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CRA EXPLORATION PTY. LIMITED
ACN 000 057 125

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EL 56/94
See folio 36/37

**First Annual Report
For The Period Ending 24 January 1996
EL 56/94 Mackintosh River, Tasmania**

MICROFILMED
FICHE No.014058-60

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Date: January 1996

Licence Holder: CRA Exploration Pty. Limited

Submitted to: Chief Geologist, Vic/Tas

Copies to: Mineral Resources Tasmania
CRAE - Vic/Tas District
CRAE - Zeehan
CRAE - ETIG

Submitted by: *A. Latvoss (for SA Menpes)*

Accepted by: *Mr. Conway*

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ANNUAL REPORT - EL 56/94
MACKINTOSH RIVER - CRA
S A MENPES

CRAE Report No. 22223

Abstract

- previous companies have explored for VHMS style deposits in the Mt Read Volcanics peripheral to the licence area. No exploration for carbonate hosted Zn deposits is known in the licence area
- gold was detected in stream sediment samples acquired in creeks draining Gordon Group carbonates in the Vale of Belvoir and Mayday areas. Hence the potential for carbonate hosted gold mineralisation in these areas should be assessed
- reconnaissance soil sampling at the White Hawk Mine prospect indicates significant carbonate hosted Pb-Zn mineralisation (possibly multiple vein or skarn style related to Late Devonian granite intrusion) north of the historical mine. Further stream sediment sampling of White Hawk Creek and tributaries should be carried out to determine the extent of Pb-Zn anomalism. A grid should be established at the prospect extending north of the area currently sampled, and mapping, rockchip sampling and 25m spaced wacker sampling undertaken.
- significant carbonate hosted Pb-Zn mineralisation (style unknown) may occur upstream of the Zn-anomalous stream sediment sample acquired from Caverners Creek. The Zn anomaly should be followed up with further stream sediment and rockchip sampling upstream of the anomaly
- complete the review of previous exploration and compile all existing geochemical, geophysical and drillhole data on 1:25,000 scale plans.
- attempt to identify potential growth faults in the Owen Group-Eldon Group sequence on published geological maps. If growth faults are identified, undertake reconnaissance sampling of Gordon Group sediments proximal to the fault(s).

CRAE acquired EL 56/94 Mackintosh River to explore for Irish-style, carbonate hosted Zn deposits in the Gordon Group carbonates of the Lake Mackintosh /Lake Lea area. The proximity of the Hellyer VHMS ore-body to the Mackintosh River licence area indicates ore-forming processes have been active in the area, at least during the Middle Cambrian.

Work carried out during the first permit year of the Mackintosh River licence includes:

- an incomplete review of previous exploration in the licence area
- reconnaissance stream sediment sampling, soil sampling and rockchip sampling in the Lake Mackintosh, Caverners Creek, Mayday and Vale of Belvoir areas
- reconnaissance soil traverses at the White Hawk Mine prospect.

Exploration of the Mackintosh River EL 56/94 is currently on hold whilst CRAE seeks a joint venture partner.

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Tv 1127	Caverners Creek, Stream Sediment, Soil and Rockchip Sample Location Plan	1:25,000
Tv 1128	Mayday-Vale of Belvoir Area, Stream Sediment, Soil and Rockchip Sample Location Plan	1:25,000
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1. Conclusions and Recommendations

The following conclusions were drawn from the work carried out in the Mackintosh River licence during permit year 1:

- previous explorers, including Cominco, Geopeko and CRAE, have explored for VHMS style deposits in the Mt Read Volcanics peripheral to the licence area. No exploration for carbonate hosted Zn deposits is known in the licence area
- potential may exist for carbonate hosted gold mineralisation in the Vale of Belvoir and Mayday areas
- significant carbonate hosted Pb-Zn mineralisation (possibly multiple vein or skarn style) may occur at the White Hawk Mine prospect
- significant carbonate hosted Pb-Zn mineralisation (style unknown) may occur upstream of the Zn-anomalous stream sediment sample acquired from Caverners Creek.

The following exploration is recommended for permit year 2:

- complete the review of previous exploration and compile all existing geochemical, geophysical and drillhole data on 1:25,000 scale plans.
- attempt to identify potential growth faults in the Owen Group-Eldon Group sequence on published geological maps. If growth faults are identified, undertake reconnaissance sampling of Gordon Group sediments proximal to the fault(s)
- assess the potential for Sepon style, carbonate hosted gold mineralisation in the Vale of Belvoir and Mayday areas
- attempt to determine the source of anomalous gold in stream sediment samples from the Mayday area
- follow up the Zn-anomalous stream sediment sample acquired from Caverners Creek with further stream sediment and rockchip sampling upstream of the anomaly
- stream sediment sample tributaries to White Hawk Creek and upstream White Hawk Creek to determine the extent of Pb-Zn anomalism
- establish a grid at the White Hawk Mine prospect extending north of the area currently sampled. Undertake mapping, rockchip sampling and 25m spaced wacker sampling over the grid
- drill test the most significant geochemical anomalies at the White Hawk Mine prospect to determine the style and potential of mineralisation.

2. Introduction

The Mackintosh River EL 56/94 was granted to CRA Exploration Pty. Limited (CRAE) on 24th February 1995. The licence covers 165 sq km and is located 50km south of Burnie in the Lake Mackintosh/Lake Lea area (Plan Tv 1125).

CRAE acquired the Mackintosh River licence to explore for economic, Irish-style zinc mineralisation in the Ordovician Gordon Group carbonates. CRAE's preceding exploration of the Gordon Group carbonates in the Zeehan area has resulted in several very encouraging zinc intersections. Hence other areas of poorly explored Gordon Group carbonates with potential to host economic Irish-style zinc mineralisation were acquired. The proximity of the Hellyer VHMS ore-body to the Mackintosh River licence area indicates ore-forming processes have been active in the area, at least during the Middle Cambrian.

This report details all exploration activities conducted within EL 56/94 Mackintosh River by CRAE during the first permit year ending 24th January, 1996.

Exploration of the Mackintosh River EL 56/94 is currently suspended whilst CRAE seeks a joint venture partner to share exploration costs.

3. Review of Previous Work

The review of previous exploration is only partially complete. However a brief review of open-file information shows that previous explorers, including Cominco, Geopeko and CRAE, have explored for VHMS style deposits in the Mt Read Volcanics peripheral to the licence area.

The Gordon Group carbonates in the Mackintosh River licence appear to have received only reconnaissance stream sediment and some rockchip sampling in the past. No exploration for carbonate hosted Zn deposits is known in the licence area.

4. Exploration Completed in the 12 Month Period Ending 24 January 1996

4.1 Geology

The Ordovician Gordon Group forms the valleys of the Mackintosh River (now flooded downstream by the Lake Mackintosh Dam), Brougham River, Mayday Creek, Southwell River, White Hawk Creek and Vale River. Outcrops are discontinuous and the sequence is not accurately known. From various sections it appears that the carbonate has conformable, gradational boundaries with the underlying Owen Group clastics and the overlying Eldon Group clastics (Collins et al, 1981).

The Gordon Group crops out in two elongate N to NW trending synclines, the southernmost including the Lake Mackintosh-Mackintosh River area, and the northernmost corresponding to the Vale of Belvoir. Extensive Siluro-Devonian Eldon Group clastics are preserved in the core of the southern syncline. Cambro-Ordovician Owen Group clastics and Middle Cambrian Mt Read volcanics crop out on the limbs of both synclines.

Tertiary Basalts obscure a large area of older rocks, including the Gordon Group sequence, NW of Mt Romulus, on the Mayday Plain and in the Vale of Belvoir. Quaternary scree and glacial deposits also obscure large areas of older rocks, particularly the valley-forming Gordon Group carbonates.

4.2 Regional Exploration

Reconnaissance exploration undertaken in the Mackintosh River licence area is summarised below. Sample ledgers and geochemical analyses are included as Appendix 1. Sample locations are shown on plans Tv 1126 to Tv 1128.

Lake Mackintosh

Initial exploration involved the acquisition of stream sediment and rockchip samples from drainages feeding Lake Mackintosh. A boat was used to access the otherwise inaccessible drainages.

15 rockchip samples and 15 stream sediment sample were acquired. These and other samples referred to in this report were forwarded to Analabs in Townsville and analysed for Ag, Al, As, Ba, Ca, Cu, Fe, K, Mg, Mn, Pb, Zn by ICPOES, Sn, W and Mo by XRF and Au by fire assay.

One limestone sample collected from the White Hawk Creek area (4142157) returned 0.2% Zn. A stream sediment sample from White Hawk Creek returned 208ppm Pb and 250ppm Zn.

Caverners Creek

Further reconnaissance exploration was carried out in the Caverners Creek area, south of Mt Cripps. Caverners Creek is the only true continuous flowing stream in the area. Other drainages shown on the 1:25,000 topographic sheet are formed by a series of dolines and caves. The dolines are believed to have been cave systems formed by subterranean water flow that were unroofed by glaciers during the last ice age and filled with glacial detritus (David Heap, pers comm). Several significant caves are preserved in the area and are currently being mapped and catalogued by members of the Savage River Caving Club.

13 stream sediment samples, 12 reconnaissance soil samples and 6 rockchip samples were acquired.

Anomalous values were returned for two reconnaissance soil samples and two stream sediment samples (see Table 1 below).

Sample No.	Sample Type	Pb (ppm)	Zn (ppm)	Mn (ppm)
4142197	Soil	109	291	3650
4142199	Soil	127	912	7600
5470810	Stream Sediment	635	2960	1500
5470820	Stream Sediment	24	646	202

Table 1: Anomalous Samples, Caverners Creek Area

Vale of Belvoir

The Vale of Belvoir is a valley formed by the Gordon Group carbonates in the core of a synclinal structure. The valley displays significant karstic topography with numerous *dolines and intermittent underground drainage*. Lake Lea in the north of the valley is also a karst structure with unusual drainage to both the NE and SSW.

15 stream sediment samples, 8 rockchip samples and 2 reconnaissance soil samples were acquired in the Vale of Belvoir area. Minor calcite vein hosted, coarse grained sphalerite and galena mineralisation was noted in carbonate hand specimens. Anomalous values are summarised in Table 2 below.

Sample No.	Sample Type	Pb (ppm)	Zn (ppm)	Au (ppm)
5470829	Stream Sediment	IS	IS	0.012
5470831	Stream Sediment	IS	IS	0.008
5470832	Stream Sediment	IS	IS	0.021
5471107	Rockchip	27	828	0.012
5470842	Stream Sediment	19	28	0.042

Table 2: Anomalous Samples, Vale of Belvoir Area

Mayday Gold Workings

Old sluice workings, probably established for alluvial gold, are located in the headwaters of Mackintosh Creek (formerly Mayday Creek). The gold appears to be associated with a NW-SE trending fault in the pre-Gordon Group sequence cropping out north of Mt Beecroft.

9 stream sediment and 5 rockchip samples were acquired in the Mayday area. Anomalous values are summarised in Table 3 below.

Sample No.	Sample Type	Pb (ppm)	Zn (ppm)	Au (ppm)
5470835	Stream Sediment	20	174	0.063
5470836	Stream Sediment	16	165	0.052

Table 3: Anomalous Samples, Mayday Area

Sample 5470835 was taken from a Mackintosh Creek tributary draining the Gordon Limestone and Mayday Plain basalts. Sample 5470836 was taken from a Mackintosh River tributary draining Gordon and Owen group sediments, and the Mayday Plain basalts. The Au anomalous tributaries do not drain the Mayday gold workings. Samples acquired from Mackintosh Creek at the gold workings (5470840, 5470841) were not gold anomalous.

NE Lake Mackintosh

A review of open file stream sediment data showed that a stream sediment sample acquired by Aberfoyle, in a Lake Mackintosh drainage 1.1km west of the Vale River - Fury River confluence, returned 82 ppm Pb and 500ppm Zn. As no follow up of this Zn anomalous value was known, reconnaissance sampling was undertaken in the area.

13 rockchip samples, and one sludge sample from the predominantly dry drainage (actually a series of dolines), were acquired. Minor calcite vein hosted, coarse grained sphalerite and galena mineralisation was noted in carbonate hand specimens from an outcrop on the eastern flank of the tributary.

The best result returned was 0.2% Zn from a very fine grained dolarenite with calcite veins and vugs with minor oxidised sulphides and sphalerite (5471156).

4.3 White Hawk Mine Prospect

The White Hawk Mine is a historical Pb mine in the Gordon Group carbonates currently submerged by Lake Mackintosh. Ward (1908) described the White Hawk Mine mineralisation as a gossanous lode striking 340° and dipping 35-40° SE within Gordon Group carbonates dipping 40° due west. Ward described veins of galena and sphalerite with minor cerussite and calcite filling joints in the carbonate, and occasionally veinlets of calcite with galena, sphalerite and chalcopryrite parallel to bedding.

A stream sediment sample acquired by CRAE from White Hawk Creek, 150m north of the submerged mine, returned 208ppm Pb and 250ppm Zn. This sample was considered anomalous, suggesting that perhaps mineralisation extended north of the known deposit, to Gordon Group carbonates in the White Hawk Creek valley. Hence a programme of reconnaissance soil, rockchip and stream sediment sampling was undertaken to determine the extent of mineralisation.

Three reconnaissance soil traverses at 25-50m sample spacing and 100m line spacing were completed for 34 soil samples (see Plan Tv 1129). 5 rockchip samples and 1 stream sediment sample were also acquired (further stream sediment sampling of the White Hawk Creek and its tributaries was prevented by flooding).

Several anomalous Pb and Zn values were returned from the soil samples, with a maximum 0.65% Pb, 611ppm Zn and 0.57% Pb, 0.17 % Zn returned from samples 5471143 and 5471144 respectively. The results suggest that mineralisation in the Gordon Group carbonates north of White Hawk Mine may be quite extensive.

Sample ledgers and assays are included as Appendix 2. Sample locations are shown on Plan Tv 1129 and Pb, Zn, Ba and Mn soil geochemistry plans are included as plans Tv 1130 to Tv 1133.

5. Discussion of Results

Caverners Creek

- the anomalous Zn values in two soil samples may be due to Mn scavenging
- the Zn-anomalous stream sediment sample (5470810) was acquired just downstream of a tributary to Caverners Creek. The tributary drains the contact of the Gordon and Eldon groups interpreted to be within 200m of the sample site. However samples acquired from the tributary were not anomalous. Hence potential mineralisation associated with the anomaly occurs within the Gordon Group carbonates further upstream in Caverners Creek.

