone with quartz veins
3757888	324500E5429450N	Quartz vein with gossan
3757889	324500E5429450N	Pale siltstone with quartz veins
3757890	324500E5429450N	Pale siltstone with quartz veins
3757891	324500E5429450N	Sheared quartz/pale siltstone
3757892	324500E5429450N	Sheared quartz/pale siltstone
3757893	324500E5429450N	Sheared quartz/pale siltstone
3757894	324500E5429450N	Very rich in covellite
3757895	324500E5429450N	Sheared dark grey siltstone with malachite
3757896	324500E5429450N	Sheared quartz/grey siltstone breccia

3757897	324500E5429450N	Dark grey siltstone with quartz veins
3757898	324500E5429450N	Dark grey siltstone with quartz veins
3757899	324500E5429300N	Dark grey siltstone with quartz veins
3757900	324500E5429300N	Dark grey siltstone with quartz veins
3992201	324500E5429300N	Dark grey siltstone with quartz veins
3992202	324500E5429300N	Dark grey siltstone with quartz veins
3992203	324500E5429300N	Dark grey siltstone with quartz veins
3992204	324500E5429300N	Dark grey siltstone with quartz veins
3992205	324500E5429300N	Dark grey siltstone with quartz veins
3992206	324500E5429300N	Dark grey siltstone with quartz veins
3992207	323800E5428500N	Quartz vein with pyrite, ? sphalerite
3992208	323800E5428500N	Medium grained quartz/muscovite, granitic texture
3992209	324075E5429050N	Quartz vein with gossan
3992210	324125E5428775N	Green siltstone with limonite
3992211	324500E5429500N	Dark grey siltstone with quartz veins
3992212	324500E5429500N	Dark grey siltstone with quartz veins
3992213	324500E5429500N	Pyritic, limonitic quartz vein
3992214	324500E5429500N	Dark grey siltstone with quartz veins
3992215	324500E5429500N	Dark grey siltstone with quartz veins
3992216	324500E5429500N	Dark grey siltstone with quartz veins
3992217	324500E5429500N	Grey siltstone with disseminated pyrite
3992218	324500E5429500N	Pale sandstone, pyrite-rich
3992219	324500E5429500N	Dark grey siltstone with quartz veins
3992220	324500E5429500N	Dark grey siltstone with quartz veins
3992221	324500E5429500N	Dark grey siltstone with quartz veins
3992222	324500E5429500N	Dark grey siltstone with quartz veins
3992223	324500E5429500N	Dark grey siltstone with quartz veins
3992224	324500E5429500N	Dark grey siltstone with quartz veins
3992225	324500E5429500N	Dark grey siltstone with quartz veins
3992226	324500E5429500N	Dark grey siltstone with quartz veins
3992227	324500E5429500N	Dark grey siltstone with quartz veins
3992228	324500E5429500N	Dark grey siltstone with quartz veins
3992229	324500E5429500N	Dark grey siltstone with quartz veins
3992230	324500E5429500N	Dark grey siltstone with quartz veins
3992231	324500E5429500N	Dark grey siltstone with quartz veins
3992232	324500E5429500N	Dark grey siltstone with quartz veins

3992233	324450E5429500N	Grey siltstone
3992234	324450E5429500N	Grey siltstone
3992235	324450E5429500N	Grey siltstone
3992236	324450E5429500N	Grey siltstone
3992237	324450E5429500N	Pale sandstone, pyrite-rich
3992238	324450E5429500N	Grey siltstone
3992239	322325E5430475N	Quartz arenite
3992240	322275E5430575N	Quartz arenite with scattered cavities
3992241	322275E5430600N	Quartz arenite with disseminated pyrite
3992242	322250E5430625N	Quartz arenite with disseminated pyrite
3992243	322275E5430650N	Quartz arenite with disseminated pyrite
3992244	322275E5430650N	Quartz arenite with disseminated pyrite
3992245	322250E5430675N	Quartz arenite with disseminated pyrite
3992246	322275E5430725N	Dark grey siltstone
3992247	323350E5429625N	Quartz arenite with pyrite
3992248	323350E5429600N	Quartz arenite
3992249	323300E5429575N	Quartz arenite

APPENDIX 2:

ASSAYS

DPO77676 : ROCK SAMPLES

Sample No	AMG E	AMG N	Comments
3757862	321350	5437300	Laminated sandstone with pyrite
3757863	321275	5437425	Dark grey siltstone with limonite
3757864	321225	5437475	Granular chlorite with pyrite
3757865	321525	5437000	Chloritic siltstone with sulphide
3757866	321400	5436850	Pyrite in quartz gangue
3757867	321675	5436925	Chalcopyrite in chloritic siltstone
3757868	321675	5436925	Pyrite/chalcopyrite in quartz
3757869	321675	5436925	Pyrite/chalcopyrite in quartz
3757870	321250	5437525	Chloritic siltstone with pyrite
3757871	318830	5442185	Dark grey siltstone with 3mm pyrite band
3757872	318820	5442190	Grey siltstone with 1-3mm pyrite bands
3757873	318810	5442195	Grey siltstone
3757874	318800	5442200	Grey to black siltstone with disseminated pyrite
3757875	318700	5442250	Black siltstone with? fine pyrite
3757876	318690	5442240	Black siltstone rich in disseminated pyrite
3757877	318680	5442245	Black siltstone, no visible pyrite
3757878	318670	5442230	Black siltstone, no visible pyrite

Sample No	AMG E	AMG N	Sample Type	Prospect	Comments
3757879	324525	5429375	ROCK	MURRAY'S REWARD	Green pyritic sandstone
3757880	324400	5429200	ROCK	TATLOW'S	Pyrite, grey ? sulphide, quartz
3757881	324400	5429200	ROCK	TATLOW'S	Siderite with chalcopyrite, ? sphalerite
3757882	324400	5429200	ROCK	TATLOW'S	Grey ? sulphide, minor chalcopyrite, quartz
3757883	324075	5428900	ROCK	TATLOW'S	Quartz vein with pyrite, ? sphalerite
3757884	324075	5428900	ROCK	TATLOW'S	Black, vitreous mineral/rock, no sulphide apparent
3757885	324075	5428900	ROCK	TATLOW'S	Quartz vein with pyrite, ? sphalerite
3757886	324500	5429450	ROCK	MURRAY'S REWARD	Pale siltstone with quartz veins
3757887	324499	5429449	ROCK	MURRAY'S REWARD	Pale siltstone with quartz veins
3757888	324498	5429448	ROCK	MURRAY'S REWARD	Quartz vein with gossan
3757889	324497	5429447	ROCK	MURRAY'S REWARD	Pale siltstone with quartz veins
3757890	324496	5429446	ROCK	MURRAY'S REWARD	Pale siltstone with quartz veins
3757891	324495	5429445	ROCK	MURRAY'S REWARD	Sheared quartz/pale siltstone
3757892	324494	5429444	ROCK	MURRAY'S REWARD	Sheared quartz/pale siltstone
3757893	324493	5429443	ROCK	MURRAY'S REWARD	Sheared quartz/pale siltstone
3757894	324492	5429442	ROCK	MURRAY'S REWARD	Very rich in covellite
3757895	324491	5429441	ROCK	MURRAY'S REWARD	Sheared dark grey siltstone with malachite
3757896	324490	5429440	ROCK	MURRAY'S REWARD	Sheared quartz/grey siltstone breccia
3757897	324489	5429439	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3757898	324488	5429438	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3757899	324487	5429437	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3757900	324486	5429436	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992201	324485	5429435	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992202	324484	5429434	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992203	324483	5429433	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992204	324482	5429434	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992205	324481	5429435	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992206	324480	5429436	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992207	323800	5428500	ROCK	PETER'S RIDGE	Quartz vein with pyrite, ? sphalerite
3992208	323800	5428500	ROCK	PETER'S RIDGE	Medium grained quartz/muscovite, granitic texture
3992209	324075	5429050	ROCK	PETER'S RIDGE	Quartz vein with gossan
3992210	324125	5428775	ROCK	PETER'S RIDGE	Green siltstone with limonite

Sample No.	AMG E	AMG N	Sample Type	Prospect	Comments
3992211	324479	5429437	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992212	324479	5429437	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992213	324479	5429437	ROCK	MURRAY'S REWARD	Pyritic, limonitic quartz vein
3992214	324479	5429437	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992215	324479	5429437	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992216	324479	5429437	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992217	324480	5429450	ROCK	MURRAY'S REWARD	Grey siltstone with disseminated pyrite
3992218	324480	5429450	ROCK	MURRAY'S REWARD	Pale sandstone, pyrite-rich
3992219	324480	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992220	324479	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992221	324478	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992222	324477	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992223	324476	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992224	324475	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992225	324474	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992226	324473	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992227	324472	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992228	324471	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992229	324470	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992230	324469	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992231	324468	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992232	324467	5429450	ROCK	MURRAY'S REWARD	Dark grey siltstone with quartz veins
3992233	324440	5429460	ROCK	MURRAY'S REWARD	Grey siltstone
3992234	324439	5429462	ROCK	MURRAY'S REWARD	Grey siltstone
3992235	324438	5429464	ROCK	MURRAY'S REWARD	Grey siltstone
3992236	324436	5429464	ROCK	MURRAY'S REWARD	Grey siltstone
3992237	324434	5429464	ROCK	MURRAY'S REWARD	Pale sandstone, pyrite-rich
3992238	324433	5429464	ROCK	MURRAY'S REWARD	Grey siltstone
3992239	322325	5430475	ROCK	SPECIMEN HILL	Quartz arenite
3992240	322275	5430575	ROCK	SPECIMEN HILL	Quartz arenite with scattered cavities
3992241	322275	5430600	ROCK	SPECIMEN HILL	Quartz arenite with disseminated pyrite
3992242	322250	5430625	ROCK	SPECIMEN HILL	Quartz arenite with disseminated pyrite

Sample No	AMGE	AMG N	Sample Type	Prospect	Comments
3992243	322275	5430650	ROCK	SPECIMEN HILL	Quartz arenite with disseminated pyrite
3992244	322275	5430650	ROCK	SPECIMEN HILL	Quartz arenite with disseminated pyrite
3992245	322250	5430675	ROCK	SPECIMEN HILL	Quartz arenite with disseminated pyrite
3992246	322275	5430725	ROCK	SPECIMEN HILL	Dark grey siltstone
3992247	323350	5429625	ROCK	SPECIMEN HILL	Quartz arenite with pyrite
3992248	323350	5429600	ROCK	SPECIMEN HILL	Quartz arenite
3992249	323300	5429575	ROCK	SPECIMEN HILL	Quartz arenite



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ANALYTICAL REPORT No.

104169160110516

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SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
3757667/3757878	RC Prep : GP033	Cu, Fe, In, Ag, Fe, Mn, Co, Ni/BA140 Fe(1)/BA140 Cu/BA104 Al, Au(R), Au(S)/BB309 As/HA140 As/BA140 Br, W/BA401

REMARKS

Fe(1) results are over the recommended analytical range for this method

RESULTS TO

Mr Nick Turner
65 Lochner Street
WEST HOBART TAS 7000

RESULTS TO

Mr D Hayward/Mr R Parkinson
CRA Exploration Pty Limited
P.O. Box 8093
NORTHLAND CENTRE VIC 3072

RESULTS TO

CRAE Information Systems
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MANUKA ACT 2603

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17/08/94

77676

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ETHOS	SAMPLE No									
1	3757862	45	-	5	76	<1	-	7.5	360	4
2	3757863	16	-	<3	68	<1	3.28	-	239	5
3	3757864	576	-	13	66	<1	-	23.6	233	4
4	3757865	601	-	<3	48	<1	-	19.9	237	4
5	3757866	1338	-	5	44	<1	-	16.2	101	169
6	3757867	-	2.48	<3	149	2	-	20.4	4348	60
7	3757868	-	8.84	34	71	4	-	22.6	102	325
8	3757869	-	2.52	<3	56	3	-	14.4	5981	29
9	3757870	280	-	16	165	<1	-	18.7	3105	13
10	3757871	122	-	28	66	<1	3.39	-	373	81
11	3757872	66	-	4	78	<1	2.51	-	971	15
12	3757873	86	-	13	70	<1	0.60	-	69	6
13	3757874	49	-	17	66	<1	2.60	-	122	28
14	3757875	84	-	11	66	<1	3.23	-	229	55
15	3757876	73	-	29	58	<1	4.98	-	35	34
16	3757877	24	-	17	50	<1	0.22	-	21	3
17	3757878	11	-	14	76	<1	0.16	-	20	<3
18										
19										
20										
21										
22										
23										
24	DETECTION	2	0.01	3	2	1	0.01	0.1	3	3
25	UNITS	ppm	%	ppm	ppm	ppm	%	%	ppm	ppm

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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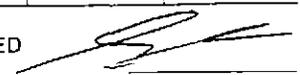
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										OF
	SAMPLE No.	Cu	Cu	Pb	Zn	Ag	Fe	Fe(L)	Mn	Ca
METHOD		GA140	GA104	GA140	GA140	EP140	GA140	GA140	GA140	GA140
1										
2										
3										
4										
5										
6										
7										
8										
9										
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METHOD	SAMPLE No.	50/40	10/40	50/10	IS	RE-00	630/2	3/10	2/10
1	3757862	3	20.5	-	<0.008	-	-	7	6
2	3757863	6	11.5	-	<0.008	-	-	8	<5
3	3757864	<3	35.0	-	<0.008	-	-	3	<5
4	3757865	<3	25.5	-	0.015	-	-	7	<5
5	3757866	10	-	639	0.068	-	-	7	13
6	3757867	56	53.5	-	0.018	-	-	5	<5
7	3757868	55	-	996	0.194	-	-	38	15
8	3757869	10	-	700	0.088	-	-	5	14
9	3757870	10	-	129	0.014	-	-	<3	<5
10	3757871	85	-	696	0.012	-	-	9	9
11	3757872	16	25.0	-	0.013	-	-	6	9
12	3757873	5	11.0	-	0.016	0.020	-	7	7
13	3757874	42	48.0	-	0.022	-	-	9	12
14	3757875	53	38.5	-	0.022	-	-	11	<5
15	3757876	51	-	102	0.028	-	-	12	<5
16	3757877	<3	3.5	-	0.018	-	-	8	6
17	3757878	<3	3.0	-	0.012	-	0.014	8	8
18									
19									
20									
21									
22									
23									
24	DETECTION	3	0.5	100	0.008	0.008	0.008	3	5
25	UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

Results in ppm unless otherwise specified
- element not determinedIS = insufficient sample
SNR = sample not receivedAUTHORISED
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ANALYTICAL REPORT No.

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9

16/09/94

1

71

SAMPLE NUMBERS

SAMPLE DESCRIPTION

ELEMENT/METHOD

3757879/900,3992201/249

RC Prep : 6P033

Cu,Pb,Zn,Ag,Fe,Mn,Co,Ni,As/6A140
Fe(1),Mn(1)/6A140
Au,Au(R),Au(S)/6B309
Cu,Pb,Zn,Ag,As/6A104
As/HA140
Sn,W/6X401
Sn,W/6X403

RESULTS
TO

Mr Nick Turner
65 Lochner Street
WEST HOBART TAS 7000

RESULTS
TO

Mr C Hayward/Robert Parkinson
CRA Exploration Pty Limited
P.O. Box 8093
NORTHLAND CENTRE VIC 3072

RESULTS
TO

CRAE Information Systems
P.O. Box 3709
MANUKA ACT 2603

REMARKS



PP Keith Hand

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METHOD	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Fe
		GA140	GA104	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	3757879	281	-	74	-	82	-	4	-	-
2	3757880	5896	-	576	-	3374	-	37	-	-
3	3757881	6653	-	156	-	2222	-	17	-	-
4	3757882	-	1.62	1532	-	-	9.94	-	135	-
5	3757883	1306	-	69	-	582	-	10	-	-
6	3757884	566	-	<3	-	1049	-	1	-	-
7	3757885	2497	-	350	-	68	-	37	-	-
8	3757886	138	-	<3	-	165	-	<1	-	3.39
9	3757887	101	-	<3	-	122	-	<1	-	2.71
10	3757888	537	-	<3	-	27	-	<1	-	-
11	3757889	107	-	<3	-	28	-	<1	-	2.57
12	3757890	338	-	3	-	31	-	<1	-	3.00
13	3757891	444	-	4	-	37	-	<1	-	2.95
14	3757892	3101	-	12	-	48	-	29	-	2.83
15	3757893	274	-	4	-	31	-	15	-	2.16
16	3757894	-	35.40	233	-	121	-	-	102	-
17	3757895	-	2.52	75	-	27	-	22	-	2.58
18	3757896	526	-	23	-	24	-	6	-	1.13
19	3757897	105	-	17	-	24	-	<1	-	0.66
20	3757898	96	-	28	-	24	-	<1	-	1.77
21	3757899	263	-	48	-	34	-	<1	-	3.74
22	3757900	329	-	230	-	49	-	<1	-	-
23	3992201	130	-	30	-	28	-	<1	-	2.77
24	3992202	94	-	25	-	30	-	<1	-	2.71
25	3992203	255	-	23	-	36	-	<1	-	3.06

Results in ppm unless otherwise specified
element not determinedIS = insufficient sample
SNR = sample not receivedAUTHORISED
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Keith Hand

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2 OF 9

METHOD	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Fe
		GA140	GA104	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	3992204	209	-	17	-	31	-	<1	-	3.42
2	3992205	293	-	34	-	34	-	<1	-	3.33
3	3992206	324	-	20	-	32	-	<1	-	3.99
4	3992207	83	-	-	1.45	327	-	14	-	4.05
5	3992208	420	-	481	-	82	-	-	79	-
6	3992209	147	-	29	-	16	-	<1	-	2.25
7	3992210	413	-	<3	-	73	-	<1	-	-
8	3992211	812	-	45	-	33	-	<1	-	-
9	3992212	465	-	21	-	33	-	<1	-	3.05
10	3992213	309	-	8	-	14	-	4	-	2.97
11	3992214	260	-	7	-	32	-	<1	-	3.15
12	3992215	324	-	26	-	34	-	<1	-	2.53
13	3992216	634	-	14	-	22	-	<1	-	2.10
14	3992217	349	-	5	-	42	-	2	-	3.66
15	3992218	652	-	9	-	48	-	10	-	-
16	3992219	136	-	10	-	30	-	<1	-	2.06
17	3992220	96	-	22	-	25	-	<1	-	1.42
18	3992221	100	-	13	-	19	-	1	-	1.07
19	3992222	588	-	16	-	23	-	2	-	2.03
20	3992223	170	-	16	-	25	-	1	-	2.11
21	3992224	278	-	20	-	23	-	4	-	1.73
22	3992225	221	-	36	-	29	-	<1	-	2.49
23	3992226	282	-	64	-	182	-	<1	-	2.33
24	3992227	190	-	27	-	29	-	<1	-	1.81
25	3992228	322	-	15	-	30	-	<1	-	2.38

Results in ppm unless otherwise specified
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3 OF 9

THOD	SAMPLE No.	Cu	Cu	Pb	Pb	Zn	Zn	Ag	Ag	Fe
		GA140	GA104	GA140	GA104	GA140	GA104	GA140	GA104	GA140
1	3992229	406	-	37	-	30	-	<1	-	4.01
2	3992230	311	-	40	-	33	-	<1	-	2.96
3	3992231	354	-	9	-	224	-	<1	-	0.72
4	3992232	88	-	<3	-	19	-	<1	-	0.26
5	3992233	54	-	3	-	27	-	<1	-	3.08
6	3992234	57	-	<3	-	21	-	<1	-	2.41
7	3992235	57	-	8	-	23	-	<1	-	2.28
8	3992236	44	-	14	-	81	-	<1	-	2.48
9	3992237	200	-	7	-	61	-	<1	-	-
10	3992238	35	-	9	-	27	-	<1	-	2.18
11	3992239	12	-	3	-	17	-	<1	-	0.55
12	3992240	6	-	<3	-	19	-	<1	-	0.31
13	3992241	9	-	<3	-	51	-	<1	-	0.90
14	3992242	25	-	60	-	44	-	<1	-	1.60
15	3992243	7	-	<3	-	22	-	<1	-	0.44
16	3992244	10	-	9	-	17	-	<1	-	0.43
17	3992245	28	-	<3	-	20	-	<1	-	0.96
18	3992246	5	-	<3	-	25	-	<1	-	0.49
19	3992247	16	-	<3	-	31	-	<1	-	3.23
20	3992248	6	-	<3	-	20	-	<1	-	0.66
21	3992249	5	-	<3	-	40	-	<1	-	2.73
22										
23										
24	DETECTION	2	0.01	3	0.01	2	0.01	1	10	0.01
25	UNITS	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%

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METHOD	SAMPLE No.	Fe(1)	Mn	Mn(1)	Co	Ni	Au	Au(R)	Au(S)	As
		GA140	GA140	GA140	GA140	GA140	GG309	GG309	GG309	HA140
1	3757879	20.1	2043	-	8	4	<0.008	-	-	-
2	3757880	19.4	599	-	<3	<3	0.030	-	-	-
3	3757881	44.2	-	2.4	<3	<3	<0.008	-	-	-
4	3757882	19.9	7328	-	10	<3	0.024	-	-	-
5	3757883	5.9	576	-	4	<3	0.023	-	-	-
6	3757884	24.9	2460	-	<3	3	0.012	-	-	-
7	3757885	23.3	1062	-	15	<3	0.048	-	-	-
8	3757886	-	129	-	<3	5	<0.008	-	-	-
9	3757887	-	189	-	<3	9	<0.008	-	-	-
10	3757888	7.1	90	-	<3	<3	0.010	-	-	-
11	3757889	-	165	-	<3	9	<0.008	-	-	33.0
12	3757890	-	116	-	<3	13	0.012	0.013	0.014	-
13	3757891	-	180	-	<3	16	<0.008	-	-	-
14	3757892	-	257	-	3	7	0.020	-	-	-
15	3757893	-	281	-	4	8	0.010	-	-	99.0
16	3757894	9.6	37	-	41	62	0.106	-	-	-
17	3757895	-	35	-	<3	24	0.026	-	-	-
18	3757896	-	121	-	<3	14	0.023	-	-	-
19	3757897	-	64	-	<3	19	0.041	-	-	28.5
20	3757898	-	160	-	<3	13	0.028	-	-	39.0
21	3757899	-	246	-	<3	15	0.016	-	-	48.0
22	3757900	6.5	319	-	<3	18	0.024	0.022	-	32.0
23	3992201	-	180	-	<3	11	0.011	-	-	20.5
24	3992202	-	183	-	<3	9	0.011	-	-	29.0
25	3992203	-	188	-	<3	11	0.013	-	-	9.5

Results in ppm unless otherwise specified
-- element not determined

IS = insufficient sample
SNR = sample not received

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M.A. Good
Keith Hand

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		104165.60.10387			16/09/94		77677		5 OF 9	
	SAMPLE No.	Fe(1)	Mn	Mn(1)	Co	Ni	Au	Au(R)	Au(S)	As
ETHOD		GA140	GA140	GA140	GA140	GA140	GG309	GG309	GG309	HA140
1	3992204	-	138	-	<3	4	0.013	-	-	9.5
2	3992205	-	156	-	<3	8	0.014	-	-	30.5
3	3992206	-	145	-	<3	5	0.017	-	-	36.0
4	3992207	-	416	-	<3	<3	<0.008	-	-	22.5
5	3992208	10.6	106	-	<3	<3	0.011	-	0.013	-
6	3992209	-	28	-	<3	<3	<0.008	-	-	-
7	3992210	10.7	1508	-	<3	<3	<0.008	-	-	-
8	3992211	5.7	129	-	<3	3	0.034	-	-	41.0
9	3992212	-	138	-	<3	3	0.021	-	-	38.0
10	3992213	-	29	-	6	6	0.021	-	-	-
11	3992214	-	163	-	<3	5	0.008	-	-	100.0
12	3992215	-	212	-	<3	3	0.011	0.010	-	38.5
13	3992216	-	98	-	<3	<3	0.010	-	-	65.0
14	3992217	-	304	-	<3	12	0.012	-	-	-
5	3992218	5.2	340	-	9	17	0.020	-	-	-
16	3992219	-	186	-	<3	3	0.016	-	-	-
17	3992220	-	119	-	<3	<3	0.010	-	-	-
18	3992221	-	89	-	<3	<3	0.016	-	-	-
19	3992222	-	106	-	3	3	0.016	-	-	-
20	3992223	-	179	-	<3	3	0.016	-	0.011	-
21	3992224	-	104	-	<3	3	0.013	-	-	-
22	3992225	-	161	-	<3	5	0.020	0.017	-	-
23	3992226	-	156	-	<3	4	0.011	-	-	54.0
24	3992227	-	113	-	<3	<3	0.008	-	-	-
25	3992228	-	157	-	<3	4	0.010	-	-	59.0

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	SAMPLE No.	Fe(1)	Mn	Mn(1)	Co	Ni	Au	Au(R)	Au(S)	As
METHOD		GA140	GA140	GA140	GA140	GA140	GG309	GG309	GG309	HA140
1	3992229	-	215	-	<3	4	0.013	-	-	-
2	3992230	-	275	-	<3	3	0.013	-	-	48.0
3	3992231	-	31	-	<3	<3	0.010	-	-	78.0
4	3992232	-	11	-	<3	<3	0.008	-	-	4.5
5	3992233	-	353	-	<3	6	<0.008	-	-	29.0
6	3992234	-	220	-	<3	<3	0.009	-	-	34.0
7	3992235	-	193	-	<3	5	<0.008	-	-	28.5
8	3992236	-	219	-	<3	8	<0.008	-	-	27.0
9	3992237	11.7	1136	-	<3	5	0.008	-	-	-
10	3992238	-	186	-	<3	6	<0.008	-	-	18.0
11	3992239	-	62	-	<3	<3	0.009	-	-	12.0
12	3992240	-	22	-	<3	<3	<0.008	<0.008	-	2.5
13	3992241	-	220	-	<3	<3	<0.008	-	-	6.5
14	3992242	-	599	-	<3	4	<0.008	-	-	42.5
5	3992243	-	40	-	<3	<3	<0.008	-	-	5.5
16	3992244	-	32	-	<3	<3	<0.008	-	-	15.0
17	3992245	-	161	-	<3	3	<0.008	<0.008	-	-
18	3992246	-	48	-	<3	<3	<0.008	-	-	4.5
19	3992247	-	536	-	<3	<3	<0.008	-	-	24.5
20	3992248	-	27	-	<3	<3	<0.008	-	-	7.0
21	3992249	-	515	-	<3	3	<0.008	-	<0.008	8.0
22										
23										
24	DETECTION	0.1	3	0.1	3	3	0.008	0.008	0.008	0.5
25	UNITS	%	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm

 Results in ppm unless otherwise specified
 - = element not determined

 IS = insufficient sample
 SNR = sample not received

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 M. J. Wood
 Keith Hand

ANALYTICAL DATA

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SAMPLE PREFIX		104165.60.10387				16/09/94		77677		7 OF 9	
	SAMPLE No.	As	As	Sn	Sn	W	W				
METHOD		GA140	GA104	GX401	GX403	GX401	GX403				
1	3757879	144	-	16	-	9	-				
2	3757880	-	1.38	2433	-	164	-				
3	3757881	-	1.77	798	-	-	0.30				
4	3757882	-	3.31	9106	-	-	0.10				
5	3757883	-	0.65	1757	-	121	-				
6	3757884	140	-	32	-	<5	-				
7	3757885	-	4.31	-	8.60	-	8.20				
8	3757886	181	-	16	-	14	-				
9	3757887	174	-	24	-	16	-				
10	3757888	260	-	15	-	<5	-				
11	3757889	-	-	21	-	15	-				
12	3757890	167	-	14	-	7	-				
13	3757891	183	-	23	-	14	-				
14	3757892	281	-	44	-	<5	-				
15	3757893	-	-	45	-	13	-				
16	3757894	354	-	274	-	14	-				
17	3757895	668	-	62	-	8	-				
18	3757896	212	-	49	-	29	-				
19	3757897	-	-	29	-	5	-				
20	3757898	-	-	16	-	10	-				
21	3757899	-	-	13	-	<5	-				
22	3757900	-	-	17	-	16	-				
23	3992201	-	-	12	-	8	-				
24	3992202	-	-	11	-	<5	-				
25	3992203	-	-	14	-	6	-				

Results in ppm unless otherwise specified
 -- element not determined

IS = insufficient sample
 SNR = sample not received

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M. A. Good
 Keith Hand

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SAMPLE PREFIX REPORT No. REPORT DATE CLIENT ORDER No. PAGE

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	SAMPLE No.	As	As	Sn	Sn	W	W				
METHOD		GA140	GA104	GX401	GX403	GX401	GX403				
1	3992204	-	-	14	-	<5	-				
2	3992205	-	-	14	-	5	-				
3	3992206	-	-	13	-	9	-				
4	3992207	-	-	701	-	5	-				
5	3992208	-	11.80	-	1.60	-	0.30				
6	3992209	467	-	125	-	<5	-				
7	3992210	212	-	60	-	34	-				
8	3992211	-	-	12	-	5	-				
9	3992212	-	-	13	-	6	-				
10	3992213	155	-	7	-	<5	-				
11	3992214	-	-	22	-	6	-				
12	3992215	-	-	17	-	<5	-				
13	3992216	-	-	15	-	13	-				
14	3992217	273	-	12	-	6	-				
15	3992218	715	-	13	-	9	-				
16	3992219	139	-	13	-	<5	-				
17	3992220	283	-	123	-	5	-				
18	3992221	110	-	19	-	5	-				
19	3992222	105	-	16	-	5	-				
20	3992223	130	-	15	-	<5	-				
21	3992224	137	-	36	-	<5	-				
22	3992225	196	-	40	-	<5	-				
23	3992226	-	-	71	-	8	-				
24	3992227	104	-	16	-	10	-				
25	3992228	-	-	13	-	7	-				

Results in ppm unless otherwise specified
 -- = element not determined

IS = insufficient sample
 SNR = sample not received

AUTHORISED OFFICER *M. G. Hand*
Keith Hand



794072

ANALYTICAL DATA

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	SAMPLE No.	As	As	Sn	Sn	W	W		
METHOD		GA140	GA104	GX401	GX403	GX401	GX403		
1	3992229	103	-	14	-	<5	-		
2	3992230	-	-	16	-	<5	-		
3	3992231	-	-	6	-	6	-		
4	3992232	-	-	10	-	7	-		
5	3992233	-	-	13	-	7	-		
6	3992234	-	-	12	-	<5	-		
7	3992235	-	-	9	-	<5	-		
8	3992236	-	-	11	-	11	-		
9	3992237	104	-	4	-	7	-		
10	3992238	-	-	10	-	7	-		
11	3992239	-	-	6	-	<5	-		
12	3992240	-	-	3	-	<5	-		
13	3992241	-	-	5	-	<5	-		
14	3992242	-	-	6	-	6	-		
15	3992243	-	-	4	-	<5	-		
16	3992244	-	-	6	-	<5	-		
17	3992245	117	-	10	-	<5	-		
18	3992246	-	-	13	-	7	-		
19	3992247	-	-	5	-	<5	-		
20	3992248	-	-	7	-	<5	-		
21	3992249	-	-	14	-	<5	-		
22									
23									
24	DETECTION	100	0.05	3	0.01	5	0.01		
25	UNITS	ppm	%	ppm	%	ppm	%		

Results in ppm unless otherwise specified
-- element not determinedIS = insufficient sample
SNR = sample not receivedAUTHORISED OFFICER *M. O. Hand*
Keith Hand

APPENDIX 3:

LOCATIONS OF DIAMOND DRILL HOLES, EL18/92

The positions of the diamond drill holes in The Clump area are shown on the 1:10,000 geological map of that area (Map 1). The positions of drill holes around Specimen Hill and Murrays Reward are shown on Map 8.

Sources for locating drill holes:

ACI

Number	Area	Source
1-4	Clump	Plan of costeans in 73-947
5	Blocks	Plan 6, 73-947
6	Clump	Plan of costeans in 73-947
7, 8	Blocks	Plan 6, 73-947
9	Clump	Plan of costeans in 73-947
10	Murrays Reward	Plan 7, 73-947
11	Gully Prospect	Not located precisely
12	Development Prospect	Not located precisely
13-19	Murrays Reward	Numbers 16, 17, 24 - Plan G, 73-948;
20-22	Central Mt Balfour	Numbers 10-15, 18-23, 25 & 26 - Imperial
23	S of Tin Creek	co-ordinates are given in the logs; these were
24-26	Murrays Reward	recalculated to an origin at DDH24 and
27, 28	Clump	converted to metres.
29, 30	Waratah Prospect	Positions estimated fairly accurately from logs
31, 32	Pierpont Morgan	Not located precisely
33-37	Murrays Reward	Not located precisely

BHP

1-6	Specimen Hill	Plan TASH 656, 83-1932
-----	---------------	------------------------

GEOPEKO

7-10	Specimen Hill	Plan TASH 656, 83-1932. Except 9 whose position was plotted from AMG co-ordinates in 83-1934.
------	---------------	---

CRAE-GEOPEKO

C1 & 2	Specimen Hill	Plan TASH 656, 83-1932
C3	S of Specimen Hill	Plan TASH 656, 83-1932
C4 & 5	E of Specimen Hill	Plan TASH 656, 83-1932
C6	SE of Specimen Hill	Plan TASH 656, 83-1932
C7	N of Specimen Hill	Plan TASH 954, 83-1934
C8	Specimen Hill	Plan TASH 994, 83-1933

Note: The positions of ACI 16, 17 as determined by recalculating the Imperial co-ordinates correspond to the positions shown in Plan G, 73-948. Similarly ACI 18 and 21 plot 160m S and 140m N of the Central Mt Balfour shaft respectively as stated in 73-948. Thus, the positions derived from the Imperial co-ordinates are regarded as accurate.

APPENDIX 4:
MINERAL LEASE DATA

APPENDIX 5:

XRD REPORT BY R S BOTTRILL, MINERAL RESOURCES TASMANIA

This XRD analysis extends work on sample number 3757824 (Turner, 1994b). The mineral analysed has previously been identified as andalusite and cordierite. The results given here are surprising. They do not provide the clear evidence of thermal metamorphism adjacent to The Clump mineralised zone that was expected.



Enquiries: R S Bottrill
Phone: (002) 33 8359
Your Ref:
Our File: RSB79.94:KAC
69236

9 September, 1994

N.J. Turner Geological Services
65 Lochner Street
WEST HOBART TAS 7000

Dear Sir

PETROLOGICAL SERVICES

One sample of rock, numbered NB23, was submitted for analysis by XRD, particularly in regard to the porphroblasts.

The white porphroblasts give a pattern of quartz, mica, chlorite and a garnet. The garnet has a cell dimension of $a_0=11.696 - 11.699$, which is close to spessartine and calcic almandine; the former being more likely. The grey fibrous porphroblasts could not be separated sufficiently, but the XRD pattern indicates quartz, mica and chlorite, probably due to the matrix.

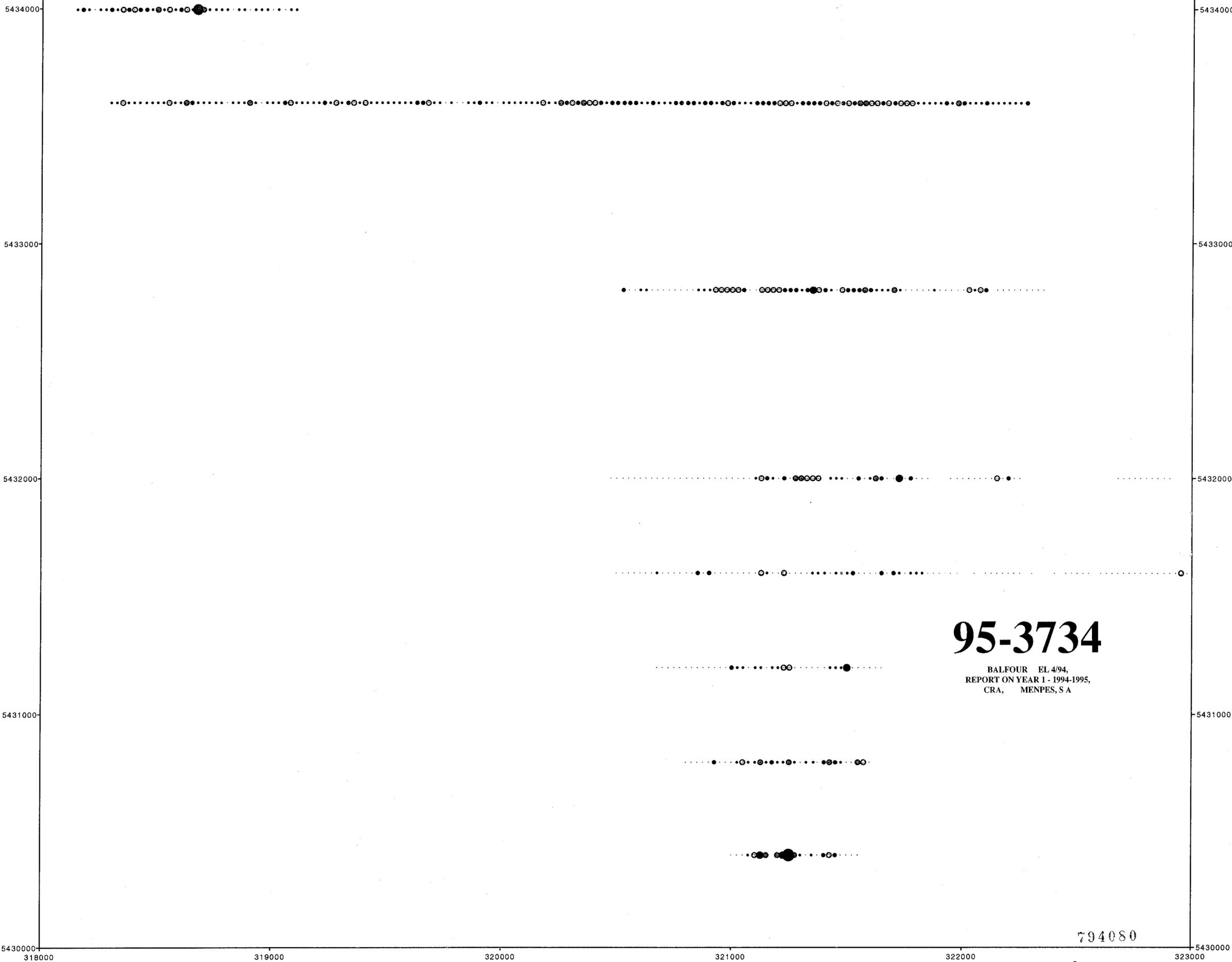
Invoice No. 43356 for \$120 for these analyses (2 standard XRDs @ \$50 ea. plus handling @ \$20) is enclosed.

Yours faithfully

R.S. Bottrill
MINERALOGIST-PETROLOGIST

Encl.

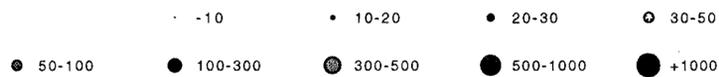
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95-3734

BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A

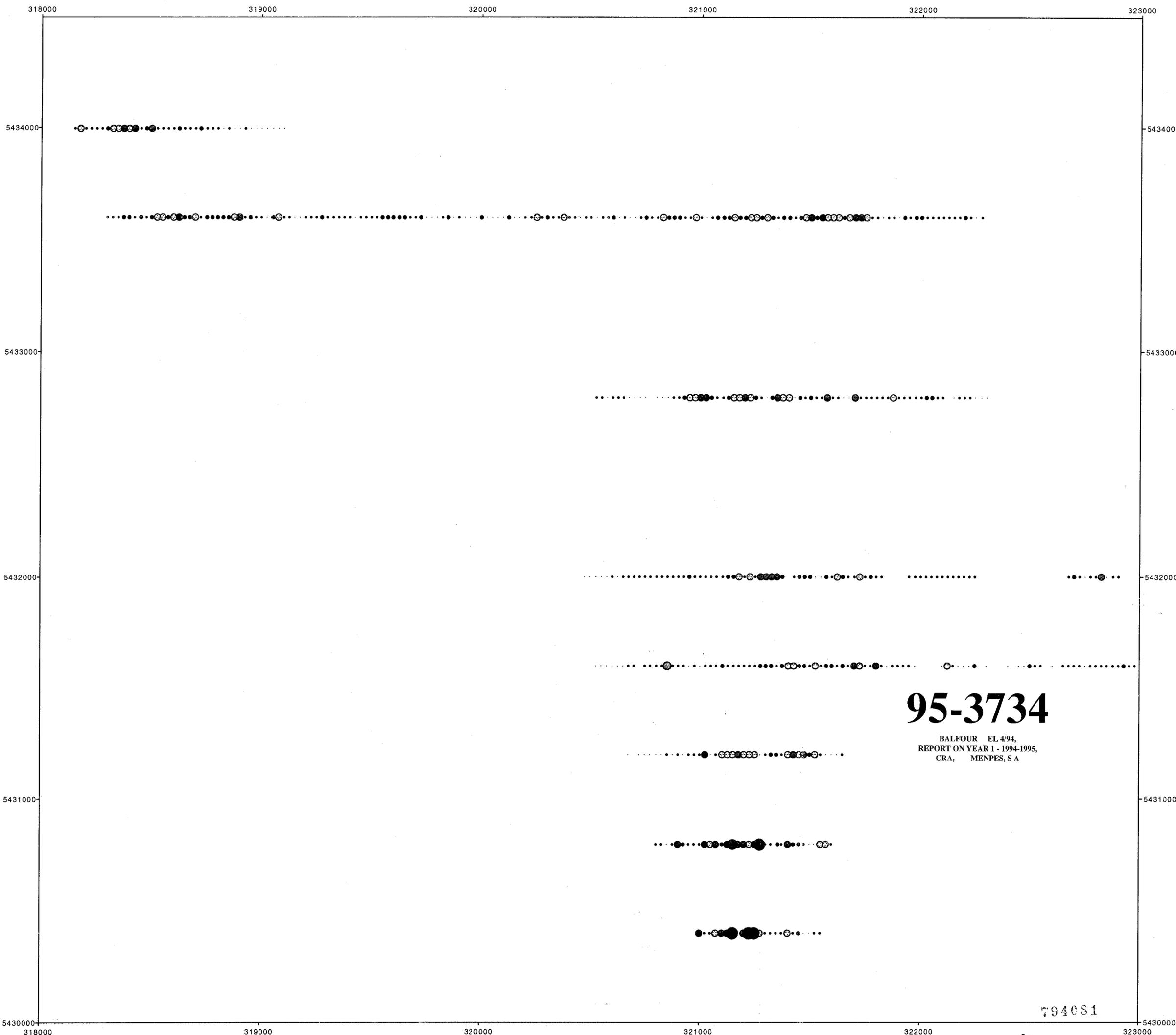
794080



5 cm

CRA EXPLORATION PTY. LIMITED
 Nelson Prospect
 Pb(ppm)
 All Samples
 Scale = 1:10000
 100m

CRA EXPLORATION PTY. LIMITED	
MT FRANKLAND EL 18/92 & BALFOUR EL 4/94	
NELSON PROSPECT	
SOIL AND BEDROCK GEOCHEMISTRY	
Pb	
Ref.: SK55-3	Scale: 1 : 10 000
Author: S.A.MENPES	Report No.: 20878
Drawn: MAY 1995	Plan No.: Tv 959