Vale of Belvoir

- interpretation of deep seismic data acquired along the Cradle Mountain Link Road as part of the TASGO project suggests that granite occurs beneath the Vale of Belvoir at approximately 600m below surface
- the minor calcite vein hosted, coarse grained sphalerite and galena mineralisation noted in carbonate hand specimens may be related to Devonian granite intrusion
- anomalous Au in stream sediment samples from the Vale of Belvoir area may be derived from the Gordon Group carbonates.

Mayday Creek Gold Workings

- anomalous Au in stream sediment samples from the headwaters of Mackintosh Creek may be derived from the Gordon Group carbonates.

White Hawk Mine Prospect

- interpretation of regional geophysical data sets as part of the TASGO project indicates a tongue of granite crosses just south of the White Hawk Mine within 2km of surface.
- Pb-Zn mineralisation at the White Hawk Mine prospect may be granite related (ie. vein or skarn style mineralisation)
- Pb-Zn mineralisation at the White Hawk Mine prospect occurs over at least 200m strike, open to the north. Width is difficult to determine as the mineralisation does not appear to be stratabound at this early stage.

NE Lake Mackintosh

- the minor coarse grained Pb-Zn mineralisation found in a Gordon Group carbonate outcrop is not considered significant and may be granite related
- the Gordon and Eldon group contact upstream of Aberfoyles Zn anomalous stream sediment sample should be investigated.

6. Rehabilitation

The following procedures were implemented to reduce environmental impact and enhance rehabilitation:

- Soil augers and field boots were cleaned prior to entering the area to prevent the introduction of weeds or the vegetation fungus *Phytophthora cinnamomi*
- Reconnaissance soil geochemical traverses were surveyed using tape and compass and did not involve track cutting
- Soil auger holes were backfilled.

7. Expenditure

Expenditure during current term: \$18,791

Total Expenditure \$18,791

8. References

- | | | |
|---------------|------|---|
| Collins et al | 1981 | Geological Survey Explanatory Report.
Geological Atlas 1 Mile Series, Zone 7, Sheet 44
(8014N) Mackintosh |
| Ward, L K | 1908 | The Mount Farrell Mining Field. Geological
Survey Bulletin No. 3. Tasmania Dept of Mines |

9. Location

Burnie	SK55-3	1:250,000
Sophia	8014	1:100,000
Inglis	8015	1:100,000
Block	3838	1:25,000
Charter	3839	1:25,000
Lea	4040	1:25,000
Pencil Pine	4039	1:25,000

10. Keywords

Tasmania, Base Metals, Zinc, Gold, Ordovician, Carbonate Hosted, Review,
Soil Sampling, Rockchip Sampling.

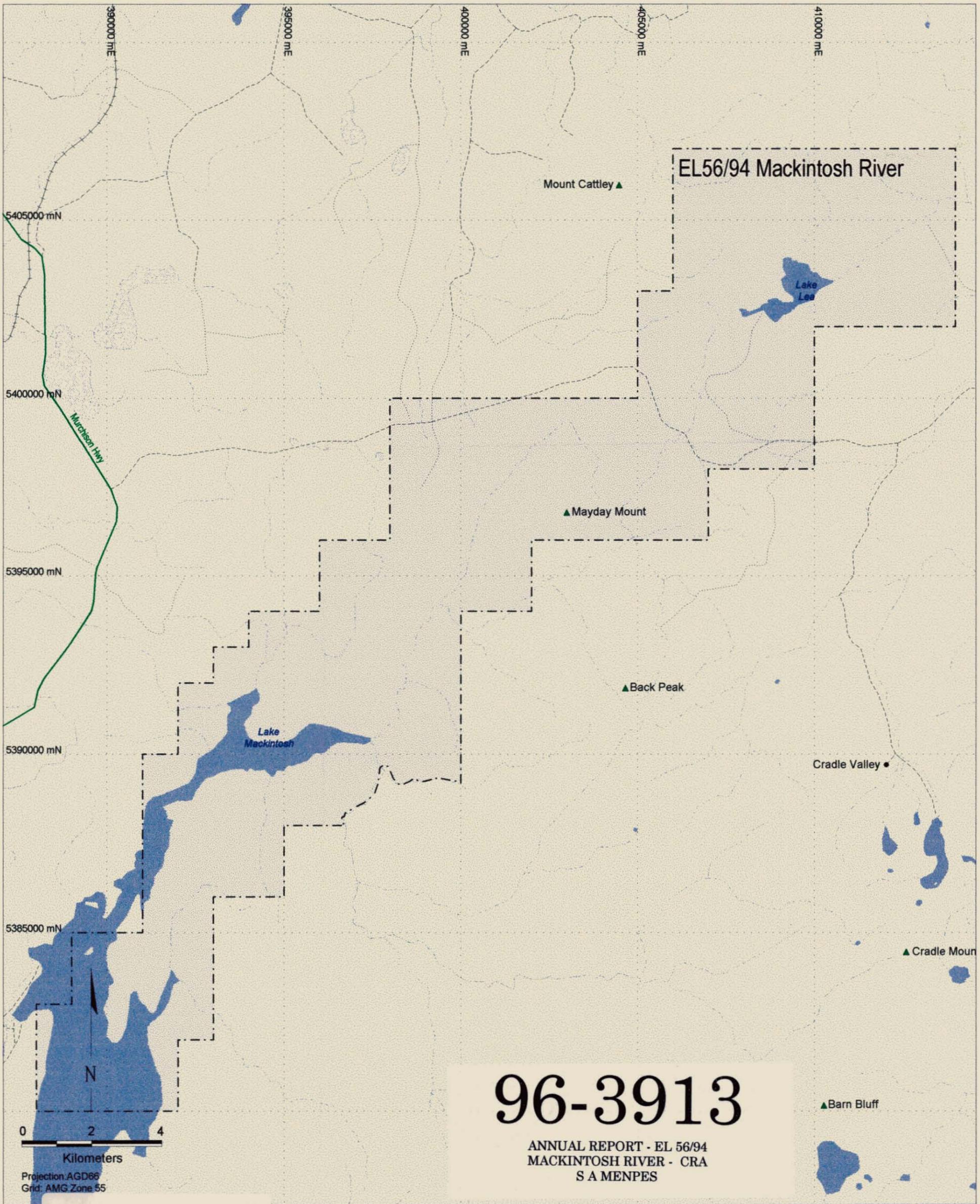
11. DPO Register

Table 4

DPO Register

DPO Number	Lab Batch Number	Lab	Lab Location	DPO Date	Office	Geologist	Tenement Name	Tenement Number	Sample Type	Number of Samples	250 000 Mapsheet	100 000 Mapsheet
77194	104165.60.11494	Analabs	Townsville QLD	18/12/95	Zeehan	S Menpes	Mackintosh River	EL56/94	ROCKCHIP STREAM SEDIMENT	15 15	Burnie SK55-3	Sophia 8014
77200	104165.60.11559	Analabs	Townsville QLD	19/1/96	Zeehan	S Menpes	Mackintosh River	EL56/94	ROCKCHIP STREAM SEDIMENT SOIL	8 17 15	Burnie SK55-3	Sophia 8014
77311	104165.60.11588	Analabs	Townsville QLD	31/1/96	Zeehan	S Menpes	Mackintosh River	EL56/94	ROCKCHIP STREAM SEDIMENT	7 5	Burnie SK55-3	Sophia 8014
77312	104165.60.11559	Analabs	Townsville QLD	8/2/96	Zeehan	S Menpes	Mackintosh River	EL56/94	ROCKCHIP STREAM SEDIMENT	6 13	Burnie SK55-3	Sophia 8014
77314	104165.60.11634	Analabs	Townsville QLD	13/2/96	Zeehan	S Menpes	Mackintosh River	EL56/94	ROCKCHIP SOIL	18 35	Burnie SK55-3	Sophia 8014
77316	104165.60.11734	Analabs	Townsville QLD	15/3/96	Zeehan	S Menpes	Mackintosh River	EL56/94	STREAM SEDIMENT	1	Burnie SK55-3	Sophia 8014

346012



5 cm



Location Diagram

SK55-20 NW-Tas		
Arthur River 7915	Hellyer 8015	Forth 8115
Pieman 7914	Sophia 8014	Mersey 8114
SK55-22 SW-Tas		

Mapsheet Reference

Legend

- Town
- ▲ Mountain
- - - EL Boundary
- Perennial Drainage
- - - Non-Perennial Drainage
- Highway
- Secondary Road
- Minor Road
- Track
- Railway
- Lake
- Swamp
- Urban

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346013	
EL56/94 Mackintosh River	
Location Plan	
Author: Sandy Menpes	Reference: NW Tasmania SK55-20
Drawn: Tony Sargeant	File Name: Tv1125.wor
Date: July 1996	Report No: 22223
Scale: 1:100,000	Plan No: Tv1125

391000mE

397000mE

5397000mN

5395000mN

5390000mN

5385000mN

5383000mN



- Rockchip
- + Soil Sample
- ✕ Stream Sediment

5 cm

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Macintosh River EL56/94

Lake Macintosh Area

Stream Sediment & Rockchip
Sample Location Plan

Ref.: SK55-03 Burnie

Scale: 1:25,000

Author: S. Menpes

Report No.: 22223

Drawn: T. Sargeant

Plan No.: Tv1126

346014



- Rockchip
- + Soil sample
- x Stream sediment

5 cm

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Mackintosh River EL56/94
Caverners Creek Prospect
 Stream Sediment, Soil &
 Rockchip Sample Location Plan

Ref.: SK55-03 Burnie	Scale: 1:25,000
Author: S. Menpes	Report No.: 22223
Drawn: T. Sargeant	Plan No.: Tv1127