95-3734

BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A

794081

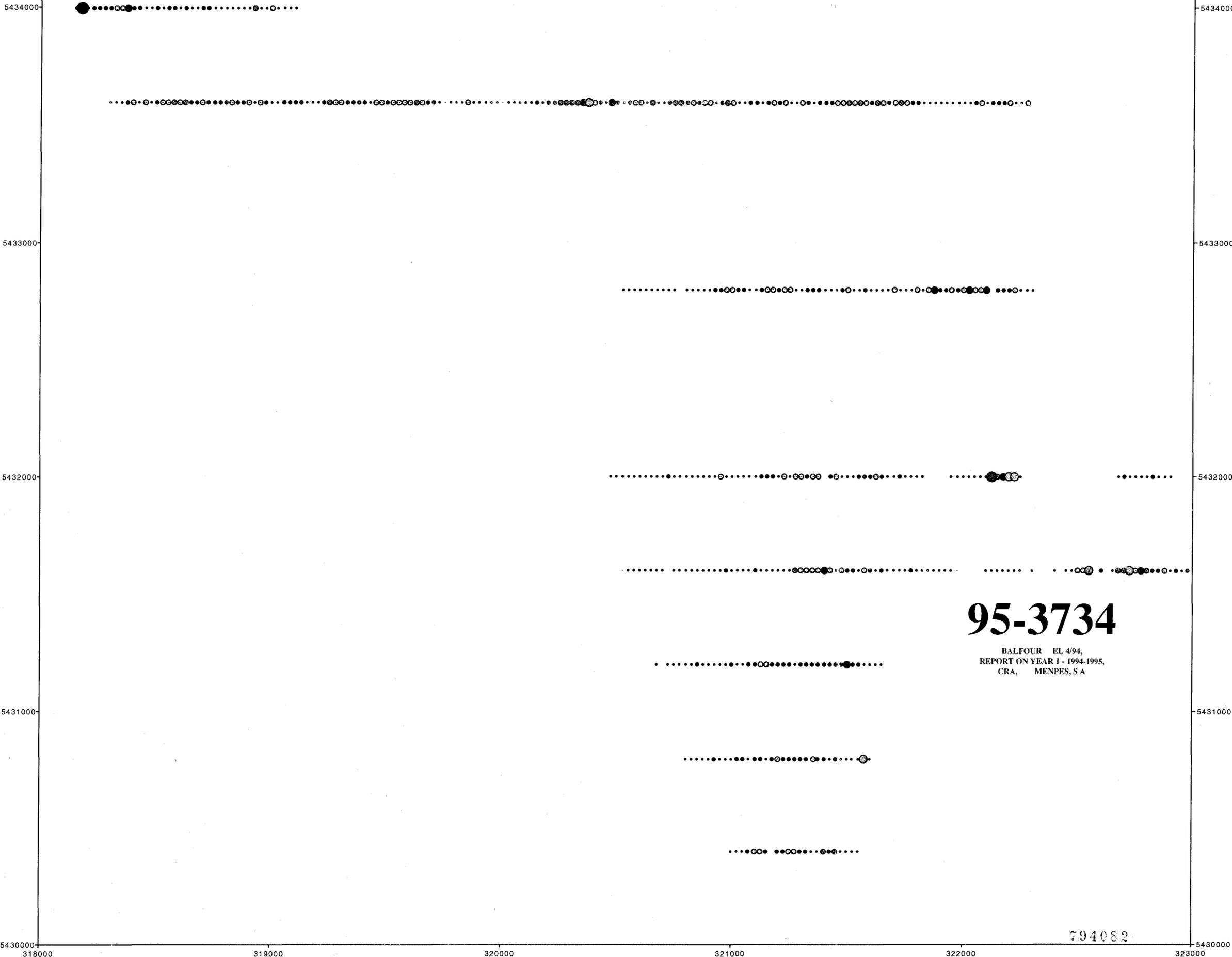
5 cm



CRA EXPLORATION PTY. LIMITED
Nelson Prospect
Zn(ppm)
All Samples
Scale = 1:10000
100m

CRA EXPLORATION PTY. LIMITED	
MT FRANKLAND EL 18/92 & BALFOUR EL 4/94	
NELSON PROSPECT	
SOIL AND BEDROCK GEOCHEMISTRY	
Zn	
Ref.: SK55-3	Scale: 1 : 10 000
Author: S.A.MENPES	Report No.: 20878
Drawn: MAY 1995	Plan No.: Tv 960

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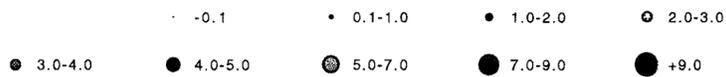


95-3734

BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A

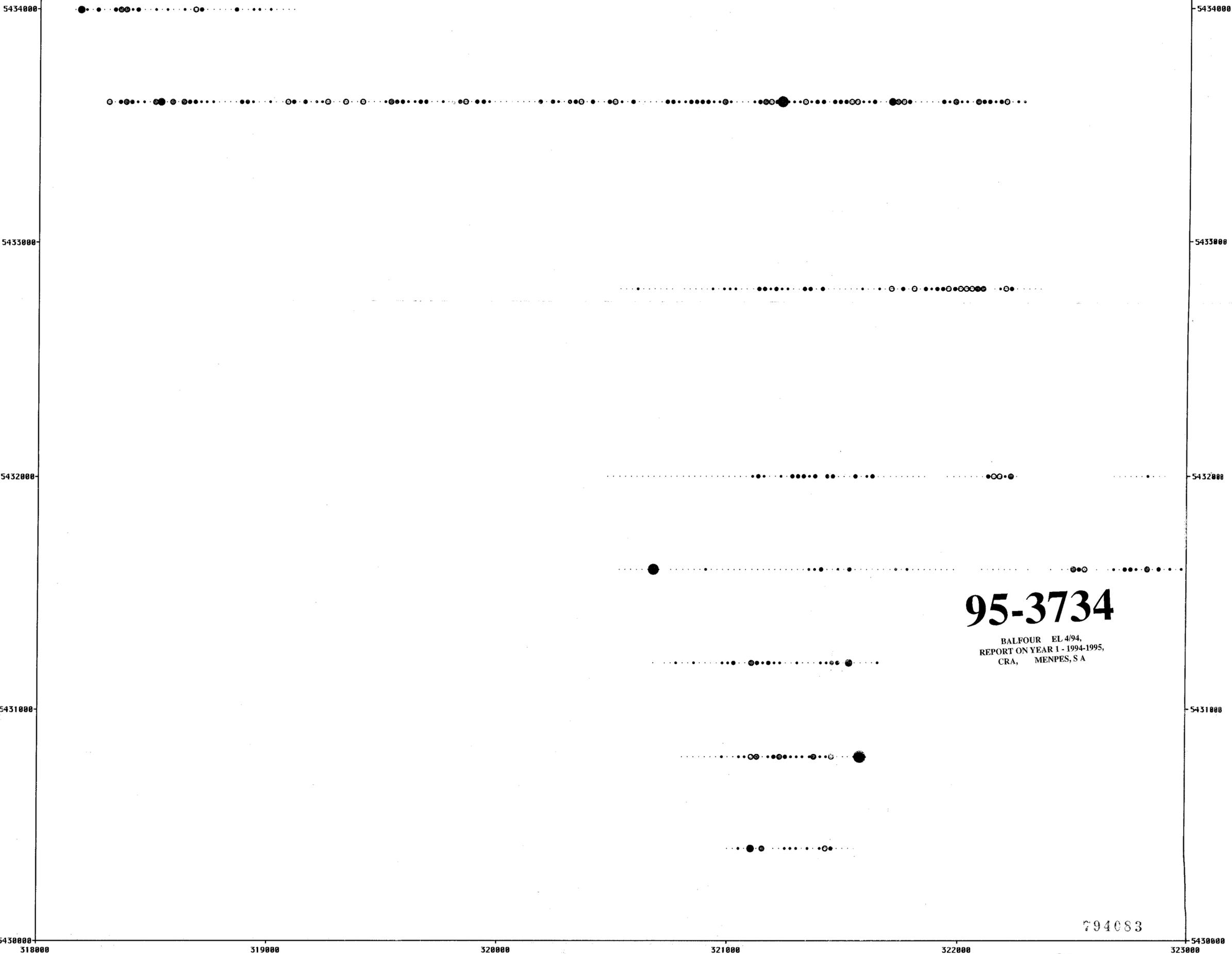
794082

5 cm



CRA EXPLORATION PTY. LIMITED
 Nelson Prospect
 Fe(%)
 All Samples
 Scale = 1:10000
 100m

CRA EXPLORATION PTY. LIMITED	
MT FRANKLAND EL 18/92 & BALFOUR EL 4/94	
NELSON PROSPECT	
SOIL AND BEDROCK GEOCHEMISTRY	
Fe	
Ref.: SK55-3	Scale: 1 : 10 000
Author: S.A.MENPES	Report No.: 20878
Drawn: MAY 1995	Plan No.: Tv 961



95-3734

BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A

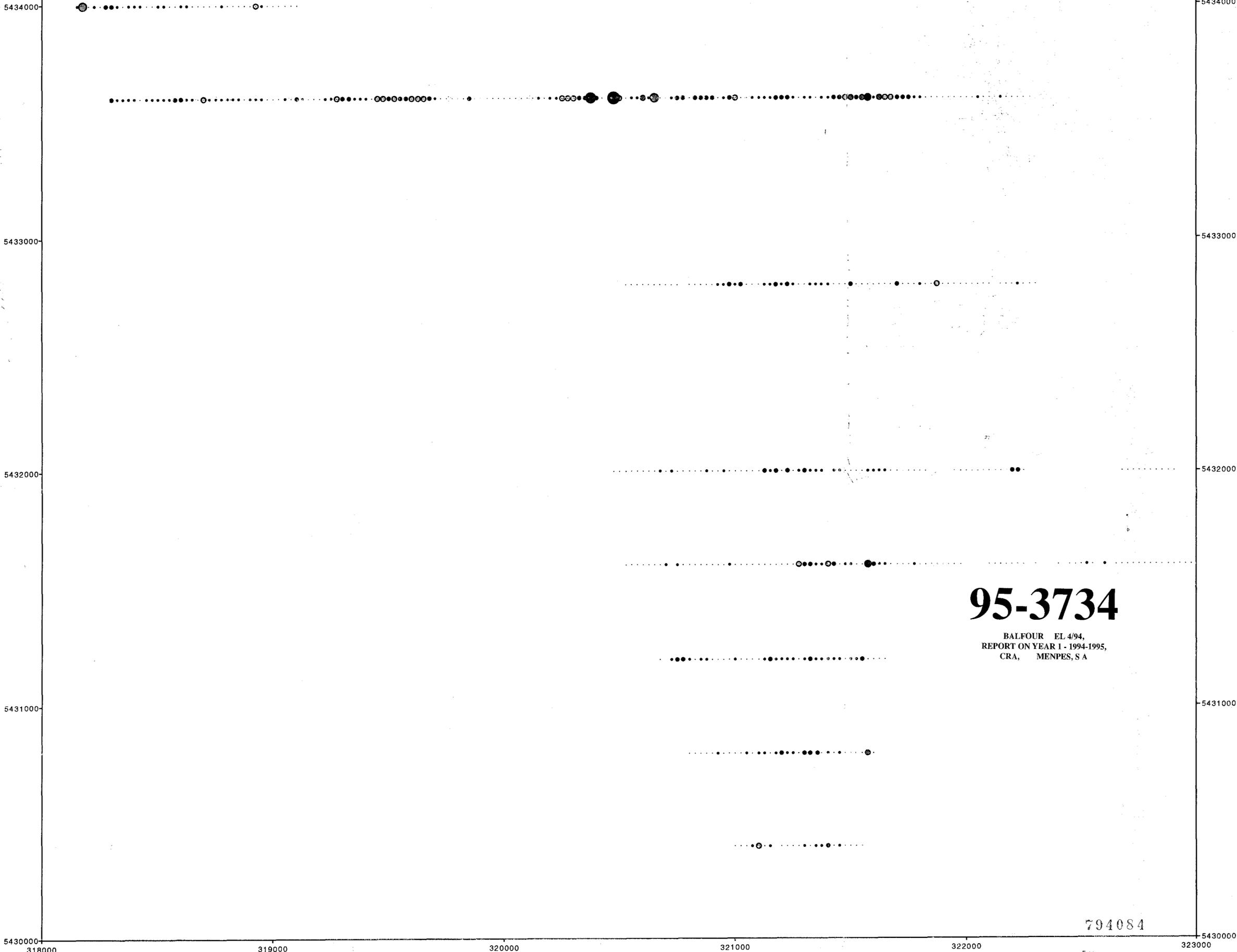
794083

CRA EXPLORATION PTY. LIMITED
Nelson Prospect
As(ppm)
 All Samples
 Scale = 1:10000
 100m

- -5
- 5-10
- 10-20
- 20-30
- 30-50
- 50-70
- 70-80
- 80-90
- +90

CRA EXPLORATION PTY. LIMITED	
MT FRANKLAND EL 18/92 & BALFOUR EL 4/94	
NELSON PROSPECT	
SOIL AND BEDROCK GEOCHEMISTRY	
As	
Ref.: SK55-3	Scale: 1 : 10 000
Author: S.A.MENPES	Report No.: 20878
Drawn: MAY 1995	Plan No.: Tv 962

318000 319000 320000 321000 322000 323000



95-3734

BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, SA

794084

CRA EXPLORATION PTY. LIMITED
Nelson Prospect
Mn(ppm)
All Samples
Scale = 1:10000
100m

- -100
- 100-200
- 200-300
- 300-400
- 400-500
- 500-600
- 600-700
- 700-800
- +800

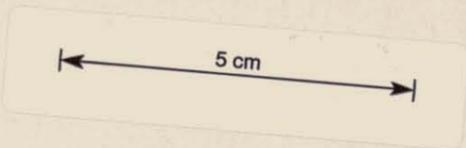
CRA EXPLORATION PTY. LIMITED	
MT FRANKLAND EL 18/92 & BALFOUR EL 4/94	
NELSON PROSPECT	
SOIL AND BEDROCK GEOCHEMISTRY	
Mn	
Ref.: SK55-3	Scale: 1:10 000
Author: S.A.MENPES	Report No.: 20878
Drawn: MAY 1995	Plan No.: Tv 963



- 18 → ACI Diamond drill hole with number.
- 30 • BHP (1-6), GEOPEKO (7-10) diamond drill holes.
- C4 → CRA-GEOPEKO diamond drill holes.

All holes except No 9 of GEOPEKO are thought to be accurately located, or reasonably so.

MAP. 8: Locations of diamond drill holes in the Murrays Reward - Speciman Hill area. Scale 1:10 000.



95-3734

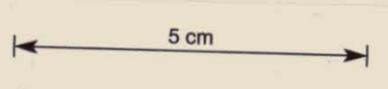
BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A

794085



MAP 9
CURRENT MINING LEASES IN EL 18/92

SCALE 1:10000

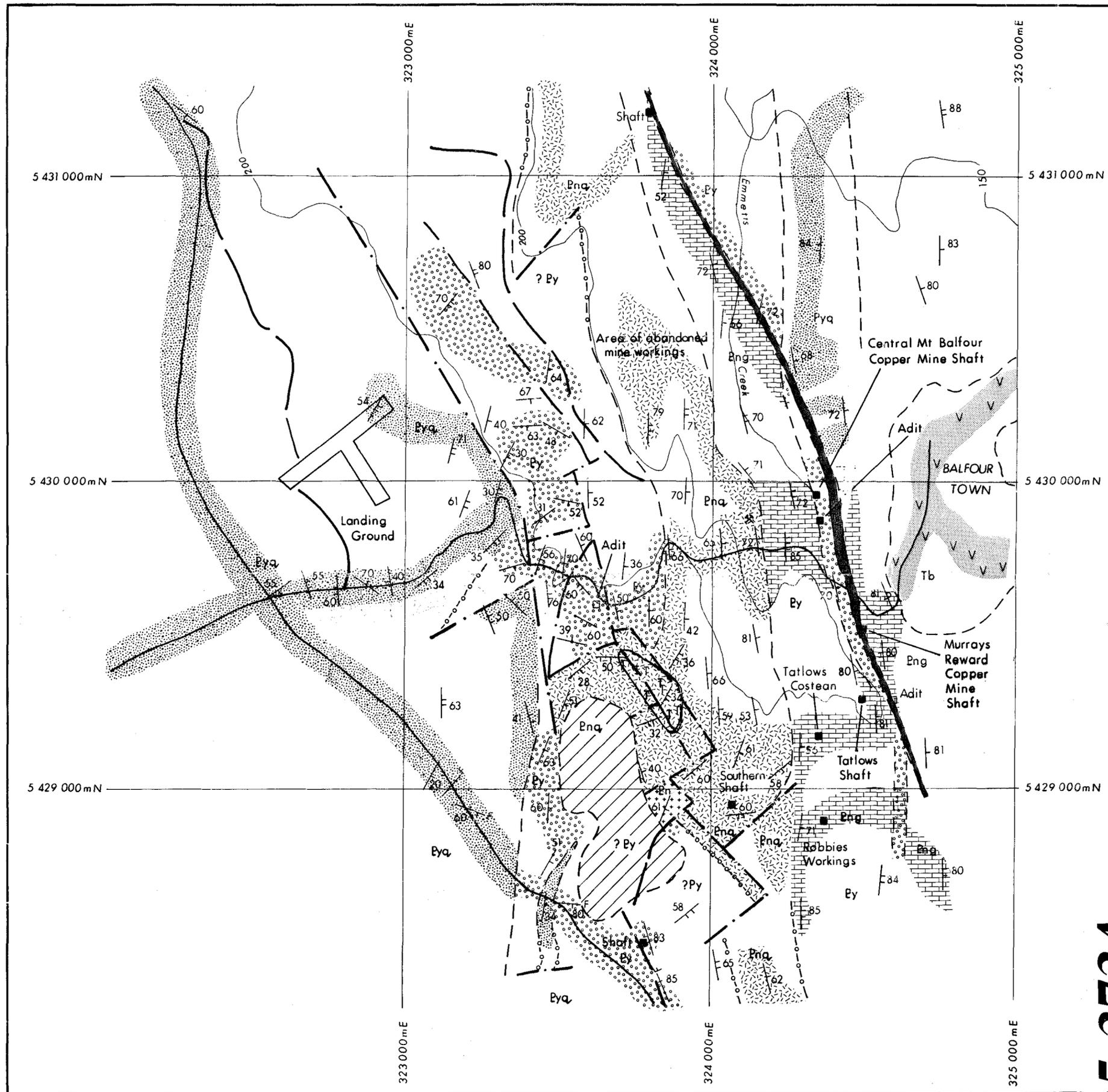


1M/76 ; 2M/76 : N.R. Langsford & M. Laan
 4M/74 : J.H. Holloway & R.J. South
 1M/87 : P. Cosmetto & B.C. Ling

Note: Langsford and Laan held most of the ground between Murrays Reward and 2M/76 under another lease numbered 8M/78 but this has lapsed.

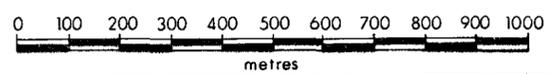
95-3734
 BALFOUR EL 4/94,
 REPORT ON YEAR 1 - 1994-1995,
 CRA, MENPES, S.A

794086



- TERTIARY RECENT**
- Buttongrass sedgeland obscures bedrock.
 - Basalt and derived soil.
 - Unconformity
- PROTEROZOIC**
- Predominantly planar banded pale- and medium- green siltstone (Png); thin banded green to olive siltstone with dark grey siltstone and minor mudstone (Pn), with common interbeds of medium grained quartz arenite (Pna). Banded dark grey siltstone with common thin lenticular, graded beds of fine grained sandstone (Py), with common to abundant interbeds of medium grained quartz arenite (Pya).
- LATE**
- Fracture zone containing quartz veins, carbonate and silicate rocks, pyrite/chalcopyrite/common covellite mineralisation. This assemblage has been shattered, brecciated and sheared by late movement.
 - Tourmalinised and brecciated zone on Specimen Hill (after Heithersay and Langsford, 1981).
- Geological boundary - position approximate.
 ... Geological boundary - inferred
 Strike and dip of bedding - right way up, overturned, facing unknown.
 Strike and dip of observed fault, vertical.
 --- Fault - position approximate.
 - - - Fault - inferred.

NOTE :
 This is a compilation map based on mapping by N. J. Turner Geological Services and by Aust. Consolidated Industries (1973); reference has also been made to Heithersay and Langsford (1981) and Veska (1993). Map prepared by N. J. Turner Geological Services. See also 83-1934R, Fig. TASH No. 1122. Base map obtained by photocopier enlargement of portions of Tasmania 1:25 000 Series, numbers 3243 'Dempster' and 3242 'Balfour'.



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BALFOUR EL 4/94
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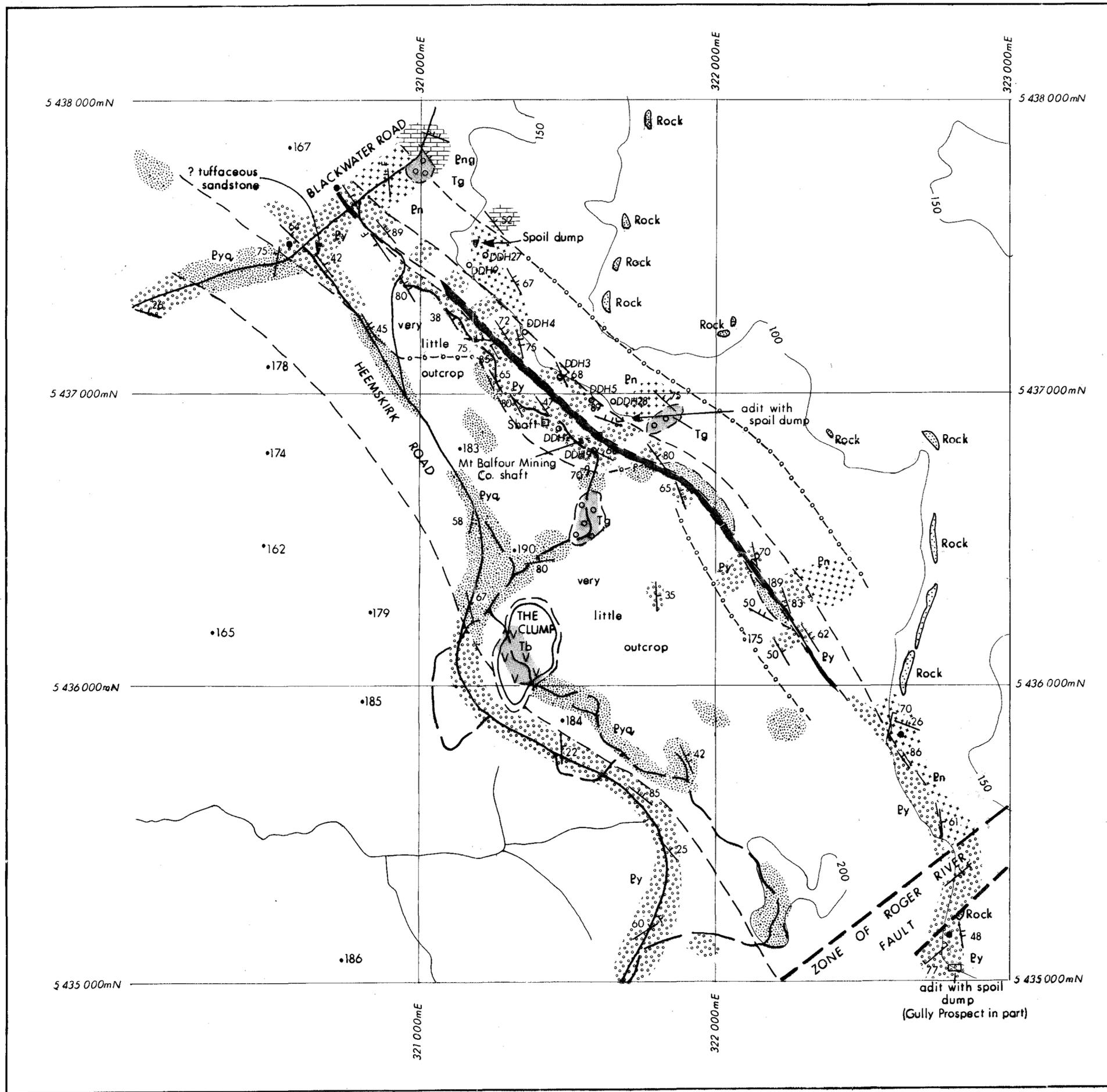
CRA EXPLORATION PTY. LIMITED

MT FRANKLAND EL 18/92
BALFOUR EL 4/94

Geological Setting
of the
Murrays Reward
Copper Mineralisation

Ref.: Burnie SK55-3	Scale: 1:10 000
Author: N. J. Turner	Report No.:
Drawn: S. Brook	Plan No.: Tv 897

Feb. 1995

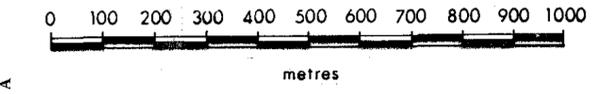


- TERTIARY**
- Basalt and derived soil.
 - Quartzose gravel, sand and minor lignite.
 - Unconformity
- LATE PROTEROZOIC**
- Predominantly planar banded pale- and medium-green siltstone (Pn); thin banded green to olive siltstone with dark grey siltstone and minor mudstone (Pn). Banded dark grey siltstone with common lenticular graded beds of fine-grained sandstone (Py), with common to abundant interbeds of medium-grained quartz arenite.
 - Fracture zone containing quartz veins, carbonate and silicate rocks, pyrite/chalcopyrite/rare covellite mineralisation. This assemblage has been shattered, brecciated and sheared by late movement.
- Geological Boundary - position approximate.**
- Geological boundary - inferred.**
- Strike and dip of bedding - right way up, facing unknown.
- Strike and dip of cleavage.
- Strike and dip of observed fault, vertical.
- Field station for adjacent reading.
- Diamond drill hole (Aust. Consolidated Industries). Collar of DDH28 not inspected in the field.

NOTE :
 See also the various mineral exploration reports by Aust. Consolidated Industries 1969-1974.
 Base map obtained by photocopy enlargement of portion of Tasmania 1:25 000 Series number 3243 'Dempster'.

95-3734

BALFOUR EL 4/94,
 REPORT ON YEAR 1 - 1994-1995,
 CRA, MENPES, S.A.

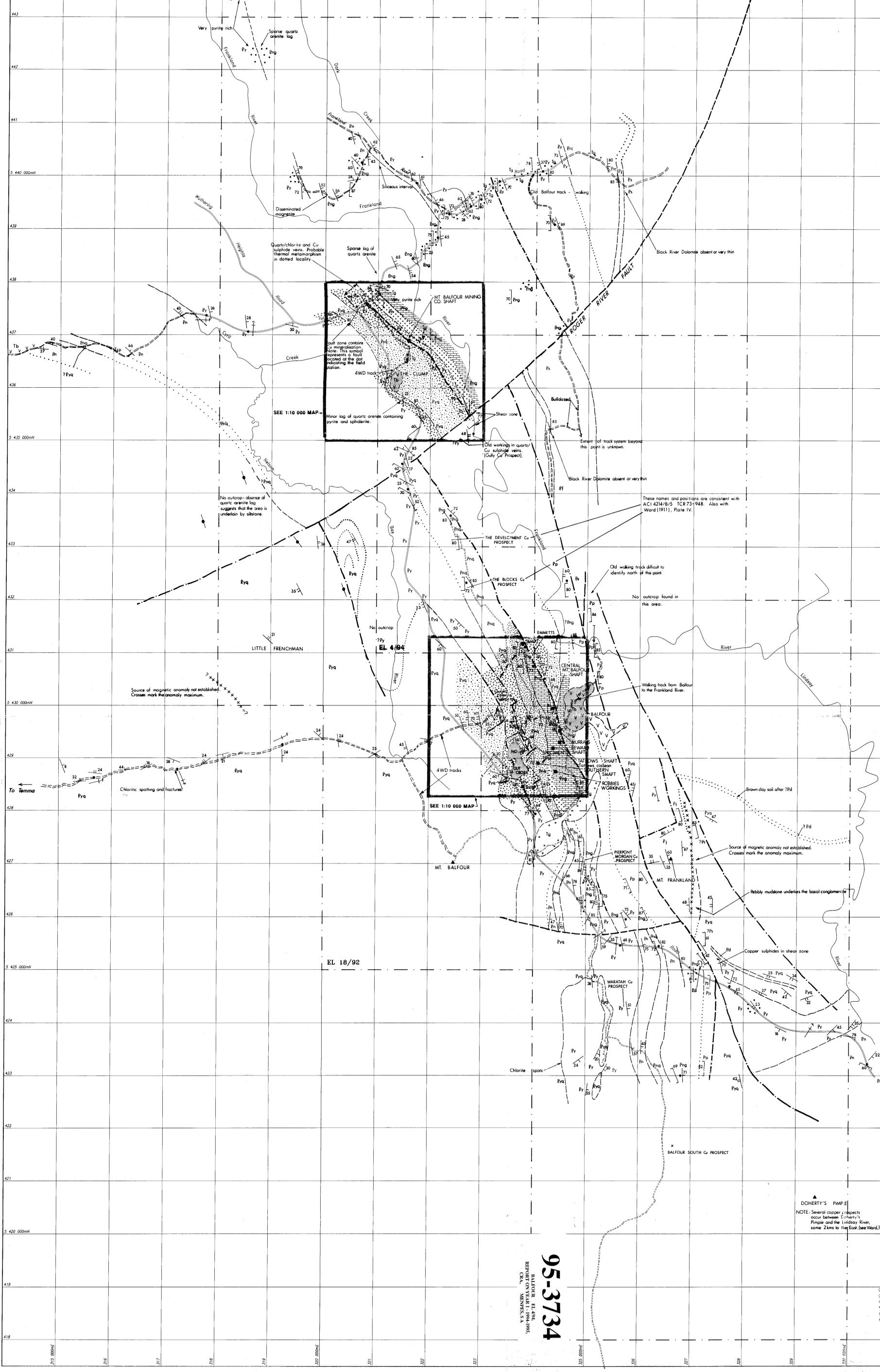


CRA EXPLORATION PTY. LIMITED

BALFOUR EL 4/94

Geological Setting of the Clump Copper Mineralisation

Ref.: Burnie SK55-3	Scale: 1:10000
Author: N.J. Turner	Report No.:
Drawn: S. Brook	Plan No.: Tv 895



GEOLOGICAL LEGEND

QUATERNARY

- Qhd Windblown sand
- Tb Basalt and derived soil
- Tsp Spongillite lag at 316100E 5436700N
- Tg Quartzose gravel, sand and minor lignite

TERTIARY

- Unconformity
- Pn Basalt, volcanoclastics and red-brown mudstone (Smithton Volcanics correlate)
- Pf Conglomerate and chert breccia (Forest Conglomerate correlate) Write to pink quartz arenite, pebbly quartz arenite and minor conglomerate on Mt. Frankland (probable Forest Conglomerate correlate)

PROTEROZOIC

- Unconformity
- Prc Dark grey siltstone with cream and maroon, fine grained quartzose sandstone (probable Cowrie Siltstone correlate)
- Pp Dark grey, cream, green and maroon, slaty to phyllitic siltstone and mudstone

LATE

- Pp This banded green to olive siltstone with dark grey siltstone and minor mudstone, bedding is usually planar, although thin, lenticular, graded beds of fine grained sandstone are locally present (Pp), with common interbeds of medium grained quartz arenite (Pq), predominantly planar bedded pale- and medium-green siltstone (Pp), with siltstone spots (E.S.), magnetite at 20000E 543600N. Banded dark grey siltstone with common thin lenticular, graded beds of fine grained sandstone (Pp), with grey metamorphic spots (E.S.); with common to abundant interbeds of medium grained quartz arenite (Pq).

INTRUSIVE

- Pd Dolerite

Geological boundary - position approximate

Geological boundary - inferred

Fault - position approximate

Fault - inferred

Strike and dip of bedding - right way up, facing unknown

Strike and dip of cleavage (S) vertical

Strike and dip of observed fault, vertical

Field station for adjacent readings

Trend of quartz vein

Tourmalinised breccia on Specimen Hill

NOTE:
Geology by N.J. Turner Geological Services

AMG North
Mag. North

5 cm

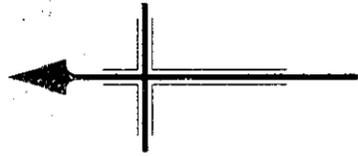
0 500 1000 1500 2000 metres

CRA EXPLORATION PTY. LIMITED
BALFOUR EL 4/94 & MT. FRANKLAND EL 18/92
GEOLOGICAL PLAN

Ref: SK 55-03 File: MtFrank.616
Scale: 1 : 25,000 Date: October 1993
Author: Rob Parkinson Report No.: 20878
Drawn: R. Parkinson Plan No.: Tv. 673

95-3734
BALFOUR EL 4/94
REPORT ON YEAR 1, 1994/95
CRA EXPLORATION PTY. LIMITED
MANTON, S.A.

North



Common, thin (<5mm), limonitic quartz veins (eg 7888)

Sheared vein quartz and siltstone. Limonitic in part

Intensely sheared (covellite) siltstone. Sheared vein quartz/siltstone breccia.

Very strong cleavage with abundant parallel thin white quartz veins

Scattered limonitic quartz veins (some folded).

Thin white quartz veins much less abundant. Scattered limonitic quartz veins.

Cleavage still pervasive.

Patchy cleavage development. Scattered limonitic quartz veins

(eg. 2213)

No outcrop

Markedly fewer quartz veins.

SPOIL DUMP

29m at 200 from "D" No outcrop

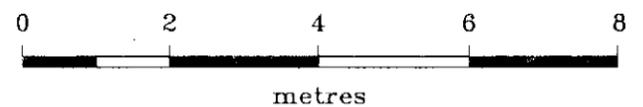
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95-3734

BALFOUR EL 4/94,
REPORT ON YEAR 1 - 1994-1995,
CRA, MENPES, S A

* NOTE *

This is map 4 from N.J. Turner's September 1994 report.



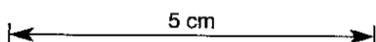
CRA EXPLORATION PTY. LIMITED

BALFOUR EL 4/94
Chip Sampling at the Southern end of the Open Pit at Murrays Reward Copper Mine, Balfour

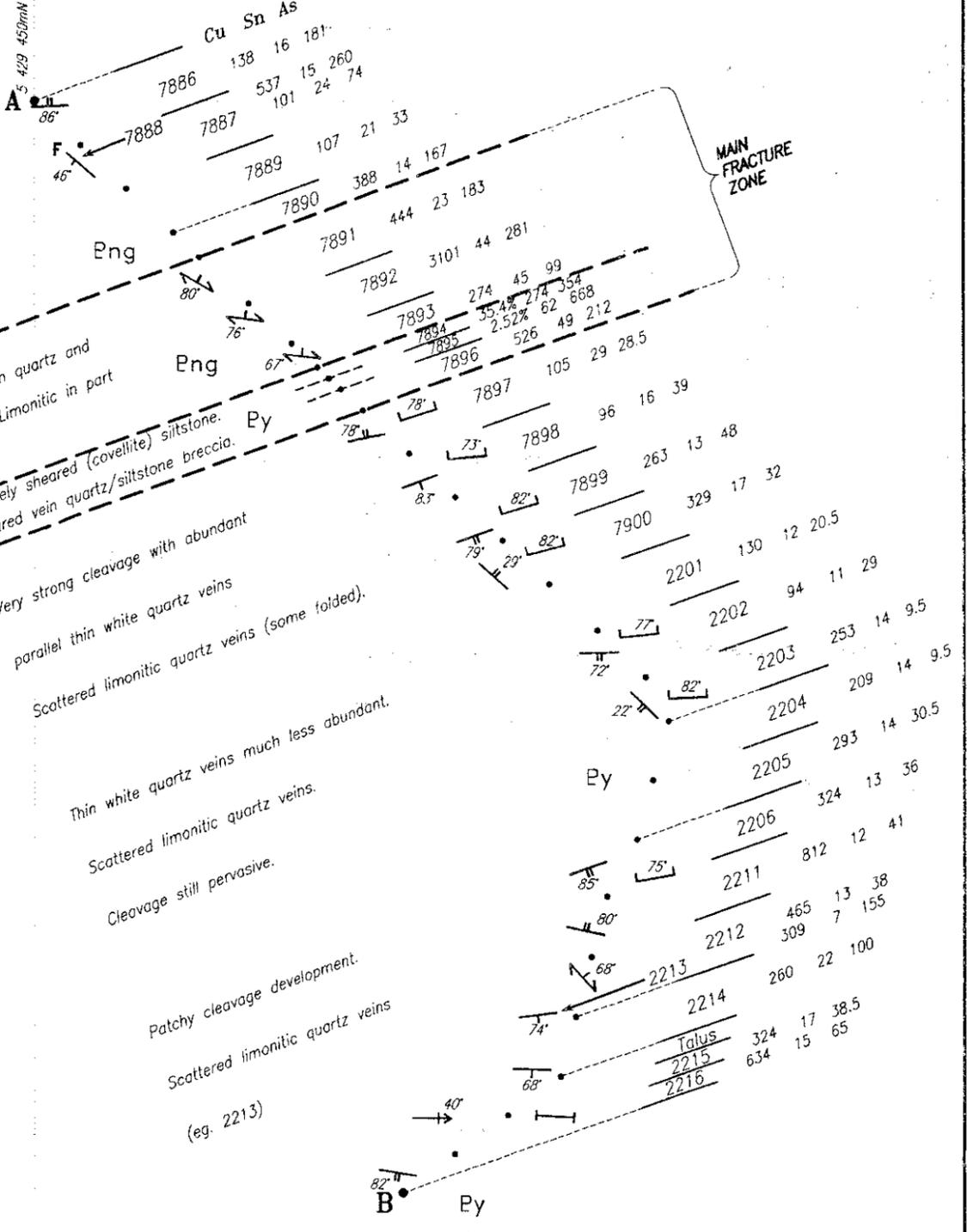
Ref.: SK 55 - 03	File: Tv898r
Scale: 1 : 100	Date: February 1995
Author: N.J. Turner	Report No.:
Drawn: R. Travieso	Plan No.: Tv 898

Rare white quartz veins.

Pale fine grained pyritic sandstone



F. Site of old plant.



- 68° 68° Strike & dip of bedding—right way up, facing unknown.
 - 82° Strike & dip of penetrative cleavage, vertical.
 - 46° F Strike & dip of observed fault.
 - 80° Strike & dip of scaly, anastomosing shear cleavage.
 - Mark beginning & end of sampling interval.
 - Eng Py Lithological symbols: Refer (Tv 897).
- Sample Numbers:
 7886 - 7900 : Prefix 375____
 2201 - 2206 : Prefix 399____
 2211 - 2238 : Prefix 399____

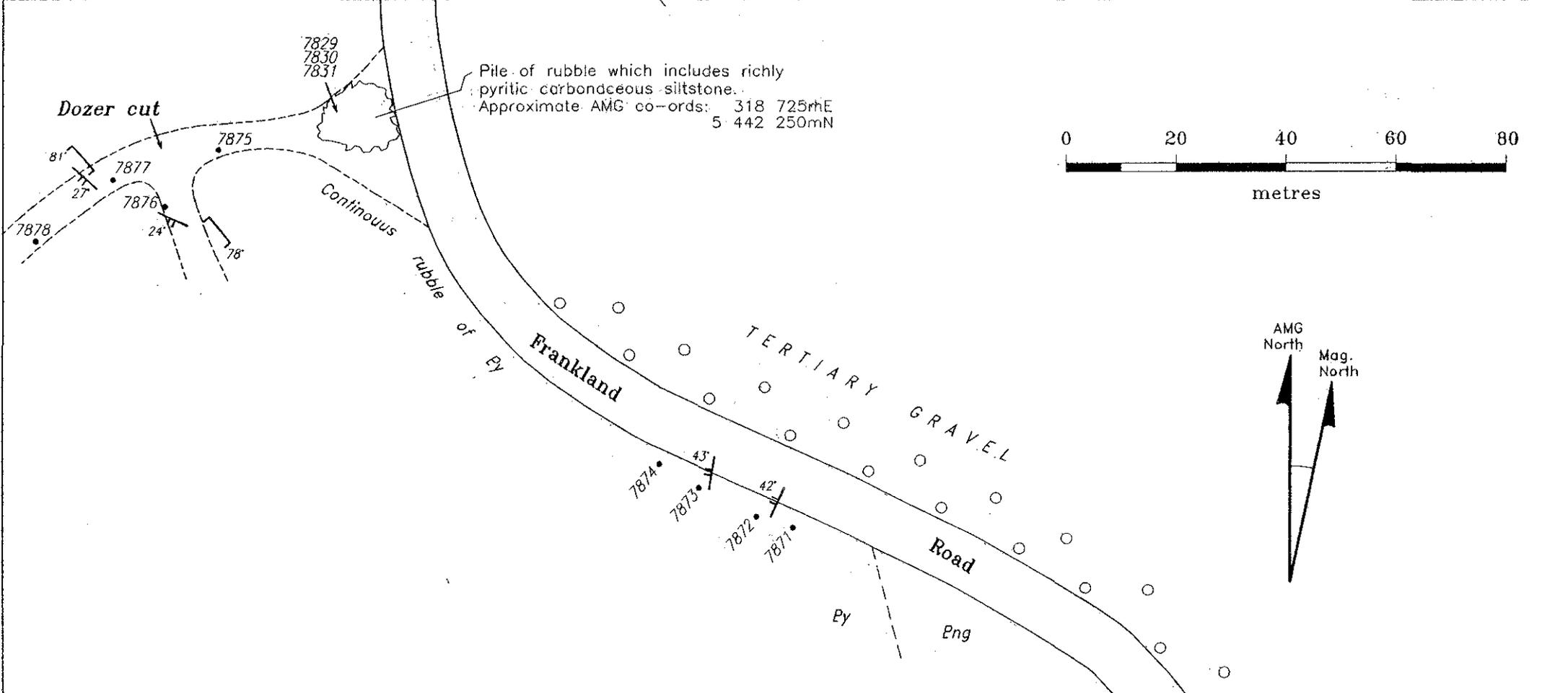
Continuous—chip—sample intervals across the southern end of the open pit at Murrays Reward Copper Mine, Balfour.
 * NB * Numbers 7888,2213,2217 & 2218 are spot samples.

2235 57 9 28.5
 2236 44 11 27
 2237 200 4 104
 2238 35 10 18

2218 2217 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234

Cu Sn As
 652 13 715 2218
 349 12 273 2217
 136 13 139 2219
 96 123 238 2220
 100 19 110 2221
 588 16 105 2222
 170 15 130 2223
 278 36 137 2224
 221 40 196 2225
 282 71 54 2226
 190 16 104 2227
 322 13 59 2228
 406 14 103 2229
 311 16 48 2230
 354 6 78 2231
 88 10 4.5 2232

7886 138 16 181
 7887 537 15 260
 7888 101 24 74
 7889 107 21 33
 7890 388 14 167
 7891 444 23 183
 7892 3101 44 281
 7893 274 45 99
 7894 55.4% 274 354
 7895 2.52% 62 668
 7896 526 49 212
 7897 105 29 28.5
 7898 96 16 39
 7899 263 13 48
 7900 329 17 32
 2201 130 12 20.5
 2202 94 11 29
 2203 253 14 9.5
 2204 209 14 9.5
 2205 293 14 30.5
 2206 324 13 36
 2211 812 12 41
 2212 465 13 38
 2213 309 7 155
 2214 260 22 100
 Talus 2215 324 17 38.5
 2216 634 15 65



LEGEND

- Rock Chip Sample Location and Number
Sample Numbers prefixed by 375_____.
- - - Geological boundary - approximate, probably faulted.
- ↘ Strike and dip of bedding, sedimentary facing unknown.
- ↙ Strike and dip of cleavage.