5403000mN

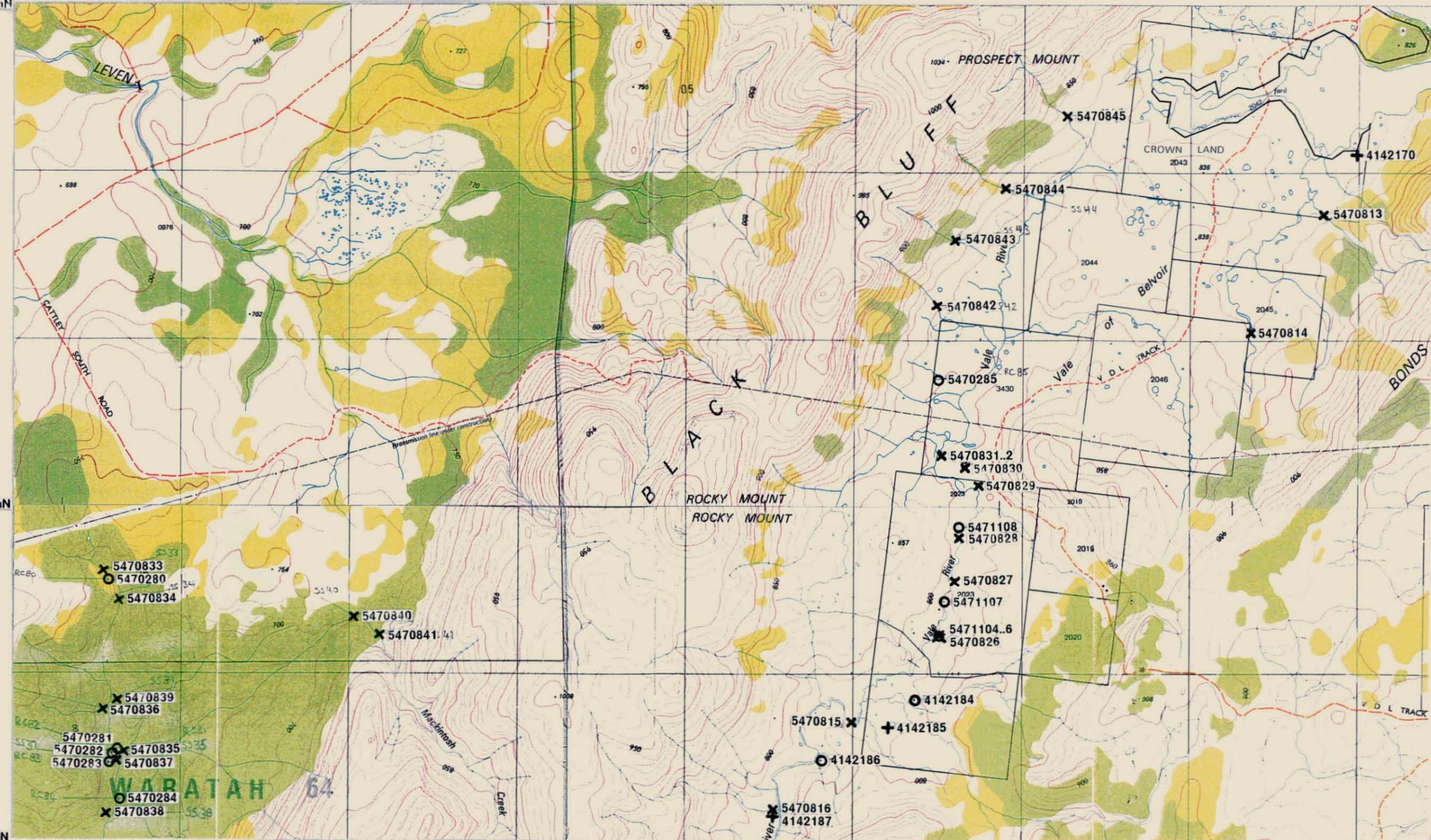
5403000mN

5400000mN

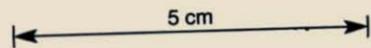
5400000mN

5398000mN

5398000mN



- Rockchip
- + Stream Sediment
- x Soil Sample



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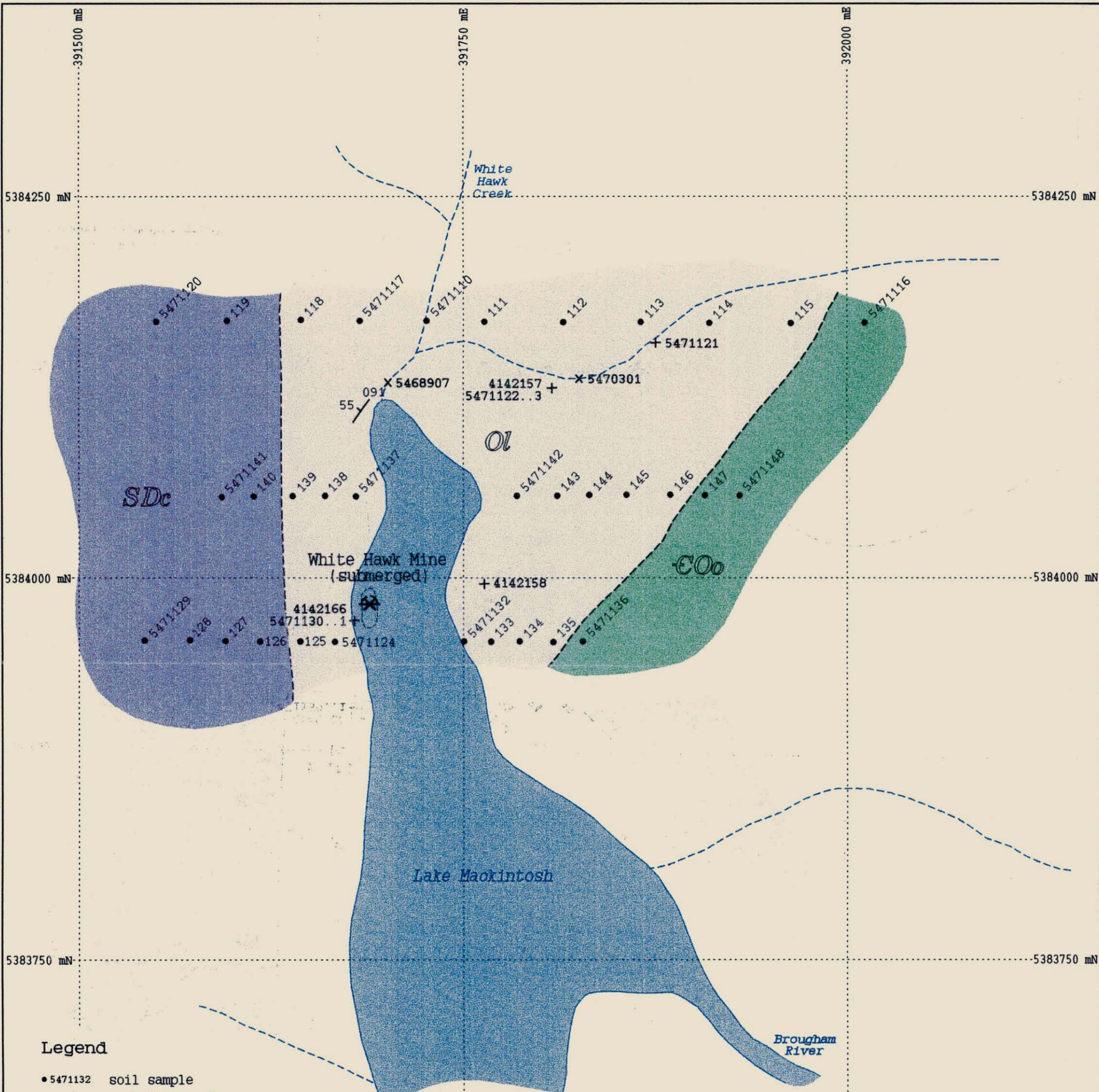
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 Macintosh River EL56/94

Mayday-Vale of Belvoir Area

Stream Sediment, Soil &
 Rockchip Sample Location Plan

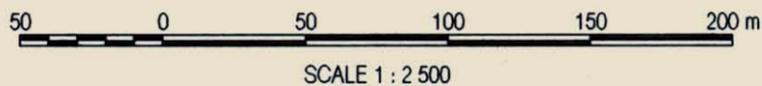
Ref.: SK55-03 Burnie	Scale: 1:25,000
Author: S. Menpes	Report No.: 22223
Drawn: T. Sargeant	Plan No.: Tv1128



Legend

- 5471132 soil sample
- + 4142158 rockchip sample
- x 5470301 stream sediment sample
- $\frac{20}{135}$ strike & dip of bedrock
- - - drainage
- ⊗ mine (abandoned)
- EOO** Owen Group
- Ol** Gordon Group
- SDc** Crotty Quartzite

5 cm



SCALE 1 : 2 500



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000 057 125

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S A MENPES

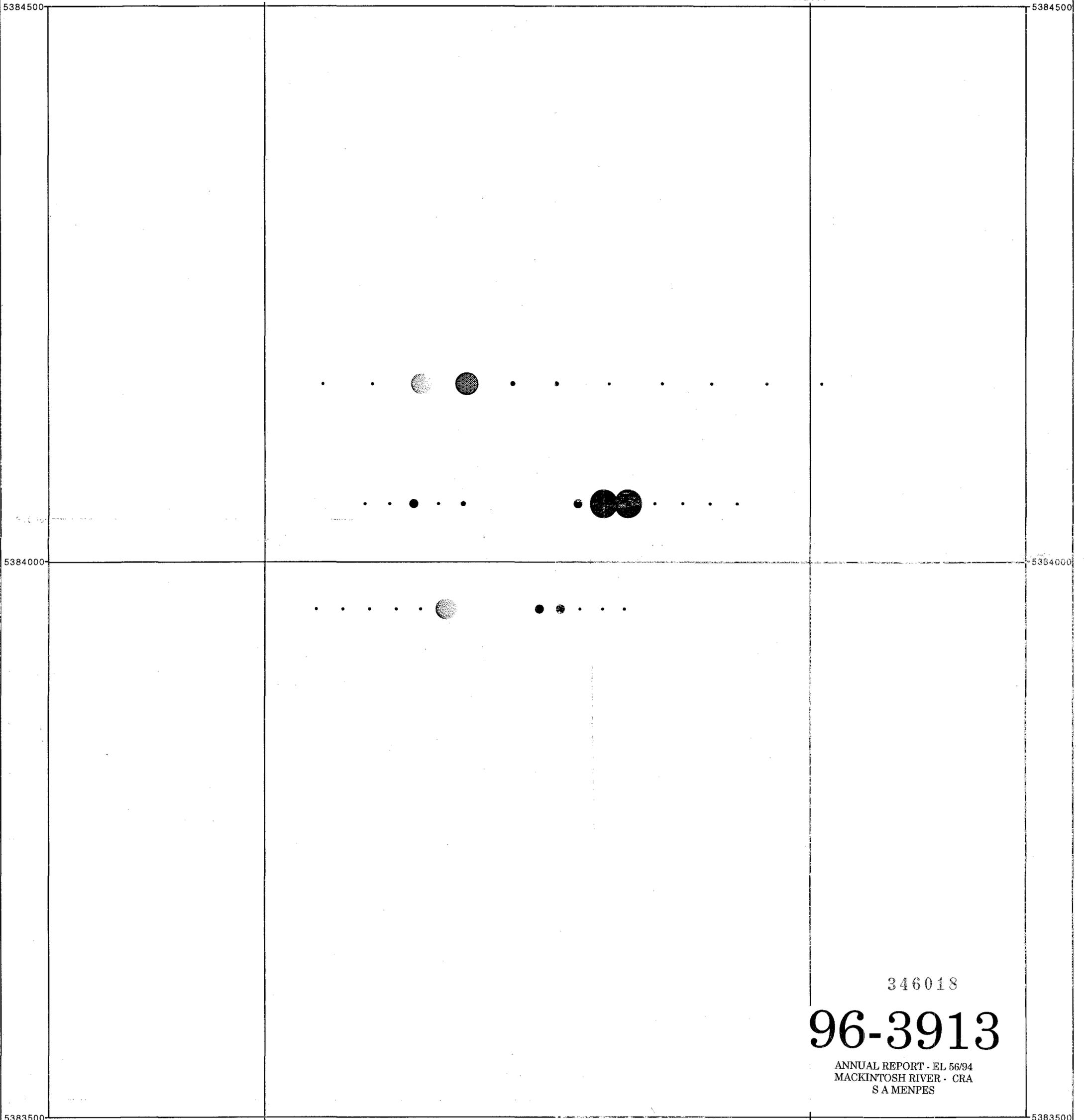
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EL56/94 Mackintosh River

White Hawk Mine Prospect

Stream Sediment, Soil &
Rockchip Sample Location Plan

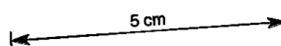
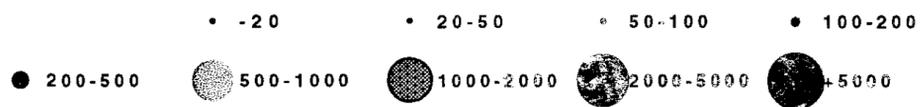
Author : Sandy Menpes	Ref : SK55-03 Burnie
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Date : July 1996	Report No : 22223
Scale : 1:2,500	Plan No : Tv1129



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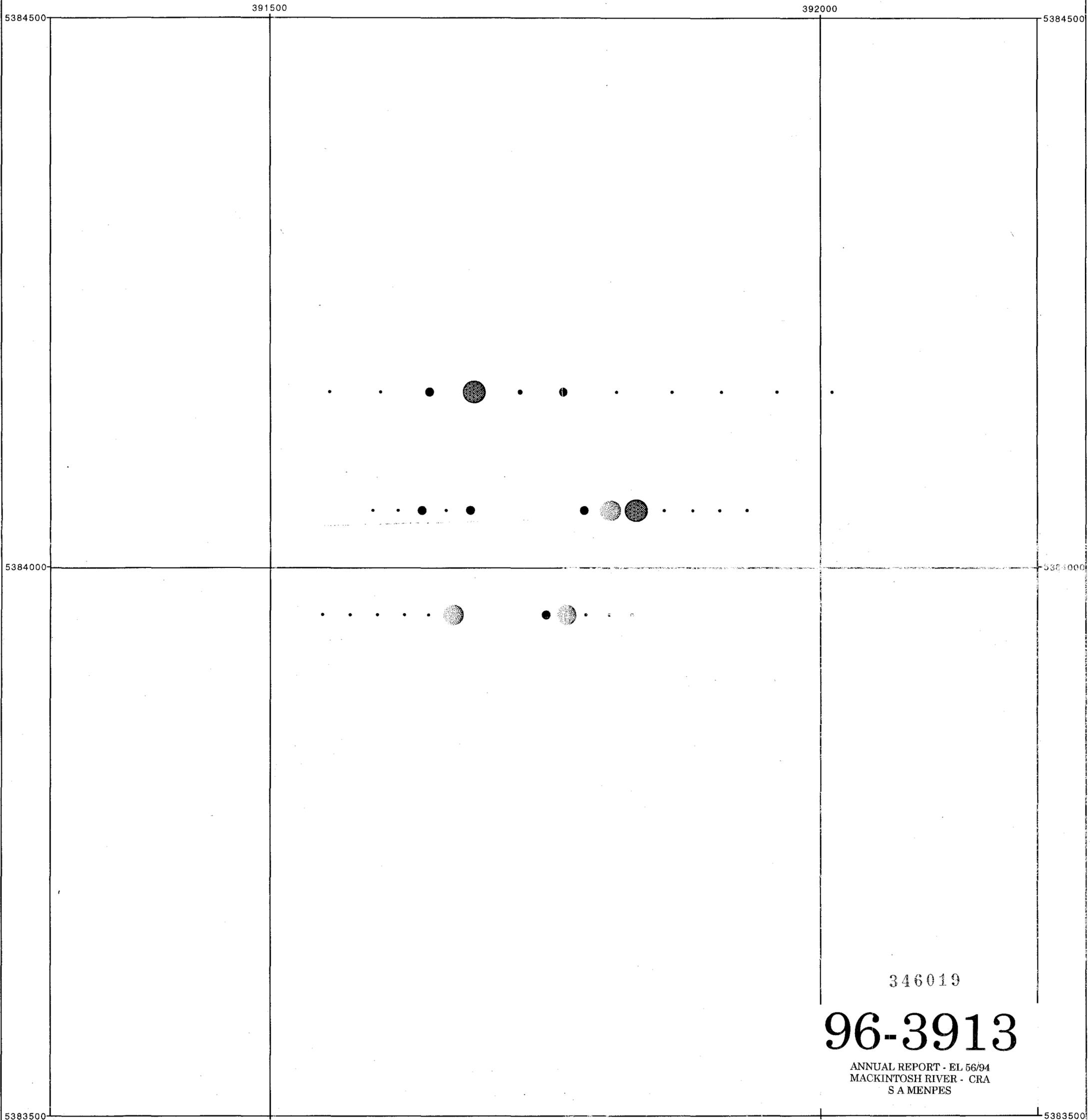
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Lake Mackintosh EL56/94
 White Hawk Mine Prospect
 Pb (ppm) in Soils

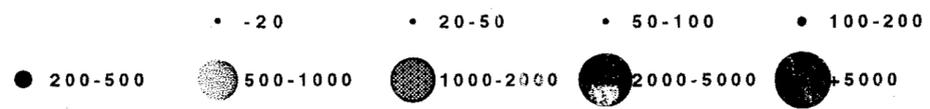
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Drawn: Sandy Menpes	File Name:
Date: July 1996	Report No: 22223
Scale: 1:2,000	Plan No: Tv1130



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Lake Mackintosh EL56/94
 White Hawk Mine Prospect
 Zn (ppm) in Soils

Author: Sandy Menpes	Reference: Burnie SK55-03
Drawn: Sandy Menpes	File Name:
Date: July 1995	Report No: 22223
Scale: 1:2,500	Plan No: Tv1131



jmap

5384500

391500

392000

5384500

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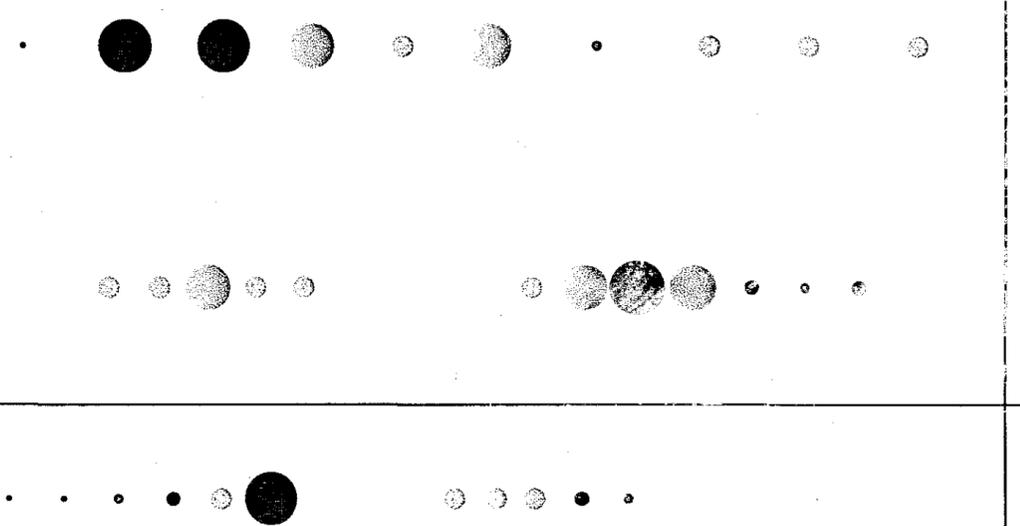
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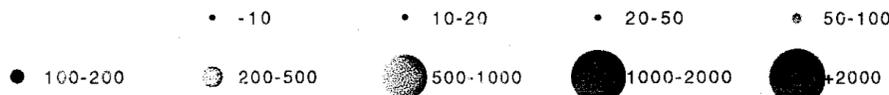
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Lake Mackintosh EL56/94
White Hawk Mine Prospect
Ba (ppm) in Soils