794090

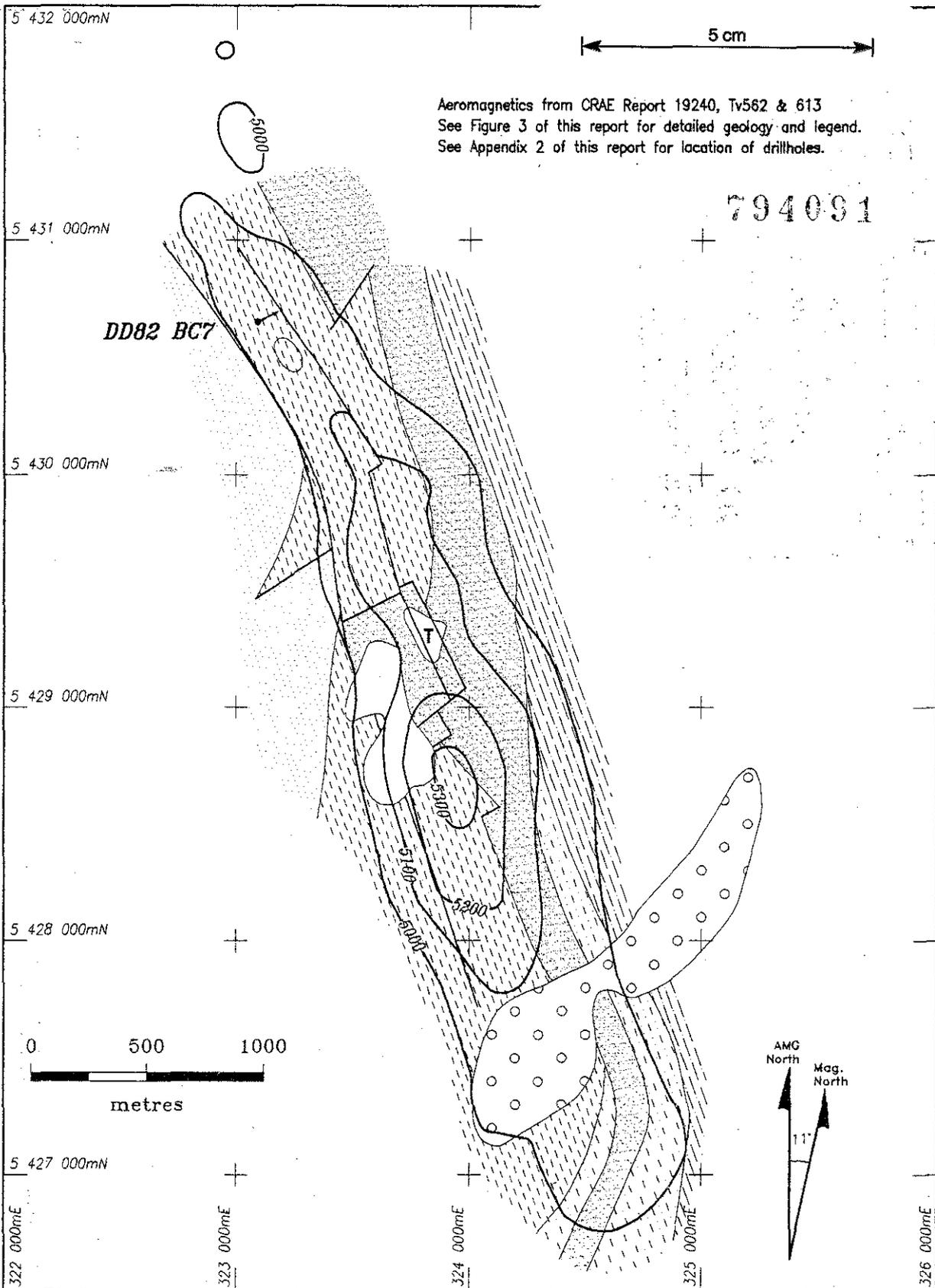
5 cm

* NOTE * This is Map 5 from N.J. Turner's Sept. 1994 report.

CRA EXPLORATION PTY. LIMITED

MT FRANKLAND EL 18/92
Frankland Road Area
Geology and sampling
Py against Png

Ref.: SK 55-03	File: Tv893r
Scale: 1 : 1000	Date: January 1995
Author: N.J. Turner	Report No.:
Drawn: R. Travieso	Plan No.: Tv 893



Aeromagnetics from CRAE Report 19240, Tv562 & 613
See Figure 3 of this report for detailed geology and legend.
See Appendix 2 of this report for location of drillholes.

-  No Outcrop
-  Quartzose gravel, sand and minor lignite
-  Tourmalinised breccia on Specimen Hill
-  Predominantly planar banded pale and medium green siltstone.
-  Thin banded green to olive siltstone with dark grey siltstone and minor mudstone.
-  As for Pn with common interbeds of medium grained quartz arenite.
-  Banded dark grey siltstone with common thin lenticular graded beds of fine grained sandstone.
-  As for Py with common to abundant interbeds of medium grained quartz arenite.

* NOTE * This is Map 6 from N.J. Turner's Sept. 1994 report.

CRA EXPLORATION PTY. LIMITED	
BALFOUR EL 4/94 and MT FRANKLAND EL 18/92 Specimen Hill Prospect Aeromagnetics and Geology	
Ref.: SK 55-03	File: Tv886r
Scale: 1 : 25,000	Date: January 1995
Author: N.J. Turner	Report No.:
Drawn: R. Travieso	Plan No.: Tv 886

APPENDIX 2

The Clump - Orientation Soil and Bedrock Traverses

The Clump Soil-Bedrock Orientation Survey (DPO 77674)

Sample No	AMG E	AMG N	Sample Type	Horizon	Depth	Bedrock	Field ID	Texture	Alt/MIn	Colour	Comments	Ag ppm	As ppm	Cu ppm	Fe %	Mn ppm	Pb ppm	Zn ppm
4137950	320870	5437723	SOIL	C	0.4		CcyCsfOvq			LOB	Ironstone and lesser limonitic quartz R.F's.	-1	234	276	21.4	93	-3	55
4137951	320862	5437717	SOIL	C	1.5		Ccy			YV/B	Clay only.	-1	25	20	3.3	388	4	50
4137952	320854	5437712	SOIL	B/C	0.6		CcyCgCbs			YV/B	Minor organic and gravelly soil content.	-1	8	15	1.5	121	4	45
4137953	320846	5437706	SOIL	B	1		OvqCsfCcy			Y/W	Coarse gr. quartz, ironstone frags. present.	-1	6	26	1.62	44	-3	45
4137954	320837	5437700	SOIL	C	0.5		CcyCsf			YV/B	Pyritic ironstone frags. present.	-1	45.5	42	13.3	59	-3	53
4137955	320829	5437694	SOIL	C	0.8		CcyCsf			YV/B	Trace ironstone R.F's.	-1	34.5	9	9.1	44	-3	50
4137956	320821	5437689	SOIL	C	1.5		CcySss			GV/Y	Ferruginous quartzarenite R.F's.	-1	12.5	8	3.46	36	3	52
4137957	320813	5437683	SOIL	B/C	1.2		CcyCsf			BG/V	Ferruginous ironstone R.F's.	-1	13	12	6.4	42	5	49
4137958	320805	5437677	SOIL	C	1.5		Ccy			YV/B	Clay only.	-1	14.5	21	7	265	5	71
4137959	320796	5437671	SOIL	C	1.6		Ccy			V/YB	Compacted clay.	-1	3.5	10	7.5	544	-3	83
4137960	320788	5437666	SOIL	C	1.5		Ccy			VG/Y	Clay only.	-1	9	18	4.1	187	6	57
4137961	320780	5437660	SOIL	C	1.6		SssCcy			V/GY	Ferruginous Sss lag layer.	-1	237	96	2.4	112	4	54
4137962	320776	5437657	SOIL	C	1.5		Ccy			YV/G	Clay only.	-1	13.5	8	2.83	234	27	50
4137963	321220	5437500	SOIL	C	0.6		Ccy			G/V	Last two digits correspond to wacker sample at same site.	-1	39	34	3.13	33	7	49
4137964	321220	5437490	SOIL	C	0.8		Ccy			MO/NB		-1	8	60	8.8	31	15	56
4137965	321220	5437480	SOIL	B/C	0.3		Ccy			LYB		-1	47	71	16.3	52	-3	50
4137966	321220	5437470	SOIL	B?	0.3		CcyCsf			LB/Y	Ironstone chips.	-1	132	164	29.2	36	-3	61
4137967	321220	5437460	SOIL	B?	0.3		CcyCsf			LYB	Minor ironstone frags.	-1	100	119	23.6	73	7	59
4137968	321220	5437450	SOIL	B?	0.4		CcyCsf			G/YV	Minor RB ironstone R.F's.	-1	134	157	24.9	50	5	61
4137969	321230	5437450	SOIL	B?	0.4		CcyCsf			LB/Y	Ironstone R.F's.	-1	195	214	29.5	28	-3	61
4137970	321235	5437450	SOIL	B	0.4		CcyCsf			LB/Y	Ironstone R.F's.	-1	201	159	24.7	179	9	69
4137971	321220	5437425	SOIL	B?	0.6		CcyCsf			LB	Ironstone R.F's.	-1	224	98	35.4	12	-3	59
4137972	321220	5437400	SOIL	C	0.8		Ccy			GV/Y	Clay only, good sample.	-1	30	13	3.56	226	3	60
4137973	321220	5437375	SOIL	T?	0.4		CsCg			G	Possibly Tertiary sand.	-1	3.5	6	0.6	29	8	48
4137974	321291	5437361	SOIL	C	0.2		Ccy			G	Clay only.	-1	5.5	19	3.77	214	12	81
4137975	321274	5437344	SOIL	C	0.5		Ccy			DG	Clay only.	-1	8	16	3.3	266	5	68
4137976	321256	5437326	SOIL	C	0.2		Ccy			YG/V	Clay only.	-1	30.5	10	4.15	214	6	55
4137977	321238	5437308	SOIL	C+T	0.9		SssCcyCg			LG	Residual Sss frags. transported Ccy & Cg.	-1	3	14	0.79	70	8	40
4137978	321221	5437291	SOIL	T	0.6		CcyCg			DB	Surficial material sampled to keep continuity.	-1	1.5	5	0.33	20	-3	37
4137979	321203	5437273	SOIL	T	0.3		Cg/Ccy			DB	Surficial material.	-1	1	8	0.4	20	4	40

The Clump Soil-Bedrock Orientation Survey (DPO 77674)

Sample No	AMG E	AMG N	Sample Type	Horizon	Depth	Bedrock	Field ID	Texture	Alt/Min	Colour	Comments	Ag ppm	As ppm	Cu ppm	Fe %	Mn ppm	Pb ppm	Zn ppm
4137980	321185	5437255	SOIL	C	0.6		Ccy			MVG/O	Clay only.	-1	38	24	8	58	4	35
4137981	321168	5437238	SOIL	C	0.5		Ccy			G/OM	Orange mottling: after sulphides?.	-1	4.5	5	0.93	58	9	38
4137982	321132	5437202	SOIL	C?	0.2		Ccy			G	Clay only.	-1	2.5	6	1.38	190	9	41
4137983	321115	5437185	SOIL	B	0.3		Ccy			Y	Carbonaceous shale outcrop.	-1	26	8	10.2	387	3	48
4137984	321097	5437167	SOIL	B	0.3		Ccy			G	Clay only.	-1	2.5	13	0.9	72	7	40
4137985	321079	5437149	SOIL	C	0.2		CcyCbs			G	Minor organics present.	-1	2	6	0.9	285	5	40
4138050	320870	5437723	WACKER		1.5	Y	Ssi	FeLm	Py	N/W	1mm limonitic veinlets after pyrite.	-1	8.5	14	2.86	530	3	53
4138051	320862	5437717	WACKER		1.8	Y	Sbs	Fe		N	1mm limonitic veinlets.	-1	35	16	3.67	717	9	51
4138052	320854	5437712	WACKER		1.5	Y	SbsOvq	Fe		N	Trace of limonitic quartz veining.	-1	8	16	1.07	210	10	40
4138053	320846	5437706	WACKER		1.5	Y	SbsCcyOvq	Sh		N/YV	Minor YV clay- after chloritic siltstone.	-1	39	28	3.91	130	5	42
4138054	320837	5437700	WACKER		1	Y	Ssi	Bn		DG/W	Limonite-rich veining to 1mm, trace white mica.	-1	7	9	3.77	462	4	53
4138055	320829	5437694	WACKER		1	Y	Ssi	FeAl	Cl	N/G	Limonite (after pyrite) veined, weakly chloritic carb siltst.	-1	154	13	3.73	313	3	65
4138056	320821	5437689	WACKER		1.2	Y	Ssi	Fo		N	Limonitic fractures and veined carbonaceous siltstone.	-1	16.5	36	3.39	158	4	64
4138057	320813	5437683	WACKER		1	Y	Ssi	LmFi		N/W	Strongly cleaved carbonaceous siltstone.	-1	4.5	24	3.9	340	-3	66
4138058	320805	5437677	WACKER		0.5	Y	Sbs	Fo		N	Trace coarse grained muscovite present.	-1	10.5	43	3.14	152	3	56
4138059	320796	5437671	WACKER		0.8	Y	Sbs	Fe		N	Ferruginous & carbonaceous shale.	-1	4.5	24	4.82	387	-3	80
4138060	320788	5437666	WACKER		1	Y	Sbs	Fe		YN	Highly ferruginous (threadlike veinlets).	-1	3.5	15	3.43	195	7	48
4138061	320780	5437660	WACKER		1	Y	Ssi	FeBn		GN	Carb siltstone with cordierite, limonitic veinlets.	-1	3	15	2.48	202	5	49
4138062	320776	5437657	WACKER		0.8	Y	Ssi	Lm		NW	Laminated siltstone, + abundant coarser gr. quartzose bands.	-1	5	11	2.06	209	12	42
4138063	321220	5437500	WACKER		1.6	Y	CcySsi	LmWe		G/YV	Str-We laminated siltstone.	-1	46	62	6.7	96	7	52

The Clump Soil-Bedrock Orientation Survey (DPO 77674)

Sample No	AMGE	AMGN	Sample Type	Horizon	Depth	Bedrock	Field ID	Texture	Alt/Min	Colour	Comments	Ag ppm	As ppm	Cu ppm	Fe %	Mn ppm	Pb ppm	Zn ppm
4138064	321220	5437490	WACKER		2	Y	Ssi	LmFe		PB/YB	Ferruginous laminated siltstone.	-1	9.5	11	2.95	49	10	38
4138065	321220	5437480	WACKER		2.6	Y	Ssi	LmFe		KY	Ferruginous laminated carbonaceous siltstone.	-1	16	54	3.52	48	7	48
4138066	321220	5437470	WACKER		2.8	Y	Ssi	Fe		KY	Ferruginous, almost gossanous siltst	-1	31.5	201	16.8	60	34	55
4138067	321220	5437460	WACKER		2	Y	Ssi	Fe		RG/Y	Carbonaceous siltstone, limonite in quartzose lams	-1	5.5	11	3.1	46	12	43
4138068	321220	5437450	WACKER		1.6	Y	Ssi	LmFe		RG/Y	Carbonaceous siltstone with limonite bands.	-1	3.5	25	4.93	61	8	46
4138069	321230	5437450	WACKER		1.5	Y	SsiVq	Fe		OR/Y	Highly ferruginous siltst. 2-3mm vein quartz.	-1	4	30	3.93	37	9	42
4138070	321235	5437450	WACKER		1.4	Y	SsiCcy	Fe		VY/G	Weakly ferrug carb siltstone capped by YB clay.	-1	27.5	38	17.7	1641	10	146
4138071	321220	5437425	WACKER		2.5	Y	Ssi	FeLm		RY/G	Ferruginous carbonaceous siltstone.	-1	9.5	27	3.26	40	17	52
4138072	321220	5437400	WACKER		1.4	Y	Ssi	FeLm		GW	Weakly limonitic lam. carb-siltstone.	-1	100	23	4.57	278	-3	63
4138073	321220	5437375	WACKER		1.5	Y	Ssi	FeLm		GW	Weakly ferrug. lam. carb-siltstone.	-1	4.5	6	1.33	70	-3	42
4138074	321291	5437361	WACKER		0.8	Y	Ssb			DG/N	Unaltered carbonaceous	-1	4.5	13	4.16	298	-3	75
4138075	321274	5437344	WACKER		1	Y	Ssb			DG/N	Carbonaceous shale.	-1	7	15	2.94	249	-3	63
4138076	321256	5437326	WACKER		0.8	Y	Ssb	Fe		DGY	Weakly ferruginous carbonaceous shale.	-1	41.5	15	9.6	634	-3	77
4138077	321238	5437308	WACKER		0.8	Y	SsbSss		Vq	DG/G	Carb-shale/quartzarenite, minor 2mm vein quartz.	-1	2.5	8	0.55	67	-3	41
4138078	321221	5437291	WACKER		0.7	Y	Ssh			G	'Bleached' carbonaceous shale.	-1	2	5	0.62	62	7	39
4138079	321203	5437273	WACKER		0.9	Y	SshCcy		We	LG/B	Str-We carb. shale approaching clay.	-1	0.5	8	0.6	88	4	42
4138080	321185	5437255	WACKER		0.8	Y	CcySshVq		We	DG/M	Ccy after carb-shale, clay contains limonitic Vq.	-1	27	20	3.36	68	3	44
4138081	321168	5437238	WACKER		1	Y	SshCcyVq	Fe	We	G	Str-We carb-shale, 4-5mm ferrug. Vq.	-1	9	11	2.44	188	5	42
4138082	321132	5437202	WACKER		0.8	Y	Ssh	Fe		DG/G	Carb-shale, trace ferrug. staining.	-1	2	5	3.12	531	5	49
4138083	321115	5437185	WACKER		1	Y	SsbCcy			DG/Y	Bleached shale capped by ferrug. Y clay.	-1	32.5	7	9.6	325	-3	71

The Clump Soil-Bedrock Orientation Survey (DPO 77674)

Sample No	AMG E	AMG N	Sample Type	Horizon	Depth	Bedrock	Field ID	Texture	Alt/Min	Colour	Comments	Ag ppm	As ppm	Cu ppm	Fe %	Mn ppm	Pb ppm	Zn ppm
4138084	321097	5437167	WACKER		1.2	Y	SsbVq	Fe		DG	Bleached shale, trace limonite, minor 2mm Vq.	-1	2	5	1.26	168	-3	42
4138085	321079	5437149	WACKER		0.5	Y	MslVq	FeFi		DG	Fissile weakly ferrug. slate, minor 3-4mm Vq.	-1	4.5	7	3.2	392	-3	40
4138086	321476	5436676	WACKER		2	Y	Sss		We	W	Med. gr. Sss, weathered to sand in part.	-1	0.5	6	0.31	18	-3	35
4138087	321494	5436694	WACKER		2	Y	SssQv			LG/W	Quartz veined quartzarenite.	-1	0.5	8	0.29	14	3	35
4138088	321512	5436712	WACKER		0.8	Y	Sss			LB/W	Med. gr. quartzarenite.	-1	0.5	6	0.29	15	3	53
4138089	321529	5436729	WACKER		0.3	Y	SshSss		We	DGDB	Carb-shale, str-We quartzarenite.	-1	0.5	10	0.43	42	5	42
4138090	321547	5436747	WACKER		0.5	Y	Ssi	Bn		NW	Banded graded siltstone.	-1	0.5	6	0.71	58	4	38
4138091	321565	5436765	WACKER		0.7	Y	Ssi	Lm		G	Laminated graded siltstone.	-1	1	15	0.56	61	16	38
4138092	321582	5436782	WACKER		0.5	Y	Ssi			G	Carbonaceous siltstone.	-1	0.5	10	0.59	72	3	34
4138093	321600	5436800	WACKER		0	Y	Ssb			N	Outcrop sample: black shale.	-1	3.5	10	2.8	340	7	45
4138094	321618	5436818	WACKER		0.3	Y	SsbSss			N/W	Black shale, minor quartzarenite.	-1	1	8	1.06	72	7	39
4138095	321635	5436835	WACKER		1.2	Y	SssSsb	Fe		W/N	Quartzarenite, lesser ferrug. black shale.	-1	1	45	0.66	192	-3	36
4138096	321653	5436853	WACKER		0.3	Y	SsbVq	Fe		N	Black shale containing We 5mm ferrug. Vq.	-1	1	10	2.88	416	-3	36
4138097	321671	5436871	WACKER		0.4	Y	Ssh	Fe		YG	Highly ferrug. shale, abundant 1mm ferrug. veinlets.	-1	12.5	35	9.9	740	-3	46
4138098	321688	5436888	WACKER		1	Y	Ssb			DG/N	Carbonaceous shale.	-1	1	6	0.55	86	26	38
4138099	321706	5436906	WACKER		0.3	Y	Ssi	Lm		DG/G	Laminated (carbonaceous and v. fine sand) siltstone.	-1	1	7	0.52	43	3	37
4138100	321724	5436924	WACKER		0.3	Y	Ssi			DG	Carbonaceous siltstone.	-1	1.5	5	0.13	86	6	37
4137901	321741	5436941	WACKER		1.6	Y	Ssi	Lm		DG	Laminated carbonaceous siltstone.	-1	1	6	0.49	28	3	36
4137902	321759	5436959	WACKER		1.8	Y	SssSsi		We	W/G	Med. gr. quartzarenite, lesser G carbonaceous siltstone.	-1	0.5	6	0.73	40	6	37
4137903	321777	5436977	WACKER		1	Y	Sss			W/LG	Med. gr. quartzarenite.	-1	0.5	6	0.32	17	3	35
Detection Limit												0.5	2	0.01	3	3	2	

794097

BMR LITH

Rock code as per published geological map
For time designation use:-

Q	Quaternary	M	Permian	P	Proterozoic
T	Tertiary	C	Carboniferous	A	Archaean
		S	Silurian		
K	Cretaceous	D	Devonian		
R	Triassic	O	Ordovician		
J	Jurassic	E	Cambrian		

FIELD ID

Field term for rock type
Broad groupings are:-

S	Sedimentary	I	Intrusive	C	Surficial
M	Metamorphic	E	Extrusive	O	Others

SEDIMENTARY

Sog	Conglomerate	Ss	Limestone	Sw	Wacke
Sst	Sandstone	Sd	Dolomite	Sag	Agglomerate/mixtite
Ss	Siltstone			Sax	Breccia
Ssh	Shale	Sch	Chert		
Sbs	Black shale	Sif	SIF		

METAMORPHIC

Msl	Slate	Mq	Quartzite	Mmg	Migmatite
Mph	Phyllite	Mm	Marble		
Msc	Schist	Ma	Amioniboite	Msk	Skarn
Mbs	Granitic schist	Mcs	Calcsilicate		
Mgn	Gneiss	Mh	Hornfels		

INTRUSIVE IGNEOUS

if	Felsic undiff.	ii	Intermed undiff.	iu	Ultramafic
ifo	Felsic porphyry	iio	Intermed porph	iuis	Serpentinite
ias	Andite	im	Mafic undiff.	ipg	Pegmatite
igr	Granite	ido	Diorite		
igd	Granodiorite	igo	Gabbro		

EXTRUSIVE IGNEOUS

Ery	Rhyolite	Ean	Andesite	Et	Tuff undiff
Ede	Dacite	Eb	Basalt	ER	Felsic tuff
				Emt	Mafic tuff

SURFICIAL (COVER) MATERIAL

Ca	Alluvium	Cit	Lignite	Csq	Gossan
Col	Colluvium	Cso	Pisolites	Cay	Clay
CS	Sand	Csf	Ironstone	Cv	Vegetation/peat
Cbs	Black soil	Csl	Siltcrete		
Cg	Gravel	Ccl	Calcrete		

OTHERS

Qvq	Vein quartz	Qmy	Mylonite	Qms	Massive sulphide
Qvc	Vein carbonate	Qbx	Breccia	Qxc	Contamination
Qvs	Vein sulfonide	Qf	Fault gouge	Qx	Unknown

TEXTURAL CODES

WEATHERING/SURFICIAL FEATURES

W	Weathered	F	Ferruginous
B	Bleached	Fe	Fe ox in fract
L	Leached		

MINERALISATION/ALTERATION FEATURES

G	Gossanous	Vs	Vein sulphide	Al	Altered
Vn	Veined	Cs	Dissemin sulion	S	Silicified
Vc	Vein carbonate	Fs	Fracture sulion		
Vq	Vein quartz	Bs	Banded sulion	Di	Disseminated

GEOLOGICAL FEATURES

Bd	Bedded	Fr	Fractured	Po	Porphyritic
Bn	Banded	ib	Interbedded	Sc	Schistose
Bx	Brecciated	Lm	Laminated	St	Sheared
F	Fissile (slaty)	Ma	Massive	Vu	Vuggy

DIAGNOSTIC MINERALOGY

PRIMARY MINERALISATION

Ca	Galena	Py	Pyrite	Ni	Ni sulphides
So	Sphalerite	Po	Pyrrhotite		
Co	Chalcocopyrite	Su	Unknown sulph		

SECONDARY MINERALISATION

Ls	Lead secondaries	Cs	Copper sec.	Ni	Ni secondaries
Zs	Zinc "	Us	Uranium "		

ALTERATION/DIAGNOSTIC MINERALS

Cy	Clay	Hs	Haematite	Gt	Garnet
Ep	Epidote	Mt	Magnetite	Ky	Kyanite
Cc	Carbonate	Js	Jarosite	To	Tourmaline
Sd	Siderite/Ankerite	Mn	Manganese mins	Cl	Chlorite
Di	Dolomite				

COLOUR CODES

L	Light	A	Banded	M	Mottled
D	Dark				
N	Black	P	Purple	V	Green
G	Grey	R	Red	K	Pink
B	Brown	O	Orange	E	Blue
W	White	Y	Yellow	S	Silver

APPENDIX 3

Nelson Prospect - Rock Geochemistry

Nelson Prospect Rock Samples

Sample No.	DPO	East	North	Field ID	Text	Alt/Min	Colour	Comments	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm
4142203	81227	322120	5432800	SbsSss	Bd	Py	DG	4m 1 rockchip of carbonaceous slst & f/g sdst from ck bed	30	17	41	<1	2.31	146	3	<3	<0.005	-	-	26.4
4142204	81227	321890	5432000	SssSsi	Bd		LG	Grab from roadcut of LiGy f/g sdst & lesser Gy slst	16	4	16	<1	0.68	68	<3	4	<0.005	-	-	2.3
4142205	81227	321910	5432000	Ssi	Bd		G	1m 1 rockchip from roadcut of slst with minor f/g sdst	3	5	9	<1	0.62	77	<3	<3	<0.005	-	-	0.9
4142206	81227	322120	5432000	SssSsi	BdVu		LG	Grab of qtz-musc sdst & slst. Some vugs in sdst after py.	12	18	13	<1	2.46	80	<3	<3	<0.005	-	-	5.6
4142207	81227	322240	5432005	SsiSss	Bd	Py	G	0.7m 1 rockchip from ck bed	19	8	15	<1	1.98	75	<3	4	<0.005	-	-	19.7
4142208	81227	322350	5432000	Mq	Ma		W	Subcrop grab sample. V.lr py casts.	5	<3	8	<1	1.08	69	<3	6	<0.005	-	-	1.4
4142209	81227	322380	5432000	Mq	Ma		W	Subcrop grab sample	11	4	4	<1	0.3	21	<3	5	<0.005	-	-	0.7
4142210	81227	322390	5433520	Ssi	Lm	ClPy	LV	Grab sample from ck bed	12	6	83	<1	4.19	514	11	18	<0.005	-	-	1.9
4142211	81227	322020	5432610	Sss	We		DB	Grab sample from road cut of qtz sdst.	14	4	19	<1	0.99	332	4	11	<0.005	-	-	0.9
4142212	81227	322120	5431625	SssSsi	Bd	Py	G	Grab of qtz sdst & lesser slst, tr py casts in sdst.	31	3	24	<1	1.12	84	<3	6	<0.005	-	-	8
4142213	81227	322275	5431600	SssSsi	Bd		LG	Grab of m/g qtz sdst with lesser G slst	10	6	10	<1	0.76	79	<3	<3	<0.005	-	-	0.7
4142214	81227	322345	5431600	Mq	Bd		W	Fill on ridge crest.	9	<3	5	<1	0.33	28	<3	5	<0.005	-	-	<0.5
4142215	81227	322580	5431605	Sss	BdSl	ClPy	VG	Grab from ck bed; sdst with some carbonaceous lamellae	13	<3	25	<1	5.7	438	4	11	<0.005	-	-	12.3
4142216	81227	322230	5431585	ObxCsf	Bx		B	Grab of Breccia or Ferricrete? Goeth matrix, qtz & qtzite clasts	2	<3	37	<1	22.7	652	<3	<3	<0.005	-	-	2.5
4142217	81227	322230	5431615	ObxCsf	Bx		B	Grab of Breccia or Ferricrete? Goeth matrix, qtz & qtzite clasts	6	12	14	<1	15.3	2674	10	<3	<0.005	-	-	4.2
4142227	81229	321680	5433775	Sss	WeBd	Py	LG-B	F/g sdst with up to 5% euhedral py. lb with slst not sampled.	54	47	52	<1	3.75	153	7	21	<0.005	-	-	48.3
4142228	81229	322520	5433660	Ssi	BdSl		G	2m rockchip in ck of carbo slst at top of Py.	10	<3	57	<1	3.61	212	<3	14	<0.005	-	-	18.6
4142229	81229	322530	5433675	Sbs	Bd		DG	1.2m rockchip of carbo slst	13	8	243	<1	4.75	302	<3	20	<0.005	0.005	-	64

Nelson Prospect Rock Samples

Sample No.	DPO	East	North	Field ID	Text	Alt/Min	Colour	Comments	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm
4142230	81229	322305	5433445	Ssi	Lm	ClPy	LV	Last observed V slst. V lr py.	11	<3	58	<1	3.66	777	7	23	<0.005	-	-	10.2
4142231	81229	322295	5433430	SsiSss	Bd		G-LG	Grab of G slst & LG l/g silty sdst caught up in roots of fallen tree.	12	12	61	<1	2.19	136	<3	12	<0.005	-	-	15.8
4142232	81229	322300	5433360	Sbs	Bd	Py	DG	Grab from ck bank of carbonaceous slst with 1-2% py.	17	19	56	<1	1.78	117	<3	8	<0.005	-	-	12.3
4142233	81229	322290	5433310	Ssi	Fr	Cl	LV	1m l rockchip of qtz-chl slst.	7	<3	44	<1	3.19	329	3	21	<0.005	-	-	9.4
4142234	81229	322210	5433180	SsiSss	Bd	Py	G-LG	Grab sample	20	5	116	<1	2.45	77	7	16	<0.005	-	<0.005	38.7
4142235	81229	322220	5433160	Sbs	Fr	Py	N	Grab of graphitic shale with tr py.	88	<3	42	<1	3.22	136	8	21	0.192	-	-	21.9
4142236	81229	322210	5433000	Mq		Py	W	Grab of qzite with black spots and lr py.	10	<3	17	<1	3.05	681	<3	6	0.01	-	-	7.3
4142237	81229	322140	5432965	SssSsi	Bd	Py	LG-G	Grab of thinly bedded LG l/g qz-mu-py sdsl & G slst.	18	7	28	<1	1.79	107	<3	5	<0.005	-	-	18.9
4142238	81229	322125	5432940	Sbs	Lm	Py	DG	Grab of carbonaceous slst with tr py.	15	49	52	<1	2.35	110	<3	8	<0.005	-	-	14.9
4142239	81229	322095	5432910	Sss	Vq		LG	3m l rockchip of qtz-mu sdsl with tr vn qtz.	17	7	70	<1	2.06	122	<3	6	<0.005	<0.005	-	26
4142240	81229	322080	5432830	SsiSss	Bd		G-LG	Grab of slst & sdsl with OB Fe staining on jts.	14	8	28	<1	2.03	180	<3	6	<0.005	-	-	29.4
4142241	81229	322125	5432845	Ssi	Bd		G	Grab of carbonaceous slst with only minor l/g	18	<3	34	<1	2.12	178	<3	5	<0.005	-	-	14.9
4142242	81229	322125	5432845	Sbs	Sh	Py	DG	Grab of carbonaceous slst with gf and py. Slickensides.	16	6	43	<1	2.15	213	<3	6	0.012	-	<0.005	9.3
4142243	81229	322080	5432650	Sbs	ShVq		DG	2.5m wide sample of sheared carbo slst with tr qtz vns.	24	6	58	<1	2.19	187	<3	9	0.008	-	-	31
4142244	81229	321995	5432525	Ssi	ShVq	Py	G	0.3m wide rockchip across splay fault of sheared slst	12	21	64	<1	1.66	105	<3	6	0.018	-	-	19.1
4142245	81229	321995	5432525	Ssh	Lm		G	Grab of shale immed on W side of fault (ie <0.5m from fault)	21	11	13	<1	1.16	41	<3	4	<0.005	-	-	10.8
4142246	81229	321995	5432525	SsiSss	Bd		G-LG	Grab from E side of ck.	15	6	48	<1	2.68	138	<3	6	<0.005	-	-	5038
4142247	81229	322030	5432480	Ssi	ShVq	Py	G	0.5m l sample of sheared carbo slst with minor vn qtz & tr py.	26	9	34	<1	2.57	199	<3	10	<0.005	-	-	20.8

Nelson Prospect Rock Samples

Sample No.	DPO	East	North	Field ID	Text	Alt/Min	Colour	Comments	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm
4142248	81229	322320	5431765	Ssh	Lm		G	Grab of carbonaceous shale with casts poss after py.	29	255	18	<1	1.29	145	<3	6	<0.005	-	-	19.4
4142249	81229	322290	5431840	Mq	Sl	Py	LG	Grab of qtzite with tr py.	21	336	35	<1	1.93	262	<3	10	<0.005	-	-	25
4142250	81229	322230	5431835	Ssi	Lm	He	G-WG	Grab of carbo slst with sandy lamellae & red hem affn.	12	24	20	<1	2.79	65	<3	3	<0.005	-	-	8.1
4142251	81229	322215	5432020	Ssi	ShVq	Py	G	Grab from S ck bank of qtz vnd py (5%) carbo slst	16	<3	35	<1	6.7	867	7	17	<0.005	-	-	32.1
4142252	81229	322215	5432020	SssSsi	Sl	Py	G	1.5m t rockchip	14	<3	32	<1	7.7	1486	4	15	<0.005	-	-	23.1
4142253	81229	322215	5432020	Sbs	Sl	Py	DG	0.25m t rockchip immed below 252 of carbo slst with 5-10% py.	24	<3	44	<1	19.5	2352	14	29	<0.005	-	-	34.1
4142254	81229	322215	5432020	Sss	SlVq	Py	LG	3m t rockchip immed above (E) 253 of qtz sdst with 2-5% py	10	<3	42	<1	6.9	1008	9	17	<0.005	<0.005	-	18.5
4142255	77185	322220	5433160	Sbs	FlSh	Py	N	0.7m t channel sample. Graphitic shale. Repeat of 4142235	34	13	50	<1	2.8	141	6	17	<0.005	-	-	18
4142256	77185	322220	5433160	Sbs	FlSh	Py	N	0.25m t channel sample. Above and 1.5m along strike to S of 255	14	13	47	<1	2.77	143	<3	9	<0.005	-	-	13
4142257	77185	322220	5433160	Ssi	LmVq	Py	G	0.8m t chip sample. 2% vein qtz and assoc py. Carb to graphitic	22	19	50	<1	4.21	212	36	34	<0.005	-	-	60
4142258	77185	322220	5433160	Sbs	Fl	Py	DG	1.0m t rockchip, carbonaceous. 3% py. Base 0.2m above 257	18	16	37	<1	3.05	128	11	29	<0.005	-	-	38
4142259	77185	322220	5433160	Ssi	LmVq	Py	DG	1.2m t rockchip, carbonaceous. Above 256, 6.5m S along strike	13	10	24	<1	1.86	83	<3	5	<0.005	<0.005	-	15
4142260	77185	322220	5433160	Mq	MaVq		EG	1m t rockchip sample in side creek immed above 259. Minor slst	8	19	35	<1	1.07	106	<3	4	<0.005	-	-	6.5
4142261	77185	322220	5433160	Ssi	Lm	Py	G-LG	1.5m t rockchip, siliceous slst and fn gr ssl. Top 2.5m below 257	18	14	55	<1	2.92	158	3	<3	<0.005	-	-	19
4142262	77185	322210	5433180	Ssi		Py	G	Grab sample siliceous, carbonaceous, pyritic (2%) slst.	18	16	60	<1	3.04	164	6	9	<0.005	-	-	28

Nelson Prospect Rock Samples

Sample No.	DPO	East	North	Field ID	Text	Alt/Min	Colour	Comments	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm
4142263	77185	322240	5433230	Ssi	Fivq	Py	DG	Grab sample graphitic siltstone. 1% Py, 2% vein qtz. Sheared	12	11	31	<1	1.89	149	4	5	<0.005	-	-	7.2

294103

APPENDIX 4

Nelson Prospect - Soil and Bedrock Geochemistry

Nelson Prospect Soil and Bedrock Geochemistry

Sample No.	East	North	DPO	Sample Type	Depth (cm)	Horizon	Text	Colour	Comments	Field ID	Mineral	Si	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Fe(1) %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm	As ppm
4141301	321975	5431600		hand auger	90				Abandoned in gravel	Cg																
4141302	321950	5431600	81227	hand auger	55	C		G	Slst frags	Ssi		0.17	6	<3	17	<1	0.63	-	56	<3	35	0.001	-	-	1.1	-
4141303	321925	5431600	81227	hand auger	45	C		DG	Carbonaceous micaceous slst	Sbs		0.06	3	4	17	<1	0.48	-	38	<3	3	0.002	-	-	0.5	-
4141304	321900	5431600	81227	hand auger	90	C		DG	Carbonaceous slst	Sbs		0.05	4	<3	16	<1	0.39	-	25	<3	3	0.002	-	-	1.3	-
4141305	321875	5431600	81227	hand auger	80	C		DG	Carbonaceous micaceous slst	Sbs		0.04	4	4	15	<1	0.45	-	38	<3	7	0.002	-	-	4.7	-
4141306	321850	5431600	81227	hand auger	60	C?		WB	Weath qtz slst frags & clay	Sss		0.07	2	<3	6	<1	0.24	-	23	<3	3	<0.001	-	-	1.1	-
4141307	321825	5431600	81227	hand auger	125	C		LG	Gy slst & LtBn f/g slst	Ssi		0.07	9	18	10	<1	0.53	-	25	<3	6	0.001	-	-	1.7	-
4141308	321800	5431600	81227	hand auger	110			WB	Abandoned in sand & gravel	Cg																
4141309	321775	5431600		hand auger	100				Abandoned in gravel	Cg																
4141310	321750	5431600	81227	hand auger	80	C		BG	Micaceous slst	Ssi		0.08	<2	3	14	<1	0.49	-	52	<3	<3	0.002	-	-	0.8	-
4141311	321725	5431600	81227	hand auger	90			WB	Abandoned in qtzite gravel	Cg																
4141312	321700	5431600	81227	hand auger	60			WB	Abandoned in qtzite gravel	Cg																
4141313	321675	5431600	81227	hand auger	25			WB	Abandoned in qtzite gravel	Cg																
4141313	321650	5431600	81227	hand auger	50			W	Abandoned in sand & gravel	Cg																
4141314	321625	5431600	81227	hand auger	60	C	Lm	W-G	clay weath	Ssi		0.05	2	<3	16	<1	0.74	-	103	<3	<3	<0.001	-	-	1.4	-
4141315	321600	5431600	81227	hand auger	70	C		G	Carbonaceous slst	Sbs		0.11	2	<3	34	<1	1.7	-	267	<3	3	<0.001	-	-	0.9	-
4141316	321575	5431600	81227	hand auger	80	B/C		GB		Ssi		0.15	17	9	45	<1	2.8	-	543	4	12	0.004	-	-	2.7	-
4141317	321550	5431600	81227	hand auger	110	C		DG	Carbonaceous slst	Sbs		0.1	4	<3	17	<1	0.49	-	55	<3	4	0.004	-	-	1	-
	321525	5431600		hand auger	110				Abandoned in qtzite gravel	Cg																
	321500	5431600		hand auger	80				Abandoned in qtzite gravel	Cg																
	321275	5431600		hand auger	110				Abandoned in waterlogged gravel	Cg																
4141318	321250	5431600	81227	hand auger	100	C	Lm	B	Slst frags	Ssi		0.06	13	<3	13	<1	0.59	-	71	3	6	0.001	0.001	-	1.9	-
4141319	321225	5431600	81227	hand auger	70	C		B-OB	Micaceous slst frags	Ssi		0.06	45	30	10	<1	0.46	-	76	<3	6	<0.001	-	-	1.4	-
4141320	321200	5431600	81227	hand auger	100	C	Fe	B	Fe micaceous soft slst frags	Ssi		0.03	11	9	10	<1	0.36	-	46	<3	5	0.001	-	-	0.6	-
4141321	321175	5431600	81227	hand auger	40		Fe	B-OB	Fe micaceous slst frags	Ssi		0.06	15	3	16	<1	0.51	-	32	<3	5	<0.001	-	-	1.2	-
4141322	321150	5431600	81227	hand auger	75	C	BdFe	B	Fe slst	Ssi		0.04	17	14	15	<1	0.43	-	53	3	3	<0.001	-	-	1.4	-
4141323	321125	5431600	81227	hand auger	110	C	Lm	GB	clayey, lam slst	Ssi		0.05	51	41	13	<1	0.41	-	37	<3	<3	<0.001	-	-	1.4	-
4141324	321100	5431600	81227	hand auger	110	C	Lm	B		Ssi		0.1	4	5	25	<1	1.04	-	83	<3	5	<0.001	-	-	1	-
4141325	321075	5431600	81227	hand auger	90	C	LmFe	B	Slst	Ssi		0.05	8	7	14	<1	0.32	-	14	<3	<3	0.001	-	-	1	-
4141326	321050	5431600	81227	hand auger	100	C	Lm	G	Gy-WGy slst weath to clay	Ssi		0.09	6	6	13	<1	0.53	-	63	<3	<3	<0.001	-	-	2.2	-
4141327	321025	5431600	81227	hand auger	85	C	Lm	G	Gy-WGy slst weath to clay	Ssi		0.07	6	4	10	<1	0.36	-	31	<3	<3	<0.001	-	-	1.5	-

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Sample No.	East	North	DPO	Sample Type	Depth (cm)	Horizon	Text	Colour	Comments	Field ID	Mineral	Si	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Fe(1) %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm	As ppm
4141328	321000	5431600	81227	hand auger	100	C	LmFe	DB		Ssi		0.04	2	<3	8	<1	0.29	-	13	<3	<3	0.001	-	-	0.6	-
4141368	321000	5432000	81227	hand auger	65	C		DG	Carbonaceous slst	Sbs			4	<3	11	<1	0.43	-	31	<3	4	0.004	-	-	1.3	-
4141369	321025	5432000	81227	hand auger	60	C		G	On low rise	Ssi			3	<3	12	<1	0.34	-	25	<3	<3	<0.001	-	-	0.6	-
4141370	321050	5432000	81227	hand auger	70	C	Sl	DB		Ssi			4	4	14	<1	0.36	-	13	<3	3	0.002	-	-	0.5	-
4141371	321075	5432000	81227	hand auger	70	C		B		Ssi			6	5	13	<1	0.59	-	68	<3	3	0.001	-	-	<0.5	-
	321100	5432000		hand auger	115				Abandoned in qtzite gravel	Cg																
	321125	5432000		hand auger	115				Abandoned in qtzite gravel	Cg																
	321175	5432000		hand auger	100				Abandoned in qtzite gravel	Cg																
4141372	321200	5432000	81227	hand auger	95	C	Fe	DB	Ferrug slst	Ssi			11	6	11	<1	0.41	-	47	3	3	0.002	-	-	2.2	-
	321225	5432000		hand auger	150				Abandoned in qtzite gravel	Cg																
4141373	321250	5432000	81227	hand auger	115	C	Lm	GB	micaceous slst	Ssi			19	8	23	<1	0.66	-	42	3	5	0.001	0.002	-	3.3	-
	321275	5432000		hand auger	100				Abandoned in qtzite gravel	Cg																
	321550	5432000		hand auger	60				Abandoned in gravel & clay	Cg																
	321625	5432000		hand auger	95				Abandoned in qtzite gravel	Cg																
4141374	321650	5432000	81227	hand auger	85	C		LG	Clay weath slst	Ssi			6	24	41	<1	1.67	-	150	<3	<3	<0.001	-	-	0.5	-
4141375	321675	5432000	81227	hand auger	65	C	Lm	G-LB	Clay weath slst	Ssi			4	9	17	<1	0.53	-	35	<3	3	<0.001	-	-	1	-
4141376	321700	5432000	81227	hand auger	60	C		G		Ssi			5	4	19	<1	0.54	-	41	3	3	0.001	-	-	0.7	-
4141377	321725	5432000	81227	hand auger	90	C		GB	Clay weath slst	Ssi			10	126	94	<1	1.01	-	73	<3	5	0.001	-	-	3.2	-
4141378	321750	5432000	81227	hand auger	110	C?		W	qiz sdst frags, sandy	Sss/Cg?			4	4	12	<1	0.55	-	29	<3	5	0.002	-	-	0.6	-
4141379	321775	5432000	81227	hand auger	60	C	Bd	LG	micaceous	Ssi			4	29	27	<1	0.74	-	92	<3	4	<0.001	-	-	0.7	-
4141380	321800	5432000	81227	hand auger	70	C		G	Carbonaceous slst	Sbs			2	5	23	<1	0.79	-	74	4	<3	0.001	-	-	<0.5	-
4141381	321825	5432000	81227	hand auger	65	C?		B	qiz sdst frags	Sss/Cg?			3	3	15	<1	0.47	-	40	<3	3	0.002	-	-	0.6	-
	321000	5432800		hand auger	120				Abandoned in wet sand	Cs																
4141394	321050	5432800	81227	hand auger	115	C		LG	Clay weath slst	Ssi			11	20	42	<1	1.5	-	96	<3	4	0.001	-	-	2.4	-
4141395	321075	5432800	81227	hand auger	70	C		B	Qtz-musc sdst	Sss			6	5	16	<1	0.73	-	55	<3	<3	0.002	-	-	0.8	-
4141396	321100	5432800	81227	hand auger	55	C	Lm	B-LG	Clay weath slst	Ssi			5	<3	12	<1	0.55	-	67	<3	3	0.004	-	-	0.7	-
	321125	5432800		hand auger	60				Abandoned in qtzite gravel	Cg																
	321425	5432800		hand auger					Abandoned in qtzite gravel	Cg																
4141403	321700	5432800	81227	hand auger	110	C		GB	Slst. Gravel to 100cm.	Ssi			101	30	32	<1	1.06	-	104	3	10	0.004	-	-	6.4	-
4141404	321725	5432800	81227	hand auger	160	C		DG	Clay, micaceous, no frags				8	15	19	<1	0.61	-	72	<3	4	0.002	-	-	4.6	-
4141405	321750	5432800	81227	hand auger	40	C		G	l/g sdst	Sss			4	5	11	<1	0.77	-	34	<3	9	0.002	-	-	13.6	-
4141406	321775	5432800	81227	hand auger	30	C		DG	Carbonaceous slst	Sbs			3	3	13	<1	0.54	-	43	<3	5	0.002	-	-	1.4	-
4141407	321800	5432800	81227	hand auger	70	C		BG	Slst	Ssi			5	5	23	<1	2.87	-	135	<3	7	0.002	0.001	-	20.1	-
4141408	321825	5432800	81227	hand auger	70	C		DG	Carbonaceous slst	Sbs			7	<3	11	<1	0.51	-	68	<3	10	0.004	-	-	4.6	-
4141409	321850	5432800	81227	hand auger	70	C		LGB	Slst	Ssi			5	6	15	<1	2.69	-	59	<3	3	0.002	-	-	16.6	-