Author: Sandy Menpes	Reference: Burnie SK55-03
Drawn: Sandy Menpes	File Name:
Date: July 1996	Report No: 22223
Scale: 1:2,500	Plan No: Tv1132

jmap

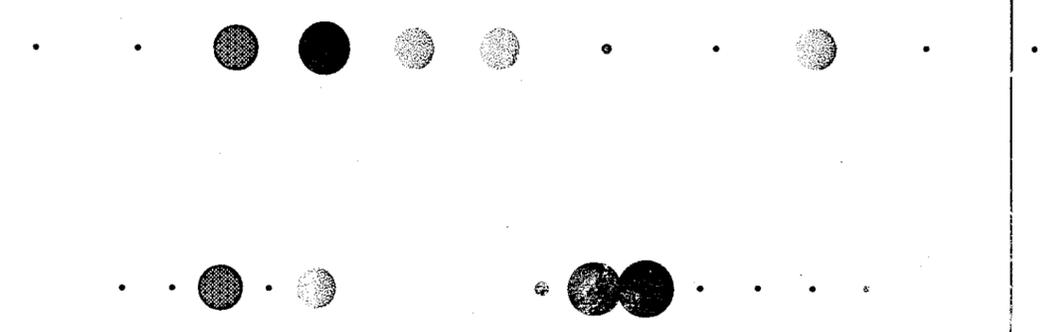
10m

5 cm

5384500 391500 392000 5384500

5384000 5384000

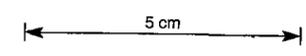
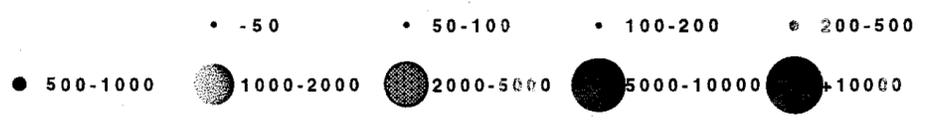
5383500 391500 392000 5383500



346021

96-3913

ANNUAL REPORT - EL 56/94
MACKINTOSH RIVER - CRA
S A MENPES



jmap 10m

CRA EXPLORATION PTY. LIMITED

Lake Mackintosh EL56/94	
White Hawk Mine Prospect	
Mn (ppm) in Soils	
Author: Sandy Menpes	Reference: Burnie SK55-03
Drawn: Sandy Menpes	File Name:
Date: July 1996	Report No: 22223
Scale: 1:2,500	Plan No: Tv1133

ROCKCHIP AND DRILLING CODES

22/2/1994

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

Scg Conglomerate	Sls Limestone	Sw Wacke
Sss Sandstone	Sdl Dolomite	Sag Agglomerate/mixtite
Sst Siltstone		
Ssh Shale	Sch Chert	Sbx Breccia
Sbs Black shale	Sif BIF	

METAMORPHIC

Msl Slate	Mq Quartzite	Mmg Migmatite
Mph Phyllite	Mm Marble	
Msc Schist	Ma Amphibolite	
Mbs Graphitic schist	Mcs Calcisilicate	Msk Skarn
Mgn Gneiss	Mh Hornfels	

INTRUSIVE IGNEOUS

If Felsic undiff.	ii Intermed undiff.	iu Ultramafic
Ifp Felsic porphyry	lip Intermed porph	Ius Serpentinite
Iap Aplit	Im Mafic undiff.	
Igr Granite	Ido Dolerite	Ipg Pegmatite
Igd Granodiorite	Igb Gabbro	

EXTRUSIVE IGNEOUS

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

SURFICIAL (COVER) MATERIAL

Ca Alluvium	Ctl Laterite	Csg Gossan
Cco Colluvium	Csp Pisoliths	
Cs Sand	Cst Ironstone	Cey Clay
Cbs Black soil	Csi Silcrete	
Cg Gravel	Cd Calcrete	Cv Vegetation/peat

OTHERS

Ovq Vein quartz	Omy Mylonite	Oms Massive sulphide
Ovc Vein carbonate	Obx Breccia	Oxc Contamination
Ovs Vein sulphide	Of Fault gouge	Oz Unknown

TEXTURAL CODES

WEATHERING/SURFICIAL FEATURES

We Weathered	Fe Ferruginous
Bl Bleached	Fo Fe ox in fract
Le Leached	

MINERALISATION/ALTERATION FEATURES

Gs Gossanous	Vs Vein sulphide	Al Altered
Vn Veined	Ds Dissem sulph	Sl Silicified
Vc Vein carbonate	Fs Fracture sulph	
Vq Vein quartz	Bs Banded sulph	Di Disseminated

GEOLOGICAL FEATURES

Bd Bedded	Fr Fractured	Po Porphyritic
Bn Banded	Ib Interbedded	Sc Schistose
Bx Brecciated	Lm Laminated	Sh Sheared
Fi Fissile (slatey)	Ma Massive	Vu Vuggy

DIAGNOSTIC MINERALOGY

PRIMARY MINERALISATION

Ga Galena	Py Pyrite	Ni Ni sulphides
Sp Sphalerite	Po Pyrrhotite	
Cp Chalcopyrite	Su Unknown sulph	

SECONDARY MINERALISATION

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

ALTERATION/DIAGNOSTIC MINERALS

Cy Clay	He 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 1

Regional Rockchip, Soil and Stream Sediment Sample Ledgers and Analyses

Mackintosh River EL 56/94
Regional Rockchip, Soil and Stream Sediment Sampling

Sample No.	DPO No.	EL	AMG E	AMG N	Sample Type	Category	Colour	Minerals	Alteration	Depth (m)	Field ID	Comments
4142153	77194	EL56/94	391620	5383680	ROCKCHIP	RKCHIP	GDG				Sls	Fossiliferous. Crops out adjacent to water filled doline
4142154	77194	EL56/94	391620	5383680	ROCKCHIP	RKCHIP	GDG	Py			Sls	Limestone with contorted calcite veins studded with large pyrite crystals
4142155	77194	EL56/94	391680	5383640	ROCKCHIP	RKCHIP	G				Sls	5mm calcite vein with ferruginous rim
4142156	77194	EL56/94	391680	5383640	ROCKCHIP	RKCHIP					Sls	
4142157	77194	EL56/94	391840	5384120	ROCKCHIP	RKCHIP					Sls	Sample taken from limestone wall near cave
4142158	77194	EL56/94	391760	5383100	ROCKCHIP	RKCHIP					Sls	
4142159	77194	EL56/94	392800	5390360	ROCKFLOAT	RKFLOAT			We		Scl	Boulder in creek.
4142160	77194	EL56/94	394350	5391430	ROCKCHIP	RKCHIP					Sls	Fossiliferous limestone
4142161	77194	EL56/94	393810	5390760	ROCKCHIP	RKCHIP					Sls	Fossiliferous limestone. Good outcrop
4142162	77194	EL56/94	396350	5390710	ROCKCHIP	RKCHIP		Py	We		Sls	Fossiliferous limestone. Minor pyrite studded through sample
4142163	77194	EL56/94	396880	5390610	ROCKFLOAT	RKFLOAT					Sls	
4142164	77194	EL56/94	396640	5390190	ROCKCHIP	RKCHIP		Py	We		Sls	Iron stained limestone with weathered pyrite studs and common calcite veins
4142165	77194	EL56/94	394950	5389540	ROCKFLOAT	RKFLOAT					SsiScl	Dolomitic siltstone?
4142166	77194	EL56/94	391650	5383970	ROCKCHIP	RKCHIP		PyGa			Sls	Pyrite and some galena in calcite vein. Outcrop 1.5m from edge of lake
4142167	77194	EL56/94	391590	5383740	ROCKCHIP	RKCHIP		Py			Sls	Calcite veins studded with pyrite
5468905	77194	EL56/94	391500	5383680	STREAM SEDIMENT	SS						
5468906	77194	EL56/94	391500	5383650	STREAM SEDIMENT	SS						
5468907	77194	EL56/94	391710	5384150	STREAM SEDIMENT	SS						
5468908	77194	EL56/94	392840	5390260	STREAM SEDIMENT	SS						
5468909	77194	EL56/94	392620	5390100	STREAM SEDIMENT	SS						
5468910	77194	EL56/94	394400	5392100	STREAM SEDIMENT	SS						
5468911	77194	EL56/94	394570	5391720	STREAM SEDIMENT	SS						
5468912	77194	EL56/94	394780	5390510	STREAM SEDIMENT	SS						
5468913	77194	EL56/94	395460	5390820	STREAM SEDIMENT	SS						
5468914	77194	EL56/94	395720	5390840	STREAM SEDIMENT	SS						
5468915	77194	EL56/94	397620	5390760	STREAM SEDIMENT	SS						
5468916	77194	EL56/94	396240	5396700	STREAM SEDIMENT	SS						

Mackintosh River EL 56/94
Regional Rockchip, Soil and Stream Sediment Sampling

Sample No.	DPO No.	EL	AMG E	AMG N	Sample Type	Category	Colour	Minerals	Alteration	Depth (m)	Field ID	Comments
5468917	77194	EL56/94	395550	5389850	STREAM SEDIMENT	SS						
5468918	77194	EL56/94	394910	5389460	STREAM SEDIMENT	SS						
5468919	77194	EL56/94	393720	5389450	STREAM SEDIMENT	SS						
4142168	77200	EL56/94	395580	5393680	ROCKCHIP	RKCHIP			We		CcySdl	Weathered outcrop in creek valley
4142169	77200	EL56/94	395900	5393410	ROCKCHIP	RKCHIP	LGDG				Sls	Some calcite veinlets,
4142170	77200	EL56/94	408990	5402110	SOIL	SL	DBG			0.5	CsCgCv	Silty sand with angular light grey rock fragments.
4142184	77200	EL56/94	406360	5398850	ROCKCHIP	RKCHIP	DGLG		We		Sls	Sheared?
4142185	77200	EL56/94	406200	5398690	SOIL	SL	LB		We	0.5	CcySsi	Soft crumbly clay with weathered orange rock fragments. Some organic matter
4142186	77200	EL56/94	405810	5398480	ROCKCHIP	RKCHIP					Sch	
4142187	77200	EL56/94	405530	5398150	SOIL	SL	DBN			0.2	CcoCv	Soil with plant roots and pink rock fragments. Possibly tillite
4142188	77200	EL56/94	396850	5393030	SOIL	SL	LDB			0.3	CcyCs	Very sandy clay with weathered orange rock fragments
4142189	77200	EL56/94	396320	5392550	SOIL	SL	G			0.5	Cs	Very sandy soil. Fine, loose sand grains and small rock fragments
4142190	77200	EL56/94	396420	5392640	ROCKCHIP	RKCHIP	LGDG				Sls	
4142191	77200	EL56/94	396390	5392770	SOIL	SL	DBN			0.4	CcySls	Clay with minor rock fragments
4142192	77200	EL56/94	396390	5392770	ROCKCHIP	RKCHIP	G				Sls	Calcite veining and crystals throughout
4142193	77200	EL56/94	396440	5392810	SOIL	SL	LG			0.8	CcyCg	Very wet and soft clay with 40% angular rock fragments
4142194	77200	EL56/94	396470	5392930	ROCKCHIP	RKCHIP	G				Sdl	
4142195	77200	EL56/94	396520	5392890	SOIL	SL	OYLB			0.8	Ccy	Clay with small rock chips
4142196	77200	EL56/94	396640	5392640	SOIL	SL	LGDG			0.7	Ccy	Dry, crumbly, silty clay with very fine rock fragments
4142197	77200	EL56/94	396590	5392990	SOIL	SL	LBDBO				Ccy	Clay with rock fragments up to 5mm
4142198	77200	EL56/94	396580	5392680	SOIL	SL	G			0.3	Ccy	Clay with rock fragments up to 5mm
4142199	77200	EL56/94	396750	5393130	SOIL	SL	DB				Ccy	Clay with orange and grey rock fragments up to 15mm
4142200	77200	EL56/94	396780	5393110	SOIL	SL	OBLG				Ccy	Clay with rock fragments up to 25mm. Some organic matter
5471101	77200	EL56/94	396810	5393160	SOIL	SL	LGDG			0.3	Ccy	Dry, silty clay with rock fragments up to 5mm

Mackintosh River EL 56/94
Regional Rockchip, Soil and Stream Sediment Sampling

Sample No.	DPO No.	EL	AMGE	AMGN	Sample Type	Category	Colour	Minerals	Alteration	Depth (m)	Field ID	Comments
5471102	77200	EL56/94	396890	5393240	SOIL	SL	LGO				Ccy	Dry, silty clay with small rock fragments
5471103	77200	EL56/94	396990	5393340	ROCKCHIP	RKCHIP	G				Sdl	Calcite veining
5470809	77200	EL56/94	395530	5393820	STREAM SEDIMENT	SS						Caverners Creek
5470810	77200	EL56/94	395610	5393510	STREAM SEDIMENT	SS						
5470811	77200	EL56/94	395820	5393520	STREAM SEDIMENT	SS						Rapidly flowing creek draining limestone
5470812	77200	EL56/94	395710	5393520	STREAM SEDIMENT	SS						Near Caverners Creek
5470813	77200	EL56/94	408790	5401760	STREAM SEDIMENT	SS						Slow flowing stream on button grass plain. Flows in to Lake Lea
5470814	77200	EL56/94	408360	5401060	STREAM SEDIMENT	SS						Poor sample
5470815	77200	EL56/94	405990	5398710	STREAM SEDIMENT	SS						
5470816	77200	EL56/94	405530	5398190	STREAM SEDIMENT	SS						Stream 3m wide and 0.2m deep
5470817	77200	EL56/94	396740	5393130	STREAM SEDIMENT	SS						
5470818	77200	EL56/94	396350	5392580	STREAM SEDIMENT	SS						Small stream approximately 30cm wide and 3cm deep draining limestone
5470819	77200	EL56/94	396290	5392590	STREAM SEDIMENT	SS						Caverners Creek. 2.5m wide and 0.4m deep
5470820	77200	EL56/94	396330	5392640	STREAM SEDIMENT	SS						
5470821	77200	EL56/94	396440	5392800	STREAM SEDIMENT	SS						Stream 0.5m wide and 3 to 4cm deep, heavily vegetated on both banks
5470822	77200	EL56/94	396660	5392680	STREAM SEDIMENT	SS						
5470823	77200	EL56/94	396850	5393020	STREAM SEDIMENT	SS						Stream 1m wide and 4cm deep. Densely vegetated area
5470824	77200	EL56/94	397100	5393490	STREAM SEDIMENT	SS						Tributary to Caverners Creek. Stream is 0.6m wide and 3 to 6cm deep
5470825	77200	EL56/94	397040	5393530	STREAM SEDIMENT	SS						Caverners Creek. 2m wide and 10cm deep
5470826	77311	EL56/94	406500	5399230	STREAM SEDIMENT	SS						200m up Vale River from Cradle Mountain Link Road. Some organic matter contamination

Mackintosh River EL 56/94
Regional Rockchip, Soil and Stream Sediment Sampling

Sample No.	DPO No.	EL	AMG E	AMG N	Sample Type	Category	Colour	Minerals	Alteration	Depth (m)	Field ID	Comments
5470827	77311	EL56/94	406580	5399560	STREAM SEDIMENT	SS						550m up Vale River from Cradle Mountain Link Road. Sample taken from below limestone wall
5470828	77311	EL56/94	406620	5399820	STREAM SEDIMENT	SS						800m up Vale River from Cradle Mountain Link Road
5470829	77311	EL56/94	406740	5400150	STREAM SEDIMENT	SS						1100m up Vale River from Cradle Mountain Link Road
5470830	77311	EL56/94	406630	5400240	STREAM SEDIMENT	SS						1300m up Vale River from Cradle Mountain Link Road. Stream flows predominantly underground
5470831	77311	EL56/94	406500	5400350	STREAM SEDIMENT	SS						1500m up Vale River from Cradle Mountain Link Road
5470832	77311	EL56/94	406500	5400350	STREAM SEDIMENT	SS						1500m up Vale River from Cradle Mountain Link Road
5471104	77311	EL56/94	406500	5399230	ROCKCHIP	RKCHIP	NG	Sp			Sls	Biotubated, black, argillaceous lime mudstone and fine to medium grained calcarenite. White calcite vein with bleb of coarse sphalerite
5471105	77311	EL56/94	406500	5399230	ROCKCHIP	RKCHIP		Ga			Sls	Biotubated, black, argillaceous lime mudstone and fine to medium grained calcarenite. Trace galena in thin calcite veins
5471106	77311	EL56/94	406500	5399230	ROCKCHIP	RKCHIP	DG		Al		Sls	Argillaceous lime mudstone with boudinaged calcite veins. Orange ferruginous carbonate mineral
5471107	77311	EL56/94	406530	5399430	ROCKCHIP	RKCHIP	DG				Sls	Argillaceous lime mudstone with minor calcarenite. Orange ferruginous carbonate mineral. Some boxworking
5471108	77311	EL56/94	406610	5399870	ROCKCHIP	RKCHIP	G	Py			Sls	Fairly coarse grained pyrite pods
5470280	77312	EL56/94	401560	5399550	ROCKCHIP	RKCHIP	DG				SdSsh	Dolomitised limestone. Argillaceous, very hard

Mackintosh River EL 56/94
Regional Rockchip, Soil and Stream Sediment Sampling

Sample No.	DPO No.	EL	AMGE	AMGN	Sample Type	Category	Colour	Minerals	Alteration	Depth (m)	Field ID	Comments
5470281	77312	EL56/94	401600	5398550	ROCKCHIP	RKCHIP	DG		We		SdlSsh	Dolomitised, argillaceous limestone
5470282	77312	EL56/94	401580	5398520	ROCKCHIP	RKCHIP	LGDG				Sls	Bioturbated limestone
5470283	77312	EL56/94	401560	5398470	ROCKCHIP	RKCHIP	DG				SdlSsh	Dolomitised, argillaceous limestone
5470284	77312	EL56/94	401630	5398250	ROCKCHIP	RKCHIP	LGDG				Sls	Iron stained, bioturbated limestone with large calcite crystals and some veins
5470285	77312	EL56/94	406480	5400770	ROCKCHIP	RKCHIP	DG				SdlSsh	Dolomitised, argillaceous limestone
5470833	77312	EL56/94	401520	5399610	STREAM SEDIMENT	SS						
5470834	77312	EL56/94	401630	5399430	STREAM SEDIMENT	SS						
5470835	77312	EL56/94	401710	5398520	STREAM SEDIMENT	SS						
5470836	77312	EL56/94	401530	5398780	STREAM SEDIMENT	SS						Tributary to Mackintosh River
5470837	77312	EL56/94	401600	5398470	STREAM SEDIMENT	SS						Tributary to Mackintosh River. Not shown on map
5470838	77312	EL56/94	401570	5398160	STREAM SEDIMENT	SS						Tributary to Mackintosh River
5470839	77312	EL56/94	401630	5398840	STREAM SEDIMENT	SS						Tributary to Mackintosh River
5470840	77312	EL56/94	403040	5399340	STREAM SEDIMENT	SS						Sample from Mackintosh River near gold occurrence (on fault line)
5470841	77312	EL56/94	403200	5399230	STREAM SEDIMENT	SS						Sample from Mackintosh River near gold occurrence (on fault line)
5470842	77312	EL56/94	406480	5401200	STREAM SEDIMENT	SS						Creek draining Bluff Ranges into Vale River
5470843	77312	EL56/94	401700	5401540	STREAM SEDIMENT	SS						Creek draining Bluff Ranges into Vale River
5470844	77312	EL56/94	406920	5401900	STREAM SEDIMENT	SS						Creek draining Bluff Ranges into Vale River
5470845	77312	EL56/94	407240	5402340	STREAM SEDIMENT	SS						Creek draining Bluff Ranges into Vale River
5471149	77314	EL56/94	396340	5390740	ROCKCHIP	RKCHIP	G				SlsSdl	Argillaceous lime mudstone and calcarenite. Some dolomitisation and ferruginous staining
5471150	77314	EL56/94	396340	5390740	ROCKCHIP	RKCHIP	G				Sls	Argillaceous lime mudstone and calcarenite

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Mackintosh River EL 56/94
Regional Rockchip, Soil and Stream Sediment Sampling

Sample No.	DPO No.	EL	AMG E	AMG N	Sample Type	Category	Colour	Minerals	Alteration	Depth (m)	Field ID	Comments
5471151	77314	EL56/94	396370	5390860	ROCKCHIP	RKCHIP					Sls	Calcite vein material
5471152	77314	EL56/94	396390	5390880	ROCKCHIP	RKCHIP	DG				SlsSdl	Dark grey lime mudstone and lighter grey calcarenite. Some dolomitisation
5471153	77314	EL56/94	396410	5391080	CLAY	CLAY					Ccy	Sludge sample from low lying area with minor water trickle
5471154	77314	EL56/94	396500	5391030	ROCKFLOAT	RKFLOAT					Sss	Quartz sandstone with ferruginous jointing
5471155	77314	EL56/94	396500	5389950	ROCKCHIP	RKCHIP		SpGa			Sdl	Very fine grained dolarenite with large calcite slugs. Coarse grained spalerite and galena in calcite slugs
5471156	77314	EL56/94	396500	5389950	ROCKCHIP	RKCHIP		Sp			Sdl	Very fine grained dolarenite with calcite veins and vugs. Some oxidised sulphides, minor sphalerite
5471157	77314	EL56/94	396500	5389950	ROCKCHIP	RKCHIP		Sp			SlsSdl	Very fine grained, dolomitic calcarenite with calcite veins. Trace sphalerite
5471158	77314	EL56/94	396500	5389950	ROCKCHIP	RKCHIP		Ga			Sdl	Very fine grained dolarenite with calcite veins. Some oxidised sulphides. Trace galena
5471159	77314	EL56/94	396440	5389930	ROCKCHIP	RKCHIP			He		SlsSdl	Dolomitic, argillaceous limestone with coarse calcite veins. Haematite staining
5471160	77314	EL56/94	396360	5390660	ROCKCHIP	RKCHIP	DG				Sls	Thin veins and vugs of calcite. Some iron staining
5471161	77314	EL56/94	396470	5390310	ROCKCHIP	RKCHIP	LBG		Sd		Sls	Cryptocrystalline limestone with coarse grained siderite/ankerite?
5471162	77314	EL56/94	396470	5390310	ROCKCHIP	RKCHIP	DG		Sd		Sls	Brecciated lime mudstone with coarse grained calcite and siderite/ankerite alteration

346029



346030

Phone (004) 316837

14 Thirkell St. COOEE TAS 7320

Fax (004) 316890

ANALYTICAL REPORT No.

104165.60.11494

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

CRA Exploration Pty Limited
 P.O. Box 8093
 NORTHLAND CENTRE VIC 3072

ORDER No.

PROJECT

77194

DATE RECEIVED

RESULTS REQUIRED

18/12/95

ASAP

No. OF PAGES OF RESULTS

DATE REPORTED

No. OF COPIES

TOTAL No. OF SAMPLES

4

09/01/96

1

30

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
4142153-167,5468905-919	VA Prep : 8P031	Au, Au(R), Au(S) / 6B307 Sn, W, Mo / 6X401 Ag, Al, As, Ba, Ca, Cu, Fe, K, Mg, Mn, Pb, Zn / 6I211

RESULTS TO

Ms S Menpes
 CRA Exploration Pty Ltd
 P O Box 8093
 NORTHLAND CENTRE VIC 3072

RESULTS TO

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

RESULTS TO

Exploration Technology & Information Group
 Information Resources
 Private Bag 3 Bundora MDC
 Victoria 3083

REMARKS

Ca/6I211 results >20% are over the recommended analytical range and are reported to an accuracy of +- 1%.

PP *M.A. Good*
 AUTHORIZED OFFICER

ANALYTICAL DATA

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

104165.60.11494 09/01/96 77194 1 OF 4

	SAMPLE No.	Ag	Al	As	Ba	Ca	Cu	Fe	K	Mg
METHOD		GI211								
1	4142153	1.0	0.45	<5	6	34.60	<5	0.25	0.32	0.81
2	4142154	1.8	0.40	<5	<5	35.30	<5	0.56	0.26	1.33
3	4142155	1.4	1.44	<5	38	34.00	<5	0.83	0.90	0.50
4	4142156	1.4	1.02	<5	22	34.20	<5	0.84	0.61	0.72
5	4142157	1.3	0.35	<5	11	34.30	10	0.30	0.14	0.53
6	4142158	1.5	0.49	<5	6	37.60	<5	0.31	0.31	0.54
7	4142159	<0.5	1.06	<5	27	22.30	<5	0.63	0.60	7.48
8	4142160	1.0	0.47	<5	10	36.60	<5	0.24	0.22	0.57
9	4142161	1.3	0.45	<5	9	33.80	<5	0.26	0.28	1.84
10	4142162	1.3	0.56	<5	14	34.40	<5	0.28	0.38	0.88
11	4142163	1.5	0.57	5	22	34.80	<5	0.40	0.41	0.31
12	4142164	1.7	0.64	<5	22	33.70	<5	0.39	0.36	1.13
13	4142165	<0.5	8.42	14	630	7.30	81	7.65	0.94	3.12
14	4142166	1.7	0.36	<5	349	33.40	<5	0.17	0.26	0.38
15	4142167	1.6	0.30	<5	<5	32.60	<5	0.70	0.24	1.46
16	5468905	<0.5	1.09	<5	231	0.06	6	0.38	0.58	0.09
17	5468906	<0.5	1.13	<5	105	<0.05	7	0.35	0.65	0.05
18	5468907	<0.5	3.30	18	366	0.68	16	2.79	1.04	0.47
19	5468908	<0.5	2.88	15	258	0.13	14	1.51	1.05	0.24
20	5468909	<0.5	1.81	6	174	<0.05	15	0.47	0.98	0.09
21	5468910	<0.5	2.31	6	156	0.28	8	1.46	0.74	0.21
22	5468911	<0.5	0.38	5	50	<0.05	5	0.36	0.16	0.04
23	5468912	<0.5	0.35	<5	72	<0.05	24	0.53	0.14	0.03
24	5468913	<0.5	0.88	<5	126	<0.05	8	0.41	0.40	0.09
25	5468914	<0.5	0.65	<5	101	<0.05	6	0.34	0.32	0.06

Results in ppm unless otherwise specified
 - = element not determined IS = insufficient sample
 SNR = sample not received

AUTHORISED OFFICER *PP M.A. Egan*

ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

REPORT DATE

CLIENT ORDER No.