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Sample No.	East	North	DPO	Sample Type	Depth (cm)	Horizon	Text	Colour	Comments	Field ID	Mineral	Sl	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Fe(1) %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm	As ppm	
4141410	321875	5432800	81227	hand auger	65	C		VB	GnBn slst	Ssi			6	13	61	<1	4.06	-	387	4	16	0.002	-	-	5.7	-	
4141411	321900	5432800	81227	hand auger	35	C		LBG	Clay weath slst	Ssi			6	5	19	<1	1.54	-	89	<3	5	0.002	-	-	12.1	-	
4141412	321925	5432800	81227	hand auger	75	C		MLGB	S/sst	Ssi			7	3	13	<1	1.38	-	68	<3	7	0.002	-	-	12.3	-	
4141413	321950	5432800	81227	hand auger	40	C		VB		Ssi			6	5	16	<1	2.3	-	56	<3	7	0.002	-	-	29.4	-	
4141414	321975	5432800	81227	hand auger	50	C		VB		Ssi			5	<3	16	<1	1.36	-	51	<3	8	0.001	-	-	17.7	-	
4141415	322000	5432800	81227	hand auger	45	C		EG	S/sst	Ssi			10	8	24	<1	2.26	-	61	<3	3	0.004	-	-	29	-	
4141416	322025	5432800	81227	hand auger	55	C		VB	S/sst	Ssi			17	32	30	<1	4.98	-	58	<3	5	0.004	-	-	23	-	
4141417	322050	5432800	81227	hand auger	60	C	Bd	B		Ssi			14	11	28	<1	2.5	-	59	<3	8	0.006	-	-	27.9	-	
4141418	322075	5432800	81227	hand auger	40	C	Lm	OB-LG	S/sst	Ssi			8	37	17	<1	2.28	-	60	<3	8	0.004	-	-	43.4	-	
4141419	322100	5432800	81227	hand auger	40	C		GB	Qtz-musc sdst frags	Sss			8	20	24	<1	4.6	-	56	<3	5	0.004	-	-	33.5	-	
4141420	322150	5432800	81227	hand auger	60	C		LOB	Clay, steep slope	Sss			5	4	7	<1	1.26	-	21	<3	<3	0.004	-	-	3.3	-	
4141421	322175	5432800	81227	hand auger	50	C		LOB	F/g sdst frags, steep slope	Sss			6	4	10	<1	1.94	-	35	<3	3	0.004	-	-	8.5	-	
4141422	322200	5432800	81227	hand auger	80	C?		B		Sss			5	4	12	<1	1.56	-	23	<3	10	0.004	-	-	21.4	-	
4141423	322225	5432800	81227	hand auger	40	C		LB	F/g sdst	Sss			7	<3	17	<1	2.24	-	106	<3	6	0.004	-	-	11.1	-	
4141424	322250	5432800	81227	hand auger	50	B/C		WB	Qtzite rubble on narrow ridge.	Mq			4	3	7	<1	0.29	-	11	<3	6	0.004	-	-	0.8	-	
4141425	322275	5432800	81227	hand auger	55	B/C?		B	Qtzite - scree or rubbly bedrock?	Mq/Cg			3	<3	7	<1	0.21	-	9	<3	11	0.004	-	-	<0.5	-	
4141426	322300	5432800	81227	hand auger	80	C		LBG	Pale slst frags	Ssi			3	<3	9	<1	0.34	-	9	<3	5	0.004	-	-	<0.5	-	
	322325	5432800		hand auger	80				Abandoned in qtzite gravel	Cg																	
	322350	5432800		hand auger	70				Abandoned in qtzite gravel	Cg																	
	321850	5432000		hand auger	105				Abandoned in gravel 33mins.	Cg																	
4141427	321950	5432000	81227	hand auger	50	C		G	Carbonaceous micaceous slst	Sbs			2	5	13	<1	0.68	-	85	<3	3	0.004	-	-	<0.5	-	
4141428	321975	5432000	81227	hand auger	100	C		G	F/g qtz-musc sdst	Sss			3	8	12	<1	0.43	-	30	<3	10	0.004	-	-	0.9	-	
4141429	322000	5432000	81227	hand auger	110	C?		G	F/g sdst & tr vn qtz frags	Sss?			3	7	13	<1	0.55	-	31	<3	10	0.002	-	-	1.1	-	
4141430	322025	5432000	81227	hand auger	70	C?		G	Qtz-musc sdst frags	Sss			3	4	13	<1	0.67	-	81	<3	9	0.004	-	-	0.5	-	
4141431	322050	5432000	81227	hand auger	90	C		LG	Qtz-musc sdst frags	Sss			3	<3	14	<1	0.54	-	63	<3	12	0.004	-	-	0.5	-	
4141432	322075	5432000	81227	hand auger	45	C		G	(Carbonaceous) slst	Sbs			3	<3	18	<1	0.57	-	54	<3	10	0.004	-	-	0.9	-	
4141433	322100	5432000	81227	hand auger	85	C		WG	Qtz-musc sdst	Sss			6	<3	13	<1	0.49	-	49	<3	13	0.004	-	-	4.4	-	
4141434	322125	5432000	81227	hand auger	50	C		VB	Clay weath	Ssi			8	8	23	<1	-	7.8	86	<3	3	0.004	-	-	19.1	-	
4141435	322150	5432000	81227	hand auger	60	C		VG	Clay with slst frags	Ssi			20	33	17	<1	3.3	-	56	3	3	0.004	-	-	26.9	-	
4141436	322175	5432000	81227	hand auger	65	C		VBG	Clay weath	Ssi			12	8	21	<1	4.54	-	90	<3	6	0.004	-	-	20.6	-	
4141437	322200	5432000	81227	hand auger	40	C		OB	Sdst frags	Sss			9	22	23	<1	-	5.2	277	3	6	0.004	0.006	-	6.9	-	
4141438	322225	5432000	81227	hand auger	70	C		MOG	Clay	Sss			13	9	22	<1	-	6.3	259	<3	5	0.004	-	-	36.4	-	
4141439	322250	5432000	81227	hand auger	70	C		DG	Carbonaceous slst	Sbs			5	3	12	<1	0.43	-	16	<3	7	0.004	-	-	1.4	-	
	322275	5432000		hand auger	70				Abandoned in collapsing qtzite	Cg																	
	322350	5432000		hand auger					Abandoned in qtzite scree	Cg																	
	322400	5432000		hand auger					Abandoned in qtzite scree	Cg																	

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Sample No.	East	North	DPO	Sample Type	Depth (cm)	Horizon	Text	Colour	Comments	Field ID	Mineral	Si	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Fe(1) %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm	As ppm
	322500	5432000		hand auger	40				Abandoned in quartzite scree	Cg																
	322600	5432000		hand auger	35				Abandoned in quartzite scree	Cg																
	322650	5432000		hand auger	45				Abandoned in quartzite scree	Cg																
4141440	322675	5432000	81227	hand auger	70	C		B	No rock frags				7	5	14	<1	0.58		25	3	15	0.004			0.7	
4141441	322700	5432000	81227	hand auger	80	C	Lm	LB-LV	Slst frags	Ssi			4	<3	28	<1	1.21		68	<3	8	0.004			0.9	
4141442	322725	5432000	81227	hand auger	65	C		W	Siliceous slst	Ssi			7	<3	15	<1	0.37		13	3	5	0.002	0.004		0.8	
4141443	322750	5432000	81227	hand auger	80	C		W	F/g qtz-musc silly sdst	Sss			6	<3	4	<1	0.32		6	<3	10	0.004			2.2	
4141444	322775	5432000	81227	hand auger	80	C	Lm	LG	Clay weath slst	Ssi			2	<3	15	<1	0.78		71	3	6	0.001			3.5	
4141445	322800	5432000	81227	hand auger	70	C		W	Clay	Ssi			2	<3	19	<1	0.28		10	<3	5	0.002			1.1	
4141446	322825	5432000	81227	hand auger	70	C		LB	Clay weath slst	Ssi			28	4	108	<1	1.42		38	6	21	0.004			5.8	
4141447	322850	5432000	81227	hand auger	55	C		LB	Qtz sdst frags	Sss			4	4	9	<1	0.27		8	4	21	0.004			0.7	
4141448	322875	5432000	81227	hand auger	100	C		LB	Sandy slst frags	Ssi			3	3	10	<1	0.59		11	3	9	0.002			<0.5	
4141449	322900	5432000		hand auger	80	C	Lm	LG	Slst	Ssi			<2	<3	13	<1	0.63		25	<3	5	0.002			2.7	
	322050	5431600		hand auger	60				Abandoned in gravel	Cg																
4141450	322100	5431600	81227	hand auger	70	C		G	Qtz sdst frags	Sss			2	<3	5	<1	0.35		34	<3	14	0.002			1.1	
4141451	322125	5431600	81227	hand auger	40	C		G	Qtz sdst frags	Sss			2	<3	70	<1	0.38		58	4	11	0.002			0.5	
4141452	322150	5431600	81227	hand auger	50	C		DG	Carbonaceous micaceous slst	Sbs			2	<3	11	<1	0.5		75	3	20	0.002			<0.5	
4141453	322175	5431600	81227	hand auger	30	C		LG	Qtz sdst	Sss			2	<3	3	<1	0.16		20	<3	12	0.002			<0.5	
4141454	322200	5431600	81227	hand auger	40	C		LG	Qtz sdst	Sss			<2	<3	<2	<1	0.13		14	<3	9	0.001			0.5	
4141455	322225	5431600	81227	hand auger	45	C		LB	Qtz sdst/Qtzite	Sss			3	<3	4	<1	0.59		37	<3	16	0.002			2	
4141456	322250	5431600	81227	hand auger	50	C		DG	Carbonaceous siliceous slst	Sbs			2	3	44	<1	0.45		38	<3	8	0.002			1.3	
4141457	322300	5431600	81227	hand auger	70	C		LG	Qtz sdst, minor slst. Beow qtz scree	Sss			2	<3	7	<1	0.19		31	<3	10	0.002			0.7	
4141458	322400	5431600	81227	hand auger	70	C?		W	Sandy, qtz sdst	Sss			<2	<3	5	<1	0.19		20	<3	16	0.002			<0.5	
4141459	322450	5431600	81227	hand auger	60	C		LG	Qtz sdst	Sss			2	<3	7	<1	0.34		23	4	13	0.001			3.5	
4141460	322475	5431600	81227	hand auger	85	C		G	V. time consuming	?			2	<3	7	<1	0.53		28	<3	12	0.002			1.2	
4141461	322500	5431600	81227	hand auger	50	C		OB	Distinct sample change. F/g sdst	Sss			5	6	31	<1	2.19		78	<3	19	0.002			44.9	
4141462	322525	5431600	81227	hand auger	45	C		OB					3	<3	20	<1	2.8		162	3	17	0.002			12.6	
4141463	322550	5431600	81227	hand auger	35	C		GV	Slst	Ssi			2	<3	10	<1	6.1		42	<3	5	0.002			21.1	
4141464	322600	5431600	81227	hand auger	60	C		EG	Weath sdst frags	Sss			2	<3	5	<1	1.95		107	<3	11	0.002			1.3	
	322625	5431600		hand auger	180				Abandoned in sand & gravel	OsOg																
4141465	322650	5431600	81227	hand auger	210	C		G	Carbonaceous slst	Sbs			2	4	21	<1	0.78		94	<3	19	0.001			1.2	
4141466	322675	5431600	81227	hand auger	100	C		YB	Clay				5	<3	22	<1	3.09		31	<3	11	0.002			8.5	
4141467	322700	5431600	81227	hand auger	60	C		Y	Clay. Trench @ 322705mE				3	4	11	<1	3.13		64	<3	14	0.002			2.7	
4141468	322725	5431600	81227	hand auger	40	C	Fe	VB	Ferrug slst frags	Ssi			6	<3	12	<1	5.3		55	<3	7	0.004			12.3	
4141469	322750	5431600	81227	hand auger	60	C		YB	Sdst frags	Sss			14	<3	9	<1	2.71		34	<3	7	0.002			14.8	
4141470	322775	5431600	81227	hand auger	70	C	Lm	MOG	Clay dom slst & lesser sdst frags	SsiSss			9	<3	14	<1	4.63		53	<3	<3	0.002			6	

Nelson Prospect Soil and Bedrock Geochemistry

Sample No.	East	North	DPO	Sample Type	Depth (cm)	Horizon	Text	Colour	Comments	Field ID	Mineral	Si	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Fe(1) %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm	As ppm
4141471	322800	5431600	81227	hand auger	50	C		Y	Clay dom				5	<3	15	<1	3.67	-	17	<3	6	0.004	-	-	4.9	-
4141472	322825	5431600	81227	hand auger	50	C		YB	Sdst frags. mostly clay	Sss			7	3	12	<1	1.75	-	9	<3	13	0.004	-	-	43.5	-
4141473	322850	5431600	81227	hand auger	80	C		MOG	Sdst & lesser slst	SssSsi			2	5	13	<1	1.07	-	23	<3	9	0.002	-	-	3.9	-
4141474	322875	5431600	81227	hand auger	50	C		YB	Clay dominated				6	3	19	<1	2.55	-	48	<3	10	0.002	-	-	15.5	-
4141475	322900	5431600	81227	hand auger	95	C		LB		Ssi			3	4	24	<1	0.66	-	43	<3	13	0.001	-	-	1.7	-
4141476	322925	5431600	81227	hand auger	30	C		MYG	Qtz sdst frags	Sss			2	4	25	<1	1.19	-	73	<3	11	0.001	-	-	7.6	-
4141477	322950	5431600	81227	hand auger	85	C?		LB	V weath sdst	Sss			24	32	24	<1	0.61	-	41	<3	22	0.002	-	-	2.4	-
4141478	322975	5431600	81227	hand auger	60	C		LB		Ssi			7	5	19	<1	1.12	-	36	<3	8	0.001	-	-	6.3	-
4141535	321650	5431200	81230	wacker	450	Trans?		WB	qzite gravel?	Cg?			4	9	10	<1	0.45	-	24	<3	48	0.002	-	-	7	-
4141536	321625	5431200	81230	wacker	200	C	Lm	B-G		Ssi			6	<3	7	<1	0.67	-	83	<3	12	0.002	-	-	0.9	-
4141537	321600	5431200	81230	wacker	150	bedrock		G	carbonaceous slst	Sbs			2	4	9	<1	0.55	-	85	<3	4	0.001	-	-	0.9	-
4141538	321575	5431200	81230	wacker	130	bedrock		DG	carbonaceous slst	Sbs			<2	<3	7	<1	0.4	-	58	<3	11	<0.001	-	-	<0.5	-
4141539	321550	5431200	81230	wacker	220	bedrock		G		Ssi			2	<3	16	<1	1.46	-	206	<3	10	0.001	-	-	1.2	-
4141540	321525	5431200	81230	wacker	730	bedrock	Lm	LG-G		Ssi			20	6	66	<1	1.94	-	133	9	23	0.001	-	-	50	-
4141541	321500	5431200	81230	wacker	300	bedrock	Lm	G		Ssi			61	113	36	1	4.13	-	164	27	36	0.001	-	-	3.6	-
4141542	321475	5431200	81230	wacker	640	bedrock	Lm	G-W	micaceous slst (Pyjama slst)	Ssi			14	14	103	<1	1.4	-	94	9	21	0.004	-	-	17.7	-
4141543	321450	5431200	81230	wacker	410	bedrock	Lm	G-W	(Pyjama slst)	Ssi			11	12	90	<1	1.64	-	130	9	23	0.002	-	-	14.7	-
4141544	321425	5431200	81230	wacker	490	bedrock	Lm	G-W	(Pyjama slst)	Ssi			17	12	122	<1	1.94	-	167	7	18	0.001	-	-	6.2	-
4141545	321400	5431200	81230	wacker	280	bedrock	Lm	G-W	(Pyjama slst)	Ssi			20	6	82	1	1.9	-	171	13	31	0.001	-	-	8.2	-
4141546	321375	5431200	81230	wacker	110	C	Lm	G-WB	3m W of ck adj to tiny o/c	Ssi			5	<3	19	1	1.28	-	109	3	11	<0.001	-	-	1	-
4141547	321350	5431200	81230	wacker	350	bedrock	Lm	G-W	qtz-musc sdst and slst. Tr py	SssSsi	Py		14	9	30	1	1.96	-	141	11	25	0.001	-	-	3.4	-
4141548	321325	5431200	81230	wacker	380	bedrock	Lm	W-G	(Pyjama slst)	Ssi			14	6	25	<1	1.84	-	204	9	21	0.001	-	-	3.1	-
4141549	321300	5431200	81230	wacker	350	bedrock	Lm	W-G	(Pyjama slst)	Ssi			14	3	18	<1	1.69	-	184	6	17	<0.001	0.006	-	5.3	-
4141550	321275	5431200	81230	wacker	340	C	LmWe	BG	Small sample	Ssi			7	3	8	<1	0.63	-	35	<3	13	I/S	-	-	3.5	-
4141551	321250	5431200	81230	wacker	490	bedrock	Lm	W-G	Qtz-musc l/g sdst & G slst	SssSsi			18	31	95	<1	1.98	-	178	8	23	0.001	-	-	3.8	-
4141552	321225	5431200	81230	wacker	240	C	LmWe	G-BG		Ssi			24	42	99	1	1.49	-	135	7	18	<0.001	-	-	8.2	-
4141553	321200	5431200	81230	wacker	380	bedrock	Lm	W-G	Tr py	SsiSss	Py		12	17	50	1	1.68	-	187	8	17	<0.001	-	-	9.2	-
4141554	321175	5431200	81230	wacker	360	C	LmWe	G-BG		Ssi			20	17	148	1	1.33	-	128	12	26	<0.001	-	-	13.8	-
4141555	321150	5431200	81230	wacker	580	bedrock	Lm	G-LG		Ssi			12	8	84	<1	2.16	-	261	5	18	<0.001	-	-	5.8	-
4141556	321125	5431200	81230	wacker	560	bedrock	Lm	G-W	Abundant v.l/g Py (Po?)	Ssi	Py		8	11	85	<1	2.83	-	116	8	21	<0.001	-	-	13.1	-
4141557	321100	5431200	81230	wacker	300	bedrock	Lm	G-W	Slst & l/g sdst	SsiSss			12	18	86	<1	1.13	-	81	7	21	<0.001	-	-	30.2	-
4141558	321075	5431200	81230	wacker	240	C	LmWe	BG		Ssi			<2	3	21	<1	1.1	-	99	<3	10	<0.001	-	-	0.7	-
4141559	321050	5431200	81230	wacker	100	C	LmWe	BG	Some cover sand & gravel mixed in	Ssi			4	10	9	<1	0.6	-	65	<3	7	0.001	-	-	0.5	-
4141560	321025	5431200	81230	wacker	100	C	LmWe	BG		Ssi			5	15	452	<1	0.76	-	68	4	15	<0.001	-	-	11.9	-
4141561	321000	5431200	81230	wacker	100	C	LmWe	BG		Ssi			8	22	16	<1	1.02	-	111	3	13	0.001	-	-	5.2	-
4141568	321275	5431600	81230	wacker	310	bedrock	Bd	GW	qtz-musc l/g silty sdst	Sss			20	<3	27	<1	3	-	301	8	21	<0.001	-	-	2.1	-
4141569	321300	5431600	81230	wacker	270	bedrock	Lm	W-G		Ssi			9	<3	28	<1	2.42	-	220	10	32	<0.001	-	-	2.4	-
4141570	321325	5431600	81230	wacker	260	bedrock	Lm	G-W		Ssi			19	<3	26	<1	2.76	-	202	12	28	<0.001	-	-	3.6	-
4141571	321350	5431600	81230	wacker	250	bedrock	Lm	G-W	V tr py	Ssi	Py		35	10	23	<1	2.44	-	177	22	27	0.001	-	-	9.1	-