PAGE

104165.60.11494

09/01/96

77194

2 OF 4

	SAMPLE No.	Ag	Al	As	Ba	Ca	Cu	Fe	K	Mg
METHOD		GI211								
1	5468915	<0.5	2.19	14	145	0.18	8	1.98	1.05	0.27
2	5468916	<0.5	3.50	27	207	0.11	19	3.40	1.67	0.40
3	5468917	<0.5	3.84	<5	241	0.15	22	2.79	1.55	0.45
4	5468918	<0.5	2.09	14	202	0.15	12	1.19	1.02	0.18
5	5468919	<0.5	2.38	8	220	0.06	9	0.85	1.15	0.15
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.5	0.01	5	5	0.05	5	0.01	0.05	0.01
25	UNITS	ppm	%	ppm	ppm	%	ppm	%	%	%

Results in ppm unless otherwise specified
 - = element not determined

IS = insufficient sample
 SNR = sample not received

AUTHORISED OFFICER

PP M.A. Good



ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

REPORT DATE

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PAGE

104165.60.11494

09/01/96

77194

3 OF 4

	SAMPLE No.	Mn	Pb	Zn	Sn	W	Mo	Au		
METHOD		GI211	GI211	GI211	GX401	GX401	GX401	GG309		
1	4142153	155	40	16	<3	<10	6	<0.008		
2	4142154	593	31	<5	<3	<10	4	<0.008		
3	4142155	1290	27	10	<3	<10	<3	<0.008		
4	4142156	1140	19	9	<3	<10	6	<0.008		
5	4142157	124	19	2020	<3	<10	<3	<0.008		
6	4142158	155	27	<5	<3	<10	<3	<0.008		
7	4142159	690	15	304	<3	<10	<3	<0.008		
8	4142160	61	15	<5	<3	<10	<3	<0.008		
9	4142161	66	22	<5	<3	<10	4	<0.008		
10	4142162	262	40	31	4	<10	5	<0.008		
11	4142163	1100	41	16	4	<10	<3	<0.008		
12	4142164	717	32	19	<3	<10	5	<0.008		
13	4142165	1320	10	90	<3	<10	4	<0.008		
14	4142166	506	290	<5	5	<10	4	<0.008		
15	4142167	608	17	<5	<3	<10	4	<0.008		
16	5468905	58	30	20	11	25	<3	IS		
17	5468906	75	11	13	13	10	<3	<0.008		
18	5468907	1430	208	250	18	<10	<3	IS		
19	5468908	424	32	65	10	25	<3	IS		
20	5468909	125	23	24	15	<10	<3	<0.008		
21	5468910	239	41	69	5	<10	<3	<0.008		
22	5468911	28	12	17	8	<10	4	IS		
23	5468912	36	21	17	<3	<10	<3	IS		
24	5468913	70	10	21	6	<10	<3	IS		
25	5468914	20	<10	9	8	<10	<3	IS		

Results in ppm unless otherwise specified
= element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED OFFICER *PP M. A. Good*



ANALYTICAL DATA

SAMPLE PREFIX

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PAGE

SAMPLE PREFIX		REPORT No.				REPORT DATE		CLIENT ORDER No.		PAGE	
		104165.60.11494				09/01/96		77194		4 OF 4	
	SAMPLE No.	Mn	Pb	Zn	Sn	W	Mo	Au			
METHOD		GI211	GI211	GI211	GX401	GX401	GX401	GG309			
1	5468915	1800	35	90	8	<10	<3	IS			
2	5468916	1660	97	162	12	<10	<3	IS			
3	5468917	2160	100	158	19	10	<3	IS			
4	5468918	529	37	58	39	<10	<3	IS			
5	5468919	125	26	26	80	10	<3	IS			
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24	DETECTION	10	10	5	3	10	3	0.008			
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

AUTHORISED OFFICER

PP M.H. Good

Phone (004) 318837

14 Thirkell St. COOEE TAS 7020

Fax (004) 318890

ANALYTICAL REPORT No.

104165.60.11559

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

CRA Exploration Pty Limited
P.O. Box 8093
NORTHLAND CENTRE VIC 3072

ORDER No.

PROJECT

77200

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28/02/96

1

40

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
4142168/170 & others	VA Prep : BP033, BP031 AS	Ag, Al, As, Ba, Ca, Cu, Fe, K, Mg, Mn, Pb,
4142169/170 & others	APPROPRIATE	In/61211

RESULTS
TO

Ms S Menpes
CRA Exploration Pty Ltd
P O Box 8093
NORTHLAND CENTRE VIC 3072

RESULTS
TO

Mr C Hayward
CRA Exploration Pty Limited
Pte Bag 3
BUNDOORA MDC VIC 3083

RESULTS
TO

Exploration Technology & Information
Group
Information Resources
Private Bag 3 Bundoora MDC
Victoria 3083

REMARKS

AUTHORISED OFFICER

ANALYTICAL DATA

SAMPLE PREFIX

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PAGE

SAMPLE PREFIX		REPORT No.				REPORT DATE		CLIENT ORDER No.		PAGE	
		104165.60.11559				28/02/96		77200		1 OF 4	
METHOD	SAMPLE No.	Ag	Al	As	Ba	Ca	Cu	Fe	K	Mg	
		GI211	GI211	GI211	GI211	GI211	GI211	GI211	GI211	GI211	
1	4142168	<0.5	6.85	21	659	2.15	94	3.20	3.67	1.80	
2	4142169	2.2	0.28	<5	<5	38.80	<5	0.22	0.18	0.38	
3	4142170	<0.5	0.73	14	32	0.06	6	1.36	0.26	0.04	
4	4142184	2.2	0.36	<5	5	36.60	<5	0.36	0.25	1.78	
5	4142185	<0.5	4.52	21	202	0.07	5	4.31	2.23	0.51	
6	4142186	<0.5	2.13	13	97	0.19	11	1.02	1.29	0.20	
7	4142187	<0.5	0.21	<5	28	0.10	<5	0.77	0.11	0.08	
8	4142188	<0.5	1.54	<5	166	<0.05	7	1.56	0.70	0.09	
9	4142189	<0.5	0.69	10	73	<0.05	<5	1.19	0.33	0.05	
10	4142190	2.3	0.36	<5	10	37.80	<5	0.21	0.24	0.65	
11	4142191	<0.5	7.43	9	334	0.73	15	4.16	3.75	1.40	
12	4142192	2.1	0.19	<5	<5	37.40	<5	0.11	0.15	0.39	
13	4142193	<0.5	3.68	<5	376	0.12	7	0.83	1.43	0.32	
14	4142194	1.7	0.39	<5	16	19.40	8	0.81	0.20	11.10	
15	4142195	<0.5	5.00	13	475	0.07	7	3.16	2.31	0.54	
16	4142196	<0.5	0.54	<5	51	<0.05	6	0.65	0.19	0.04	
17	4142197	<0.5	4.70	23	408	0.07	20	3.27	1.83	0.50	
18	4142198	<0.5	0.34	<5	44	<0.05	5	0.49	0.15	0.03	
19	4142199	<0.5	5.03	34	369	0.08	32	4.62	2.39	0.72	
20	4142200	<0.5	5.24	25	294	<0.05	16	4.29	1.78	0.56	
21	5470809	<0.5	0.61	7	83	<0.05	<5	0.45	0.28	0.06	
22	5470810	3.6	4.97	326	303	1.54	327	6.86	1.39	1.26	
23	5470811	<0.5	1.47	11	142	0.21	6	1.20	0.64	0.16	
24	5470812	<0.5	1.49	5	156	0.25	11	1.51	0.58	0.16	
25	5470813	<0.5	0.73	6	39	<0.05	15	3.00	0.24	0.06	

results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

REPORT DATE

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2 OF 4

	SAMPLE No.	Ag	Al	As	Ba	Ca	Cu	Fe	K	Mg
METHOD		GI211								
1	5470814	<0.5	4.07	18	170	0.05	24	6.74	1.34	0.39
2	5470815	<0.5	2.84	7	240	0.44	44	3.33	1.31	0.32
3	5470816	<0.5	0.55	<5	31	<0.05	37	0.55	0.23	0.03
4	5470817	<0.5	0.99	12	109	0.07	12	0.60	0.44	0.06
5	5470818	<0.5	1.34	13	112	0.19	8	1.50	0.56	0.21
6	5470819	<0.5	1.21	<5	99	0.15	7	0.58	0.54	0.13
7	5470820	<0.5	1.46	8	139	0.19	12	1.12	0.63	0.17
8	5470821	<0.5	1.01	<5	105	<0.05	7	0.60	0.43	0.11
9	5470822	<0.5	0.48	<5	42	0.05	<5	0.42	0.19	0.05
10	5470823	<0.5	1.30	9	143	0.06	<5	0.84	0.58	0.09
11	5470824	<0.5	0.35	<5	35	<0.05	<5	0.22	0.15	0.03
12	5470825	<0.5	1.30	<5	143	<0.05	<5	0.71	0.59	0.09
13	5471101	<0.5	1.09	<5	102	<0.05	<5	0.44	0.51	0.08
14	5471102	<0.5	3.09	6	297	<0.05	<5	0.38	1.65	0.38
15	5471103	<0.5	2.37	<5	110	19.40	<5	0.97	1.70	7.14
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.5	0.01	5	5	0.05	5	0.01	0.05	0.01
25	UNITS	ppm	%	ppm	ppm	%	ppm	%	%	%

Results in ppm unless otherwise specified
- element not determined

IS - Insufficient sample
SNR - sample not received

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

REPORT DATE

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77200

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	SAMPLE No.	Mn	Pb	Zn					
METHOD		GI211	GI211	GI211					
1	4142168	250	46	117					
2	4142169	88	28	24					
3	4142170	70	15	17					
4	4142184	431	27	7					
5	4142185	54	55	23					
6	4142186	62	22	26					
7	4142187	38	<10	18					
8	4142188	44	12	22					
9	4142189	75	11	12					
10	4142190	66	14	<5					
11	4142191	801	27	106					
12	4142192	65	14	<5					
13	4142193	38	50	32					
14	4142194	926	16	22					
15	4142195	85	56	69					
16	4142196	53	11	10					
17	4142197	3650	109	291					
18	4142198	41	14	13					
19	4142199	7600	127	912					
20	4142200	1490	97	304					
21	5470809	24	13	18					
22	5470810	1500	635	2960					
23	5470811	363	36	83					
24	5470812	381	38	104					
25	5470813	62	35	44					

Results in ppm unless otherwise specified
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ANALYTICAL DATA

SAMPLE PREFIX

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	SAMPLE No.	Mn	Pb	Zn					
METHOD		GI211	GI211	GI211					
1	5470814	228	50	75					
2	5470815	1520	68	167					
3	5470816	32	12	33					
4	5470817	83	<10	24					
5	5470818	697	25	145					
6	5470819	111	21	43					
7	5470820	202	24	646					
8	5470821	87	17	39					
9	5470822	120	16	22					
10	5470823	114	16	26					
11	5470824	95	<10	8					
12	5470825	38	16	27					
13	5471101	32	16	16					
14	5471102	13	83	15					
15	5471103	167	10	9					
16									
17									
18									
19									
20									
21									
22									
23									
24	DETECTION	10	10	5					
25	UNITS	ppm	ppm	ppm					

Results in ppm unless otherwise specified
- element not determined

IS = insufficient sample
SNR = sample not received

AUTHORISED
ICER



346040

Phone (004) 316837

14 Thirkell St, COOEE TAS 7320

Fax (004) 318890

ANALYTICAL REPORT No.

104165.60.11588

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

CRA Exploration Pty Limited
P.O. Box 8093
NORTHLAND CENTRE VIC 3072

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77311

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SAMPLE NUMBERS

SAMPLE DESCRIPTION

ELEMENT/METHOD

5478026/32,5471104/09

69 Prep : 6P033,6P031

Au,Au(R),Au(S)/86309

5478026/32,5471104/09

68 Prep :

Ag,AI,As,Sa,Ca,Cu,Fe,K,Mg,Mn,Pb,
Zn,Mo/51211

5478026/32,5471104/09

65 Prep :

Sn,W/GX401

RESULTS
TOCRA Exploration Pty Ltd
2 Esperanza Crt
ZEEHAN TAS 7469RESULTS
TOMs S Menpes
CRA Exploration Pty Ltd
P O Box 8093
NORTHLAND CENTRE VIC 3072RESULTS
TO

REMARKS


AUTHORISED OFFICER

ANALYTICAL DATA

SAMPLE PREFIX

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PAGE

SAMPLE PREFIX		REPORT No.				REPORT DATE		CLIENT ORDER No.		PAGE	
		104165.60.11588				28/02/96		77311		1 OF 2	
METHOD	SAMPLE No	Au	Au(R)	Au(S)	Ag	Al	As	Ba	Ca	Cu	
		GG309	GG309	GG309	GI211	GI211	GI211	GI211	GI211	GI211	
1	5478026	IS	-	-	IS	IS	IS	IS	IS	IS	
2	5478027	IS	-	-	IS	IS	IS	IS	IS	IS	
3	5478028	IS	-	-	IS	IS	IS	IS	IS	IS	
4	5478029	0.012	-	-	IS	IS	IS	IS	IS	IS	
5	5478030	IS	-	-	IS	IS	IS	IS	IS	IS	
6	5478031	0.008	-	-	IS	IS	IS	IS	IS	IS	
7	5478032	0.021	-	-	IS	IS	IS	IS	IS	IS	
8	5471104	<0.008	-	-	1.2	0.52	<5	13	28.20	6	
9	5471105	<0.008	-	-	1.3	0.76	<5	22	31.40	<5	
10	5471106	<0.008	-	-	1.4	0.54	<5	15	32.40	<5	
11	5471107	0.012	-	-	1.4	0.36	<5	7	33.80	<5	
12	5471108	<0.008	<0.008	-	1.3	0.82	<5	31	29.00	<5	
13	5471109	0.011	-	-	5.0	6.25	<5	384	0.05	41000	
14											
15											
16											
17											
18											
19											
20											
21											
22											
23											
24	DETECTION	0.008	0.008	0.008	0.5	0.01	5	5	0.05		
25	UNITS	ppm	ppm	ppm	ppm	%	ppm	ppm	%	r	

Results in ppm unless otherwise specified
 IS = insufficient sample
 - = element not determined
 SNR = sample not received

AUTHORISED OFFICER 



ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

REPORT DATE

CLIENT ORDER No.

PAGE

104165.60.11588

28/02/96

77311

2 OF 2

	SAMPLE No.	Fe	K	Mg	Mn	Pb	Zn	Mo	Sn	W
METHOD		GI211	GX401	GX401						
1	5478026	IS								
2	5478027	IS								
3	5478028	IS								
4	5478029	IS								
5	5478030	IS								
6	5478031	IS								
7	5478032	IS								
8	5471104	0.47	0.34	1.04	364	276	186	<10	<3	<10
9	5471105	0.43	0.51	0.54	227	80	20	<10	7	<10
10	5471106	0.40	0.36	1.67	189	71	18	<10	<3	<10
11	5471107	0.64	0.24	0.77	327	27	828	<10	4	<10
12	5471108	0.44	0.57	0.86	111	12	9	<10	5	<10
13	5471109	0.48	3.08	0.40	23	27	25	<10	<3	<10
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.01	0.05	0.01	10	10	5	10	3	10
25	UNITS	%	%	%	ppm	ppm	ppm	ppm	ppm	p

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

Phone (0041) 318837

14 Thirkell St. COOEE TAS 7320

Fax (0041) 318890

ANALYTICAL REPORT No.

104165.60.11618

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

CRA Exploration Pty Limited
P.O. Box 8093
NORTHLAND CENTRE VIC 3072

ORDER No.