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Sample No.	East	North	DPO	Sample Type	Depth (cm)	Horizon	Text	Colour	Comments	Field ID	Mineral	Si	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Fe(1) %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm	As ppm	
4141572	321375	5431600	81230	wacker	570	bedrock	Lm	G-W	Common v.l/g clotted Py	Ssi			19	10	44	<1	2.37		177	11	20	0.001			6.5		
4141573	321400	5431600	81230	wacker	320	bedrock	Lm	G-W		Ssi	Py			58	14	77	<1	4.81		399	18	31	<0.001			15.2	
4141574	321425	5431600	81230	wacker	360	bedrock	Lm	G-W	micaceous	Ssi			19	5	99	<1	2.73		225	9	16	<0.001			4.4		
4141575	321450	5431600	81230	wacker	100	C	LmWe	GB		Ssi				16	10	27	<1	0.84		85	<3	7	0.002			1.4	
4141576	321475	5431600	81230	wacker	740	bedrock	Lm	G-W	Tr py	Ssi			28	17	38	<1	2.24		130	13	29	<0.001			5.8		
4141577	321500	5431600	81230	wacker	470	bedrock	Lm	G-W		Ssi				17	13	19	<1	1.62		110	7	19	<0.001			3.1	
4141578	321525	5431600	81230	wacker	200	bedrock	Lm	G	V.small sample carbonaceous slst	Ssi	Py		26	20	80	<1	1.36		93	9	22	0.001			19.7		
4141579	321650	5431600	81230	wacker	330	bedrock	Lm	G		Sbs				32	20	41	<1	1.54		132	<3	7	0.002			2.2	
4141580	321675	5431600	81230	wacker	340	bedrock	Lm	DG	Slst & minor sdst. Tr v.l/g py	Sbs			6	5	24	<1	0.65		69	<3	6	0.001			1		
4141581	321700	5431600	81230	wacker	410	bedrock	Lm	G-WB		SsiSss	Py			8	20	128	<1	0.92		48	<3	8	<0.001			1.2	
4141582	321725	5431600	81230	wacker	190	bedrock	Lm	LG	slst & l/g sdst. Tr py	Ssi			11	17	76	<1	0.76		63	4	14	<0.001			6.4		
4141583	321775	5431600	81230	wacker	230	C	WeLm	B-G		Ssi				15	17	13	<1	1.43		122	4	9	0.004			5.9	
4141584	321800	5431600	81230	wacker	240	bedrock	Bd	G	Tr py	SsiSss	Py		8	19	136	<1	0.57		57	<3	11	<0.001			2.1		
4141585	321625	5432000	81230	wacker	390	bedrock	Lm	G-WG		Ssi	Py			13	56	51	<1	2.61		167	6	17	<0.001			13.9	
4141586	321600	5432000	81230	wacker	90	C	BdWe	B-G	carbonaceous slst	Ssi			16	13	12	<1	1.86		135	10	16	0.004			9.3		
4141587	321575	5432000	81230	wacker	100	C	WeLm	DG-B		Sbs				11	9	31	<1	1.55		152	7	16	<0.001			3.2	
4141588	321550	5432000	81230	wacker	130	C	We	B	carbonaceous slst graphitic	Ssi			34	21	9	<1	1.23		91	8	10	<0.001			12.2		
4141589	321525	5432000	81230	wacker	110	bedrock		DG		Sbs				3	7	7	<1	0.41		45	<3	4	<0.001			1.4	
4141590	321500	5432000	81230	wacker	190	bedrock		N	Sbs				8	9	29	<1	0.64		91	<3	4	<0.001			2		
4141591	321475	5432000	81230	wacker	540	bedrock	Lm	GLG	(Pyjama slst) (Pyjama slst) Minor v.l/g py	Ssi			27	17	27	<1	0.74		51	<3	16	<0.001	<0.001			3.5	
4141592	321450	5432000	81230	wacker	150	bedrock	Lm	G-W		Ssi				26	19	35	<1	2.64		198	6	20	<0.001			19.8	
4141593	321425	5432000	81230	wacker	460	bedrock	Lm	G-W	Unable to penetrate quartzite gravel	Ssi	Py		27	14	15	<1	1.96		150	7	22	<0.001			10.5		
4141594	321400	5432000	77184	wacker	630	trans				Cg																	
4141595	321375	5432000	77184	wacker	400	bedrock	Lm	W-G	Sandy slst, trace pyrite	Ssi			21	30	39	<1	2.16		173	5	20	<0.001			13		
4141596	321350	5432000	77184	wacker	560	bedrock	Lm	W-G		Ssi	Py			27	40	116	<1	2.24		180	8	30	<0.001			7.8	
4141597	321325	5432000	77184	wacker	420	C	WeLm	G-W	Slst, trace v fn pyrite	Ssi	Py		19	43	139	<1	1.53		114	10	17	0.001			11		
4141598	321300	5432000	77184	wacker	760	bedrock	Lm	G-W		Ssi				30	71	125	<1	2.26		203	14	20	<0.001			10	
4141599	321275	5432000	77184	wacker	?	bedrock	Lm	G-W	Slst. Minor pyrite on joint	Ssi			25	72	123	<1	2.15		183	10	20	0.001	<0.001			14	
4141600	321225	5432000	77184	wacker	350	bedrock	Lm	W-G		Ssi	Py			14	25	60	<1	2.41		256	<3	17	<0.001			5.4	
4141601	321175	5432000	77184	wacker	440	bedrock	Bd	WB-G	Sandy slst	Ssi			13	18	70	<1	1.89		244	<3	14	<0.001		<0.001	3.3		
4141602	321150	5432000	77184	wacker	380	bedrock	Lm	W-G		Ssi				21	21	30	<1	1.75		198	5	16	0.001	<0.001			8.1
4141603	321125	5432000	77184	wacker	?	bedrock	Lm	G-W	Weathered slst with gravel coniam	Ssi-Sss			103	34	42	<1	1.82		210	7	17	<0.001			13.5		
4141604	321100	5432000	77184	wacker	?	C	WeLm	LB		Ssi				9	16	10	<1	0.58		56	5	34	0.001			7.8	
4141611	321000	5432800	77184	wacker	220	bedrock	Lm-Bd	W-G	Higher % coarser while silt than prev.	Ssi			23	46	136	<1	2.46		183	12	24	<0.001			6		
4141612	321025	5432800	77184	wacker	200	bedrock	Bd	W-G		Ssi				18	39	237	<1	1.82		222	3	14	<0.001			5.7	
4141613	321125	5432800	77184	wacker	340	bedrock	Lm-Bd	W-G		Ssi			23	40	39	<1	1.45		197	10	17	<0.001			19		
4141614	321150	5432800	77184	wacker	450	bedrock	Lm	W-G		Ssi				27	35	76	<1	2.04		165	7	14	0.001			19	

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Sample No.	East	North	DPO	Sample Type	Depth (cm)	Horizon	Text	Colour	Comments	Field ID	Mineral	Si	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Fe(1) %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm	As ppm	
4141615	321175	5432800	77184	wacker	450	C-bdrck	Lm	DYOG	Thin bands ironstone in places after ?py	Ssi			25	41	51	<1	2.25		228	8	13	<0.001			7		
4141616	321200	5432800	77184	wacker	460	bedrock	Lm-Bd	W-G		Ssi			12	48	101	<1	1.96		170	7	18	<0.001			19		
4141617	321225	5432800	77184	wacker	350	bedrock	Lm-Bd	W-G		Ssi			28	26	96	<1	2.86		228	7	24	0.001			6.1		
4141618	321250	5432800	77184	wacker	320	bedrock	Bd	W-G	Predom thinly bedded sltst. Tr py	Ssi	Py		21	27	31	<1	2.26		177	6	21	<0.001			6.1		
4141619	321275	5432800	77184	wacker	280	C-bdrck	Bd	YB-G	Sltst grading to v In sst. Tr py	Ssi-Sss	Py		15	23	18	<1	0.5		51	3	9	<0.001			4		
4141620	321300	5432800	77184	wacker	300	C	WeMa	DYB	Black stain. Mn? Organic matter?	Ssi			12	15	9	<1	0.67		71	3	11	0.001			3		
4141621	321325	5432800	77184	wacker	400	bedrock	Lm-Bd	W-LG	Higher % coarser sltst	Ssi			8	27	47	<1	1.92		148	15	27	0.001			13		
4141622	321350	5432800	77184	wacker	470	bedrock	Lm	W-G		Ssi			16	276	106	<1	1.83		190	10	22	<0.001			12		
4141623	321375	5432800	77184	wacker	360	bedrock	Lm-Bd	LG-N	Tr v In grained qtz sst laminae. Tr py?	Ssi	?Py		12	42	98	<1	1.79		178	5	12	<0.001		0.001	3.6		
4141624	321400	5432800	77184	wacker	280	bedrock	Ma	G	Tr py	Ssi	Py		9	23	57	<1	0.81		177	3	<3	<0.001			11		
4141625	321425	5432800	77184	wacker	150	C	Ma	DYB	Fr gr qtz sst with brn-bk ?Fe/Mn cmt	Sss			4	11	5	<1	0.17		16	<3	15	<0.001			1.3		
4141626	321450	5432800	77184	wacker	140	Trans		W	Pred qtzite gravel. Minor loose qtz gns	Cg			4	9	28	<1	0.23		24	<3	21	<0.001			1.2		
4141627	321475	5432800	77184	wacker	120	bedrock	Ma	DG-N	Carb, arg sltst with v In diss py. Tr sst	Sbs	Py		9	34	21	<1	1.01		96	<3	4	0.001			1.3		
4141628	321500	5432800	77184	wacker	?	C	Ma-Sl	DYB	Sil sltst grad lo v In sst. Gravel contain	Ssi			5	21	39	<1	2.2		241	<3	11	<0.001			1.8		
4141629	321525	5432800	77184	wacker	?	C	Ma	DYB-N	Tr mica?	Ssi			10	24	12	<1	0.57		98	<3	6	<0.001			1		
4141630	321550	5432800	77184	wacker	220	C-bdrck	Lm	YB-DG		Ssi			3	26	15	<1	0.66		54	<3	4	<0.001			1.1		
4141631	321575	5432800	77184	wacker	180	bedrock	Ma-Lm	DG-N	Carb, arg sltst. Tr v ltn lam coarse sltst	Sbs			108	92	104	<1	1.29		38	11	9	<0.001			9.5		
4141632	321600	5432800	77184	wacker	200	C	We-Lm	DYB	Weathered Pyjama Siltstone?	Ssi			4	20	14	<1	0.57		40	<3	9	0.001			1.5		
4141633	321625	5432800	77184	wacker	220	bedrock	Ma	G	"Spotted" sltst	Ssi			5	14	12	<1	0.46		39	<3	6	<0.001			1.3		
4141634	321650	5432800	77184	wacker	100	bedrock	Ma	G-DG		Ssi			3	15	9	<1	0.43		40	<3	3	<0.001			9.4		
4141635	321675	5432800	77184	wacker	160	bedrock	Ma	LG	"Spotted", argill sltst	Ssi			3	13	8	<1	0.47		90	<3	<3	0.001			1.8		
4141636	321700	5432800	77184	wacker	?	bedrock	Ma	DG	"Spotted" sltst, micaceous ip? Tr py	Ssi	Py		66	98	120	<1	2.9		229	28	27	<0.001	<0.001			29	
4141637	321700	5433600	77184	wacker	620	bedrock	Lm	DG-W	Pred dk gy sltst, spotted ip. Minor py	Ssi	Py		20	25	124	<1	2.98		281	6	16	0.001				50	
4141638	321725	5433600	77184	wacker	300	bedrock	Lm	DG-LG	Pred dk gy sltst, spotted ip. Tr py	Ssi	Py		20	42	122	<1	3.21		277	5	16	<0.001				33	
4141639	321750	5433600	77184	wacker	570	bedrock	Ma	G	"Metallic" gy, graph sltst, spotted ip	Ssi			46	31	55	<1	2.55		214	17	16	<0.001	<0.001			27	
4141640	321775	5433600	77184	wacker	100	C-bdrck	Ma	DG	Tr olive brown Fe stain	Ssi			45	48	24	<1	1.17		127	<3	11	<0.001			11		
4141641	321800	5433600	77184	wacker	100	C-bdrck	Ma	DYB-G		Ssi			8	16	18	<1	1.22		176	<3	17	0.001			1.3		
4141642	321825	5433600	77184	wacker	500	C-bdrck	Lm	W-G	Minor fe stain. ?Vein qtz	Ssi			6	14	9	<1	0.39		36	<3	9	<0.001			1.9		

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Sample No.	East	North	DPO	Sample Type	Depth (cm)	Horizon	Text	Colour	Comments	Field ID	Mineral	St	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Fe(1) %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm	As ppm
4141643	321850	5433600	77184	wacker	150	bedrock	Lm	G	Lam gy siltst. spotted ip	Ssi		0.08	6	17	14	<1	0.69	-	84	<3	10	<0.001	-	-	0.6	-
4141644	321875	5433600	77184	wacker	120	bedrock	Ma	LG	Fn to med gr. speckled qtz sst. arg	Sss		0.11	10	15	11	<1	0.32	-	29	<3	7	<0.001	-	-	0.6	-
4141645	321900	5433600	77184	wacker	60	bedrock	Ma	W	Quartzite	Sss		0.08	4	13	3	<1	0.1	-	10	<3	4	<0.001	-	-	<0.5	-
4141646	321925	5433600	77184	wacker	890	bedrock	Lm	LG-DG	Olive brown Fe stain ip	Ssi		0.09	11	25	42	<1	0.47	-	20	<3	10	<0.001	-	-	14	-
4141647	321950	5433600	77184	wacker	140	bedrock	Lm	LG-DG	Tr ferrug. sandy nodules	Ssi		0.12	5	18	16	<1	0.55	-	47	<3	9	<0.001	<0.001	-	5.1	-
4141648	321975	5433600	77184	wacker	100	bedrock	Ma	G	Tr coarser, olive grey siltst	Ssi		0.13	18	64	26	<1	0.82	-	88	<3	14	<0.001	-	-	38	-
4141649	322000	5433600	77184	wacker	100	bedrock	Ma-Lm	DG	Tr coarser lenses. Tr py	Ssi	Py	0.09	8	29	32	<1	0.47	-	49	<3	6	<0.001	-	-	7.7	-
4141650	322025	5433600	77184	wacker	80	bedrock	Lm	LG-G	Lam, grey,	Ssi		0.11	7	15	14	<1	0.38	-	44	<3	3	<0.001	-	-	9	-
4141651	322050	5433600	77184	wacker	180	bedrock	Lm	G	?graphitic siltst	Ssi		0.12	10	19	24	<1	1.27	-	121	<3	4	<0.001	-	-	2.1	-
4141652	322075	5433600	77184	wacker	300	bedrock	Lm-Ma	G	Minor olive brn to orange brn ferrug	Ssi		0.17	10	17	16	<1	2.06	-	62	<3	7	<0.001	-	-	35	-
4141653	322100	5433600	77184	wacker	400	bedrock	Lm-Ma	G-DG	Carb. arg siltst. Tr ferrug. micaceous	Ssi		0.1	11	20	13	<1	0.98	-	37	<3	4	<0.001	<0.001	-	11	-
4141654	322125	5433600	77184	wacker	350	C	Lm	W-G	Tr ferrug. micaceous laminae. Some Cg	Ssi		0.13	13	18	17	<1	1.12	-	44	<3	15	<0.001	-	-	14	-
4141655	322150	5433600	77184	wacker	100	bedrock	Lm-Ma	G-DG	Tr ferrug. micaceous, hairline	Ssi		0.09	6	16	21	<1	1.53	-	102	3	<3	0.001	-	-	5.8	-
4141656	322175	5433600	77184	wacker	200	bedrock	Lm	LG-G	Tr olive brn, coarser siltst lam. Tr poddy	Ssi	Py	0.1	18	19	24	<1	1.57	-	61	<3	7	<0.001	-	-	11	-
4141657	322200	5433600	77184	wacker	60	C	Ma	G	Grey, graphitic siltst. Tr ferrug lam	Ssi		0.09	10	19	28	<1	2.89	-	97	<3	9	<0.001	-	-	24	-
4141658	322225	5433600	77184	wacker	100	Trans-C			Gy, graphitic siltst and dk gy gravelly	Cg-Ssi		0.07	7	18	14	<1	0.44	-	32	3	<3	<0.001	-	-	<0.5	-
4141659	322250	5433600	77184	wacker	500	Trans			Qtzite gravel, white crumbly sst and dk	Cg		0.21	10	14	9	<1	0.5	-	21	<3	5	<0.001	-	-	5.2	-
4141660	322275	5433600	77184	wacker	100	C	Lm	BO-G	Striped. Cross cutting ferrug.	Ssi		0.11	13	26	10	<1	2.13	-	21	<3	7	<0.001	-	-	8.8	-
4141661	321875	5433600	77184	wacker	370	C	Ma	G	Sandy (v fn qtz) siltst. Some Cg	Ssi	?Su	0.16	12	40	65	<1	1.53	-	316	3	17	<0.001	-	-	4.5	-
4141662	321650	5433600	77184	wacker	220	bedrock	Ma	G-DG		Ssi		0.17	11	24	43	<1	2.81	-	389	3	17	<0.001	-	-	2.4	-
4141663	321625	5433600	77184	wacker	200	bedrock	Lm	LG-G	Faintly laminated, spotted	Ssi		0.14	15	45	60	<1	3.31	-	465	4	9	<0.001	-	-	11	-
4141664	321600	5433600	77184	wacker	?	C	Ma-Bd	LG-G		Ssi		0.09	8	30	59	<1	1.24	-	159	<3	7	<0.001	-	-	9.2	-
4141665	321575	5433600	77184	wacker	?	bedrock	Ma-Bd	G-DG	Slightly spotted, trace mica	Ssi		0.13	10	80	53	<1	2.03	-	518	<3	5	<0.001	-	-	6.8	-
4141666	321550	5433600	77184	wacker	400	C	Ma	VG-DG	Trace v fn dissem Py. Some Cg	Ssi	Py	0.15	34	70	318	<1	3.39	-	453	3	15	<0.001	-	-	20	-
4141667	321525	5433600	77184	wacker	?	C	Ma-Bd	G-N	Trace ln to coarse cubic Py in coarser	Ssi	Py	0.1	10	26	48	<1	2.51	-	258	4	10	<0.001	-	-	26	-
4141668	321500	5433600	77184	wacker	570	bedrock	Ma	LG-G		Ssi		0.14	21	42	118	<1	3.45	-	450	3	19	<0.001	-	-	10	-

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Sample No.	East	North	DPO	Sample Type	Depth (cm)	Horizon	Text	Colour	Comments	Field ID	Mineral	Si	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Fe %	Fe(1) %	Mn ppm	Co ppm	Ni ppm	Au ppm	Au(R) ppm	Au(S) ppm	As ppm	As ppm
4141669	321475	5433600	77184	wacker	600	bedrock	Lm-Bd	LG-DG	Micaceous along cleavage planes	Ssi		0.25	18	28	68	<1	2.86	-	390	3	15	<0.001	-	-	12	-
4141670	321450	5433600	77184	wacker	270	bedrock	Ma	LG-G	Common in disseminated Py (1-2%?)	Ssi	Py	0.16	37	35	34	<1	2.88	-	256	9	12	<0.001	-	-	19	-
4141671	321425	5433600	77184	wacker	300	bedrock	Ma	DG	Graphitic, micaceous. Trace v	Ssi	Py	0.14	31	28	17	<1	1.26	-	289	3	10	<0.001	-	-	3.1	-
4141672	321400	5433600	77184	wacker	560	C-bedr	Ma	LG	Micaceous in places. Trace in disseminated Py	Ssi	Py	0.19	15	30	41	<1	1.64	-	173	5	12	<0.001	-	<0.001	15	-
4141673	321375	5433600	77184	wacker	450	bedrock	Lm-Bd	LG-G	Micaceous in places. Trace in disseminated Py	Ssi	Py	0.13	23	20	32	<1	1.55	-	191	<3	16	<0.001	-	-	12	-
4141674	321350	5433600	77184	wacker	?	C	Ma-Bd	LG	Some v in sand and Cg contamination	Ssi		0.1	6	26	14	<1	0.71	-	82	4	5	<0.001	-	-	5.8	-
4141675	321325	5433600	77184	wacker	620	bedrock	Lm	LG-DG	Pyjama Siltstone. Trace mica and v in	Ssi	Py	0.16	18	23	49	<1	1.64	-	166	13	14	<0.001	-	-	24	-
4141676	321300	5433600	77184	wacker	360	bedrock	Bd-Lm	LG-DG	Trace fine mica	Ssi		0.08	21	27	83	<1	2.32	-	194	8	13	<0.001	-	-	8	-
4141677	321275	5433600	77184	wacker	?	bedrock	Lm-Bd	W	Trace fine mica	Ssi		0.15	10	19	48	<1	0.51	-	87	4	6	<0.001	-	-	8.7	-
4141678	321250	5433600	77184	wacker	300	bedrock	Ma-Bd	YG-DG	Trace fine mica Common v in	Ssi	Py	0.11	8	38	61	<1	0.8	-	101	<3	4	<0.001	-	-	9	-
4141679	321225	5433600	77184	wacker	?	bedrock	Lm	LG-DG	Trace Py	Ssi	Py	0.15	34	39	69	<1	2.35	-	206	51	26	<0.001	-	-	-	89
4141680	321200	5433600	77184	wacker	250	bedrock	Lm	LG-G	Trace mica. Trace in disseminated Py	Ssi	Py	0.11	9	30	35	<1	1.99	-	202	5	8	<0.001	-	-	13	-
4141681	321175	5433600	77184	wacker	400	bedrock	Lm	LG-G	Trace v in 'poddy' Py	Ssi	Py	0.11	14	24	41	<1	2.26	-	206	10	12	<0.001	-	-	20	-
4141682	321150	5433600	77184	wacker	450	bedrock	Lm	LG-DG	Pyjama Siltstone	Ssi		0.08	24	27	93	<1	1.95	-	154	16	14	<0.001	-	-	36	-
4141683	321125	5433600	77184	wacker	330	bedrock	Lm	LG-DG	Common v in disseminated Py. Micaceous?	Ssi	Py	0.09	7	23	33	<1	0.96	-	108	6	6	<0.001	<0.001	-	13	-
4141684	321100	5433600	77184	wacker	280	bedrock	Bd	W	Minor v in 'poddy' Py.	Ssi	Py	0.1	6	29	36	<1	1.79	-	184	5	11	<0.001	-	-	6.9	-
4141685	321075	5433600	77184	wacker	200	C	Lm	LB-G	Minor Cg contam. Trace vein Py	Ssi	Py	0.19	6	18	33	<1	1.69	-	191	7	11	<0.001	-	-	2.5	-
4141686	321050	5433600	77184	wacker	220	C	Lm	LB-G		Ssi		0.38	8	19	11	<1	0.47	-	77	<3	9	<0.001	-	-	3.7	-
4141687	321025	5433600	77184	wacker	150	Trans-C		DB	Unable to penetrate gravels	Cg		0.29	6	12	7	<1	0.12	-	19	<3	16	<0.001	-	-	0.5	-
4141688	321000	5433600	77184	wacker	340	bedrock	Lm	LG-G	Trace ?mica	Ssi		0.07	80	22	21	<1	2.04	-	336	4	18	<0.001	-	-	7.7	-