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77312

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11/03/96

1

19

SAMPLE NUMBERS	SAMPLE DESCRIPTION	ELEMENT/METHOD
5470833/45,5470280/85	85 Prep : 8P032	Au, Au(R), Au(B)/86309, Au/86326
5470833/45,5470280/85	85 Prep : 8P032	Sn, W/BX401
5470833/45,5470280/85	85 Prep : 8P032	Ag, Al, As, Ba, Ca, Cu, Fe, K, Mg, Mn, Mo, Pb, Zn/G1201

RESULTS
TO

Ms S Renpes
CRA Exploration Pty Ltd
P O Box 8093
NORTHLAND CENTRE VIC 3072

RESULTS
TO

Mr C Hayward
CRA Exploration Pty Limited
Pte Bag 3
BUNDORA MDC VIC 3083

RESULTS
TO

Exploration Technology & Information
Group
Information Resources
Private Bag 3 Bundora MDC
Victoria 3083

REMARKS

AUTHORISED OFFICER

ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

REPORT DATE

CLIENT ORDER No.

PAGE

104165.60.11618

11/03/96

77312

1 OF 3

	SAMPLE No.	Au	Au	Au (R)	Sn	W	Au (S)	Ag	Al	As
METHOD		GG309	GG326	GG309	GX401	GX401	GG309	GI201	GI201	GI201
1	5470833	-	0.001	-	<3	<10	-	<0.5	0.90	<5
2	5470834	-	0.001	-	<3	<10	-	<0.5	1.32	<5
3	5470835	0.063	-	-	<3	<10	-	<0.5	7.80	12
4	5470836	0.052	-	-	5	<10	-	0.7	3.53	<5
5	5470837	-	0.001	-	<3	<10	-	<0.5	3.30	7
6	5470838	-	0.001	-	<3	<10	-	<0.5	1.47	<5
7	5470839	-	<0.005	-	<3	<10	-	<0.5	4.85	7
8	5470840	-	0.004	-	<3	<10	-	<0.5	0.78	<5
9	5470841	-	<0.001	-	<3	<10	-	<0.5	0.61	<5
✓10	5470842	0.042	-	-	6	<10	-	<0.5	0.59	<5
✓11	5470843	-	0.001	-	15	<10	-	<0.5	0.34	5
✓12	5470844	-	<0.007	-	15	<10	-	<0.5	0.62	<5
✓13	5470845	-	0.002	-	15	<10	-	<0.5	0.33	<5
14	5470280	-	0.002	-	5	<10	-	<0.5	7.48	<5
15	5470281	-	0.004	-	4	<10	-	<0.5	8.02	<5
16	5470282	-	0.001	-	<3	<10	-	2.1	0.75	<5
17	5470283	-	0.001	-	<3	<10	-	<0.5	7.28	5
18	5470284	-	0.001	-	<3	<10	-	0.9	1.56	<5
✓19	5470285	-	0.002	-	<3	25	-	<0.5	6.25	<5
20										
21										
22										
23										
24	DETECTION	0.008	0.001	0.008	3	10	0.008	0.5	0.01	5
25	UNITS	ppm	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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ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

REPORT DATE

CLIENT ORDER No.

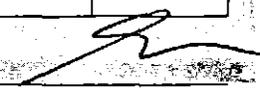
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SAMPLE PREFIX		REPORT No.				REPORT DATE		CLIENT ORDER No.		PAGE	
		104165.60.11618				11/03/96		77312		2 OF 3	
	SAMPLE No.	Ba	Ca	Cu	Fe	K	Mg	Mn	Mo	Pb	
METHOD		GI201	GI201	GI201	GI201	GI201	GI201	GI201	GI201	GI201	
1	5470833	49	<0.05	6	0.97	0.23	0.10	135	<10	16	
2	5470834	53	0.08	9	1.74	0.20	0.17	291	<10	17	
3	5470835	205	0.33	38	8.89	0.56	0.86	905	<10	20	
4	5470836	101	0.14	17	6.54	0.18	0.45	783	<10	16	
5	5470837	93	0.19	18	4.77	0.27	0.46	464	<10	<10	
6	5470838	144	<0.05	8	0.59	0.57	0.13	31	<10	<10	
7	5470839	80	0.28	38	7.01	0.14	0.81	613	<10	17	
8	5470840	25	0.14	9	1.11	0.22	0.12	75	<10	23	
9	5470841	20	<0.05	8	0.56	0.16	0.04	29	<10	18	
10	5470842	24	<0.05	11	0.84	0.22	0.06	43	<10	19	
11	5470843	17	<0.05	8	0.78	0.12	0.03	36	<10	<10	
12	5470844	13	<0.05	17	1.45	0.13	0.04	55	<10	<10	
13	5470845	15	<0.05	10	0.72	0.10	0.02	30	<10	<10	
14	5470280	155	6.44	53	9.34	0.87	6.33	1480	<10	<10	
15	5470281	189	5.82	50	8.86	0.80	5.54	1320	<10	<10	
16	5470282	59	36.20	<5	0.42	0.51	0.45	307	<10	16	
17	5470283	234	6.46	50	9.80	1.11	6.52	1470	<10	<10	
18	5470284	76	28.60	<5	0.73	0.81	0.66	141	<10	13	
19	5470285	673	8.64	61	9.07	1.45	7.05	1600	<10	13	
20											
21											
22											
23											
24	DETECTION	5	0.05	5	0.01	0.05	0.01	10	10	10	
25	UNITS	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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PAGE

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77312

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	SAMPLE No.	Zn							
METHOD		GI201							
1	5470833	15							
2	5470834	26							
3	5470835	174							
4	5470836	165							
5	5470837	112							
6	5470838	13							
7	5470839	120							
8	5470840	23							
9	5470841	11							
10	5470842	28							
11	5470843	15							
12	5470844	24							
13	5470845	17							
14	5470280	128							
15	5470281	123							
16	5470282	5							
17	5470283	143							
18	5470284	7							
19	5470285	122							
20									
21									
22									
23									
24	DETECTION	5							
25	UNITS	ppm							

Results in ppm unless otherwise specified
= element not determined

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Appendix 2

White Hawk Mine Prospect,
Rockchip, Soil and Stream Sediment Sample Ledgers and Analyses

White Hawk Mine Prospect
Reconnaissance Soil, Rockchip and Stream Sediment Sampling

Sample No.	DPO No.	EL	Prospect	AMGE	AMGN	Sample Type	Category	Colour	Minerals	Alteration	Depth (m)	Horizon	Field ID	Comments
5471110	77314	EL56/94	WHITE HAWK MINE	391727	5384160	SOIL	SL	DB				BC	CcySls	Silty clay with small, angular rock fragments
5471111	77314	EL56/94	WHITE HAWK MINE	391767	5384160	SOIL	SL	YO			0.8	BC	CcySls	Clay with rock fragments. Weathered intrusive or limestone?
5471112	77314	EL56/94	WHITE HAWK MINE	391815	5384160	SOIL	SL	BOB			0.8	B	Ccy	Crumbly clays
5471113	77314	EL56/94	WHITE HAWK MINE	391865	5384160	SOIL	SL	BO			1	BC	Ccy	Crumbly, silty clays
5471114	77314	EL56/94	WHITE HAWK MINE	391910	5384160	SOIL	SL	GO			1	B	Ccylf	Greyish orange, gritty clay. Weathered porphyry or transported material?
5471115	77314	EL56/94	WHITE HAWK MINE	391960	5384160	SOIL	SL	OB			1	B	Ccy	Crumbly orange and brown gritty clay. Possibly transported?
5471116	77314	EL56/94	WHITE HAWK MINE	392010	5384160	SOIL	SL	G			0.5	C	Sss	Coarse grained to granular sandstone. Weathered bedrock
5471117	77314	EL56/94	WHITE HAWK MINE	391686	5384160	SOIL	SL	BO			1	B	Ccy	Crumbly clay with rock fragments. Transported?
5471118	77314	EL56/94	WHITE HAWK MINE	391645	5384160	SOIL	SL	DBO			1	B	Ccy	Rock fragments
5471119	77314	EL56/94	WHITE HAWK MINE	391600	5384160	SOIL	SL	GO			0.7	C	Ssh	Silty, crumbly clays with shale fragments
5471120	77314	EL56/94	WHITE HAWK MINE	391554	5384160	SOIL	SL	LBG		We	0.6	C	Sss	Silty sandstone (weathered bedrock)
5471121	77314	EL56/94	WHITE HAWK MINE	391878	5384153	ROCKFLOAT	RKFLOAT			We			II	Boulder of quartz-feldspar porphyry in tributary to White Hawk Creek
5471122	77314	EL56/94	WHITE HAWK MINE	391814	5384121	ROCKCHIP	RKCHIP						Sls	
5471123	77314	EL56/94	WHITE HAWK MINE	391814	5384121	ROCKCHIP	RKCHIP		Py				Sls	Calcite veining with minor pyrite
5471124	77314	EL56/94	WHITE HAWK MINE	391667	5383957	SOIL	SL	GO			0.6	BC	CcySls	Crumbly clays with light grey rock fragments. Transported?
5471125	77314	EL56/94	WHITE HAWK MINE	391644	5383957	SOIL	SL	EG				BC	Ccy	Crumbly, silty clay. Possibly weathered siltstone?
5471126	77314	EL56/94	WHITE HAWK MINE	391622	5383957	SOIL	SL	DGB			0.4	BC	Ccy	Crumbly, silty clay
5471127	77314	EL56/94	WHITE HAWK MINE	391597	5383957	SOIL	SL	DB			0.5	BC	CcyCgSss	Clay with white, rounded quartzite clasts. Possibly transported material
5471128	77314	EL56/94	WHITE HAWK MINE	391573	5383957	SOIL	SL	EG				B	CcyCgSss	Silty to sandy clay with quartzite clasts
5471129	77314	EL56/94	WHITE HAWK MINE	391548	5383957	SOIL	SL	LBG			0.3	C	SsiSss	Silt and very fine sand with some fragments white quartzite
5471130	77314	EL56/94	WHITE HAWK MINE	391681	5383970	ROCKCHIP	RKCHIP	G	GaPy				Sls	Grey limestone with thick (= 2cm) calcite vein. Minor galena and pyrite in vein

White Hawk Mine Prospect
Reconnaissance Soil, Rockchip and Stream Sediment Sampling

Sample No.	DPO No.	EL	Prospect	AMG E	AMG N	Sample Type	Category	Colour	Minerals	Alteration	Depth (m)	Horizon	Field ID	Comments
5471131	77314	EL56/94	WHITE HAWK MINE	391881	5383970	ROCKCHIP	RKCHIP	G	GaPy				Sls	Grey limestone with thick (~2cm) calcite vein. Minor galena and trace pyrite in vein
5471132	77314	EL56/94	WHITE HAWK MINE	391751	5383957	SOIL	SL	LG			1.4	B	Ccy	Clay with rock fragments
5471133	77314	EL56/94	WHITE HAWK MINE	391770	5383957	SOIL	SL	O			0.8	B	Ccy	Clay with rock fragments
5471134	77314	EL56/94	WHITE HAWK MINE	391788	5383957	SOIL	SL	OB			1.1	B	Ccy	Clay with rock fragments
5471135	77314	EL56/94	WHITE HAWK MINE	391809	5383957	SOIL	SL	BLB			0.6	B	Ccy	Clay
5471136	77314	EL56/94	WHITE HAWK MINE	391829	5383957	SOIL	SL	LG			0.4	C	Sss	Angular, light grey sandstone fragments
5471137	77314	EL56/94	WHITE HAWK MINE	391682	5384053	SOIL	SL	BO			0.4	BC	CcySls	Clay with 1cm sized rock fragments
5471138	77314	EL56/94	WHITE HAWK MINE	391660	5384053	SOIL	SL	BO			0.4	B	Ccy	Clay with minor rock fragments
5471139	77314	EL56/94	WHITE HAWK MINE	391638	5384053	SOIL	SL	DBOLB			0.3	B	Ccy	Clay with free roots and light brown rock chips
5471140	77314	EL56/94	WHITE HAWK MINE	391616	5384053	SOIL	SL	DBG				BC	CcySss	Sandy clay, some sandstone fragments
5471141	77314	EL56/94	WHITE HAWK MINE	391593	5384053	SOIL	SL	LGBG				BC	CcySss	Sandy clay with quartz fragments
5471142	77314	EL56/94	WHITE HAWK MINE	391786	5384053	SOIL	SL	VLB			0.6	B	Ccy	Clay with angular rock fragments
5471143	77314	EL56/94	WHITE HAWK MINE	391810	5384053	SOIL	SL	LBDB			0.7	B	Ccy	Clay with angular rock fragments
5471144	77314	EL56/94	WHITE HAWK MINE	391833	5384053	SOIL	SL	DB			0.8	B	Ccy	Gritty clay
5471145	77314	EL56/94	WHITE HAWK MINE	391858	5384053	SOIL	SL	DGB				B	Ccy	Dark grey brown clay with angular rock fragments. Some silty clasts
5471146	77314	EL56/94	WHITE HAWK MINE	391883	5384053	SOIL	SL	G			0.8	BC	CcySss	Grey silty clay with some quartz chips
5471147	77314	EL56/94	WHITE HAWK MINE	391908	5384053	SOIL	SL	LB				BC	CcySss	Clay with sandstone fragments
5471148	77314	EL56/94	WHITE HAWK MINE	391933	5384053	SOIL	SL	LBG			0.8	BC	CcySssSsh	Sandy and silty clay with shale fragments
5470301	77316	EL56/94	WHITE HAWK MINE	391833	5384127	STREAM SEDIMENT	SS							Tributary to White Hawk Creek



346050

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ANALYTICAL REPORT No.

104165.60.11634

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

INVOICE TO:

CRA Exploration Pty Limited
P.O. Box 8093
NORTHLAND CENTRE VIC 3072

ORDER No.

PROJECT

77314

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13/02/96

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DATE
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TOTAL No.
OF SAMPLES

6

29/02/96

1

63

SAMPLE NUMBERS

SAMPLE DESCRIPTION

ELEMENT/METHOD

5471153 & others

SD Prep : GP031,GP033

Ag,Al,As,Ba,Ca,Cu,Fe,K,Mg,Mn,Nb
Pb,Zn/G1211

5471153 & others

SD Prep : GP031,GP033

Sn,W/GX401

5471153 & others

SD Prep : GP031,GP033

Au,Au(R),Au(S)/GG309

RESULTS
TO

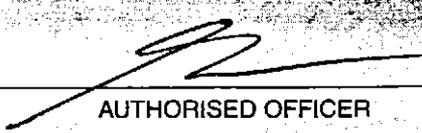
Ms S Nempes
CRA Exploration Pty Ltd
P O Box 8093
NORTHLAND CENTRE VIC 3072

RESULTS
TO

Mr C Hayward
CRA Exploration Pty Limited
Pte Bag 3
BUNDOORA VIC 3083

RESULTS
TO

REMARKS


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346051
ANALYTICAL DATA

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29/02/96

77314

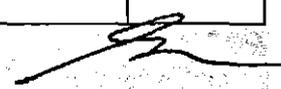
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	SAMPLE No.	Ag	Al	As	Ba	Ca	Cu	Fe	K	Mg
METHOD		GI211								
1	5471153	<0.5	3.91	20	398	0.37	30	3.13	2.16	0.59
2	5471110	<0.5	5.20	9	299	0.08	27	4.03	1.22	0.43
3	5471111	<0.5	7.98	32	608	<0.05	43	5.75	1.82	0.75
4	5471112	<0.5	9.22	<5	77	0.09	53	8.97	0.29	0.73
5	5471113	<0.5	4.79	6	208	<0.05	15	1.96	1.86	0.18
6	5471114	<0.5	6.15	28	235	<0.05	26	1.81	2.22	0.13
7	5471115	<0.5	6.51	27	277	<0.05	18	2.41	2.38	0.22
8	5471116	<0.5	0.21	<5	11	<0.05	8	0.45	0.07	0.02
9	5471117	<0.5	7.72	42	694	0.06	29	5.60	2.98	1.03
10	5471118	<0.5	5.95	29	1000	<0.05	37	5.10	1.93	0.59
11	5471119	<0.5	5.05	<5	1110	<0.05	10	2.14	2.43	0.42
12	5471120	<0.5	0.44	<5	47	<0.05	<5	0.32	0.20	0.03
13	5471124	<0.5	7.69	29	1580	<0.05	33	3.83	3.50	1.04
14	5471125	<0.5	2.89	<5	458	<0.05	<5	0.65	1.06	0.24
15	5471126	<0.5	1.39	<5	169	<0.05	7	0.49	0.39	0.11
16	5471127	<0.5	0.55	<5	69	<0.05	<5	0.34	0.23	0.05
17	5471128	<0.5	0.44	<5	42	<0.05	6	0.45	0.20	0.03
18	5471129	<0.5	0.24	8	26	<0.05	<5	0.29	0.09	0.02
19	5471132	<0.5	7.45	29	302	<0.05	18	2.51	4.20	1.63
20	5471133	<0.5	9.24	67	403	<0.05	36	8.54	3.95	1.18
21	5471134	<0.5	7.65	<5	229	<0.05	17	2.40	2.40	0.19
22	5471135	<0.5	6.24	<5	183	<0.05	6	1.22	2.50	0.11
23	5471136	<0.5	1.45	8	91	<0.05	6	0.48	0.91	0.04
24	5471137	<0.5	7.01	9	422	0.11	16	3.69	2.94	0.95
25	5471138	<0.5	5.36	29	242	<0.05	8	1.73	2.17	0.17

 Results in ppm unless otherwise specified
 - = element not determined

 IS = insufficient sample
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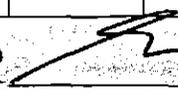


ANALYTICAL DATA

SAMPLE PREFIX		REPORT No.	REPORT DATE	CLIENT ORDER No.	PAGE					
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METHOD	SAMPLE No.	Ag	Al	As	Ba	Ca	Cu	Fe	K	Mg
		GI211	GI211	GI211	GI211	GI211	GI211	GI211	GI211	GI211
1	5471139	<0.5	7.80	27	598	<0.05	23	3.19	3.50	0.78
2	5471140	<0.5	6.14	10	256	<0.05	8	2.53	2.61	0.14
3	5471141	<0.5	4.05	25	261	<0.05	5	2.01	2.27	0.17
4	5471142	<0.5	6.99	42	459	<0.05	18	3.79	2.79	1.16
5	5471143	<0.5	8.26	34	627	<0.05	66	4.25	2.55	0.84
6	5471144	<0.5	8.77	65	1360	<0.05	252	7.54	2.23	0.52
7	5471145	<0.5	3.13	<5	545	<0.05	<5	0.72	1.26	0.26
8	5471146	<0.5	1.66	<5	165	<0.05	<5	0.37	0.59	0.13
9	5471147	<0.5	0.77	<5	72	<0.05	<5	0.38	0.29	0.05
10	5471148	<0.5	1.06	5	122	<0.05	<5	0.41	0.47	0.09
11	5471121	<0.5	6.25	6	198	0.26	<5	1.27	4.43	0.10
12	5471122	2.0	1.59	<5	191	29.10	6	0.71	0.99	2.60
13	5471123	2.0	0.45	<5	8	34.20	<5	1.10	0.31	2.51
14	5471130	1.9	0.50	<5	958	31.50	<5	0.58	0.39	2.62
15	5471131	2.0	0.55	<5	1300	33.20	<5	0.36	0.45	1.28
16	5471149	1.2	0.63	<5	28	27.80	<5	1.07	0.43	4.36
17	5471150	1.7	0.40	<5	12	32.00	<5	0.64	0.27	2.89
18	5471151	1.3	0.55	<5	24	36.00	<5	0.31	0.33	0.40
19	5471152	1.1	1.16	<5	53	28.50	<5	0.59	0.69	4.04
20	5471154	<0.5	2.00	34	135	0.22	12	1.14	0.94	0.22
21	5471155	1.5	0.80	<5	44	21.10	9	0.78	0.47	10.20
22	5471156	1.7	0.32	<5	9	22.40	17	1.01	0.17	11.30
23	5471157	2.0	0.33	<5	12	29.50	<5	0.98	0.19	6.67
24	5471158	1.8	0.38	<5	12	22.60	9	1.21	0.21	11.30
25	5471159	<0.5	2.00	<5	122	13.00	<5	0.97	0.69	3.18

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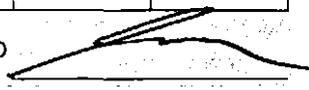
3 OF 6

	SAMPLE No.	Ag	Al	As	Ba	Ca	Cu	Fe	K	Mg
METHOD		GI211								
1	5471160	2.7	0.23	<5	21	40.50	<5	0.13	0.14	0.34
2	5471161	2.4	0.22	<5	8	40.30	<5	0.28	0.13	0.22
3	5471162	2.4	0.51	<5	9	40.20	18	0.84	0.31	0.37
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24	DETECTION	0.5	0.01	5	5	0.05	5	0.01	0.05	0.01
25	UNITS	ppm	%	ppm	ppm	%	ppm	%	%	%

Results in ppm unless otherwise specified
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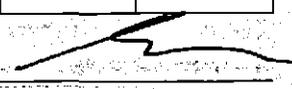
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	SAMPLE No.	Mn	Mo	Pb	Zn	Sn	W	Au	Au(R)	Au(S)
METHOD		GI211	GI211	GI211	GI211	GX401	GX401	GG309	GG309	GG309
1	5471153	7950	<10	137	291	5	<10	<0.008		
2	5471110	1770	<10	105	176	<3	<10	<0.008		
3	5471111	1090	<10	164	245	<3	<10	<0.008		
4	5471112	317	<10	21	81	<3	<10	<0.008		
5	5471113	184	<10	40	49	9	<10	<0.008		
6	5471114	1600	<10	52	42	10	<10	<0.008		
7	5471115	155	<10	42	39	10	<10	<0.008		
8	5471116	60	<10	<10	7	9	<10	<0.008		
9	5471117	8830	<10	1940	1380	5	10	<0.008		
10	5471118	3470	<10	977	333	7	<10	<0.008	<0.008	
11	5471119	43	<10	78	34	6	15	<0.008		
12	5471120	27	<10	<10	5	7	<10	<0.008	<0.008	
13	5471124	234	<10	707	533	10	<10	<0.008		
14	5471125	22	<10	29	10	5	<10	<0.008		
15	5471126	23	<10	17	8	4	<10	<0.008		
16	5471127	23	<10	<10	<5	5	<10	<0.008		
17	5471128	36	<10	<10	8	8	<10	<0.008		
18	5471129	18	<10	<10	<5	7	<10	<0.008		
19	5471132	495	<10	233	311	9	<10	<0.008		
20	5471133	514	<10	289	865	10	30	<0.008		
21	5471134	171	<10	59	61	14	10	<0.008		
22	5471135	125	<10	38	29	9	10	<0.008	<0.008	
23	5471136	71	<10	<10	8	12	<10	<0.008		
24	5471137	1020	<10	150	410	11	<10	<0.008		
25	5471138	173	<10	36	42	13	<10	<0.008		

Results in ppm unless otherwise specified
- = element not determined

IS = insufficient sample
SNR = sample not received

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104165.60.11634

29/02/96

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	SAMPLE No.	Mn	Mo	Pb	Zn	Sn	W	Au	Au (R)	Au (S)
METHOD		GI211	GI211	GI211	GI211	GX401	GX401	GG309	GG309	GG309
1	5471139	3510	<10	215	231	6	10	<0.008	-	<0.008
2	5471140	130	<10	25	23	9	<10	<0.008	-	-
3	5471141	186	<10	23	18	10	<10	<0.008	-	-
4	5471142	859	<10	488	453	6	<10	<0.008	-	-
5	5471143	9130	<10	6490	611	6	<10	<0.008	-	-
6	5471144	12000	<10	5670	1700	<3	<10	0.008	-	-
7	5471145	53	<10	41	19	5	<10	<0.008	-	-
8	5471146	41	<10	14	11	7	10	<0.008	-	-
9	5471147	32	<10	11	8	7	<10	<0.008	-	-
10	5471148	25	<10	10	10	4	<10	<0.008	-	-
11	5471121	176	<10	28	21	12	<10	<0.008	-	-
12	5471122	400	<10	22	35	<3	10	<0.008	0.008	-
13	5471123	1230	<10	14	<5	<3	10	<0.008	-	-
14	5471130	1360	<10	421	<5	<3	<10	<0.008	-	-
15	5471131	921	<10	895	<5	<3	<10	<0.008	-	-
16	5471149	1780	<10	25	13	<3	<10	<0.008	-	-
17	5471150	1550	<10	52	294	<3	<10	<0.008	-	-
18	5471151	545	<10	19	6	<3	<10	<0.008	-	-
19	5471152	577	<10	21	31	<3	<10	<0.008	-	-
20	5471154	289	<10	164	92	6	<10	<0.008	-	-
21	5471155	956	<10	730	275	<3	10	<0.008	-	-
22	5471156	1380	<10	153	1860	<3	<10	<0.008	<0.008	-
23	5471157	2360	<10	20	98	<3	<10	<0.008	-	-
24	5471158	1740	<10	94	488	<3	<10	<0.008	-	-
25	5471159	1120	<10	15	184	<3	<10	<0.008	-	-

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ANALYTICAL DATA

SAMPLE PREFIX

REPORT No.

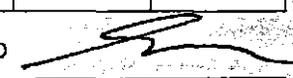
REPORT DATE

CLIENT ORDER No.

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SAMPLE PREFIX		REPORT No.				REPORT DATE		CLIENT ORDER No.		PAGE	
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METHOD	SAMPLE No.	Mn	Mo	Pb	Zn	Sn	W	Au	Au(R)	Au(S)	
		GI211	GI211	GI211	GI211	GX401	GX401	GG309	GG309	GG309	
1	5471160	328	<10	24	132	<3	<10	<0.008			
2	5471161	465	<10	17	37	<3	15	<0.008			
3	5471162	2490	<10	204	59	<3	<10	<0.008		<0.008	
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23											
24	DETECTION	10	10	10	5	3	10	0.008	0.008	0.008	
25	UNITS	ppm	ppm	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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Analabs

346057 Analabs Pty. Ltd.

A.C.N. 004 591 664

Phone (004) 316637

14 Thirkell St. COOEE TAS 7020

Fax (004) 316690

ANALYTICAL REPORT No.

104165.60.11734

THIS REPORT MUST BE READ IN CONJUNCTION WITH THE ACCOMPANYING ANALYTICAL DATA

ORDER No.

PROJECT

INVOICE TO:

CRA Exploration Pty Limited
P.O. Box 8093
NORTHLAND CENTRE VIC 3072

DPO 77316

DATE RECEIVED

RESULTS REQUIRED

15/03/96

ASAP

No. OF PAGES OF RESULTS

DATE REPORTED

No. OF COPIES

TOTAL No. OF SAMPLES

16

04/04/96

174

SAMPLE NUMBERS

SAMPLE DESCRIPTION

ELEMENT/METHOD

141901/2063 & others

RC Prep : GP032

Ag, Al, As, Ba, Ca, Cu, Fe, K, Mg, Mn, Pb,

141901/2063 & others

RC Prep :

Er/G1211
Au/GP326

RESULTS TO

Mr S Henpes
CRA Exploration Pty Ltd
P O Box 8093
NORTHLAND CENTRE VIC 3072

REMARKS

RESULTS TO

Mr C Hayward
CRA Exploration Pty Limited
Pte Bag 3
BUNDGORA MDC VIC 3083

RESULTS TO

Exploration Technology & Information Group
Information Resources
Private Bag 3 Bundgora MDC
Victoria 3083

0.05	6	0.10	1.24	0.27
0.05	43	0.10	0.10	0.10
0.05	1	0.10	0.10	0.03
0.05	1	0.10	0.10	0.03

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ANALYTICAL DATA

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THOD	SAMPLE No.	Ag	Al	As	Ba	Ca	Cu	Fe	K	Mg
	GI211	GI211	GI211	GI211	GI211	GI211	GI211	GI211	GI211	GI211
1	5470684	<0.5	0.96	34	569	0.17	<5	31.60	0.07	0.05
2	5470685	1.2	0.78	<5	54	30.40	<5	0.49	0.29	2.89
3	5470686	<0.5	0.44	<5	40	31.20	<5	0.42	0.16	1.86
4	5470301	<0.5	2.40	<5	309	0.21	7	0.73	1.21	0.12
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23										
24	DETECTION	0.5	0.01	5	5	0.05	5	0.01	0.05	0.01
25	UNITS	ppm	%	ppm	ppm	%	ppm	%	%	%

in ppm unless otherwise specified IS = insufficient sample
 element not determined SNR = sample not received

AUTHORISED OFFICER
 OFFICER

346059

Analabs Pty. Ltd.

A.C.N. 004 591 664

Analabs

ANALYTICAL DATA

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	SAMPLE No.	Mn	Pb	Zn	Au				
100		61211	61211	61211	66326				
1	5470684	18500	35	95	<0.001				
2	5470685	175	19	21	0.004				
3	5470686	155	21	243	<0.001				
4	5470301	196	27	34	0.002				
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21									
22									
23									
24	DETECTION	10	10	5	0.001				
25	UNITS	ppm	ppm	ppm	ppm				

Results in ppm unless otherwise specified. IS = insufficient sample. SNR = sample not received. = element not determined.

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