Open File Envelope No. 3050

EL 313

WAITPINGA

PROGRESS AND FINAL REPORTS TO LICENCE EXPIRY/SURRENDER FOR THE PERIOD 22/4/1977 TO 21/4/1978

Submitted by
CRA Exploration Pty Ltd
1978

Enquiries: Customer Services Branch
Minerals and Energy Resources
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101 Grenfell Street, Adelaide 5000

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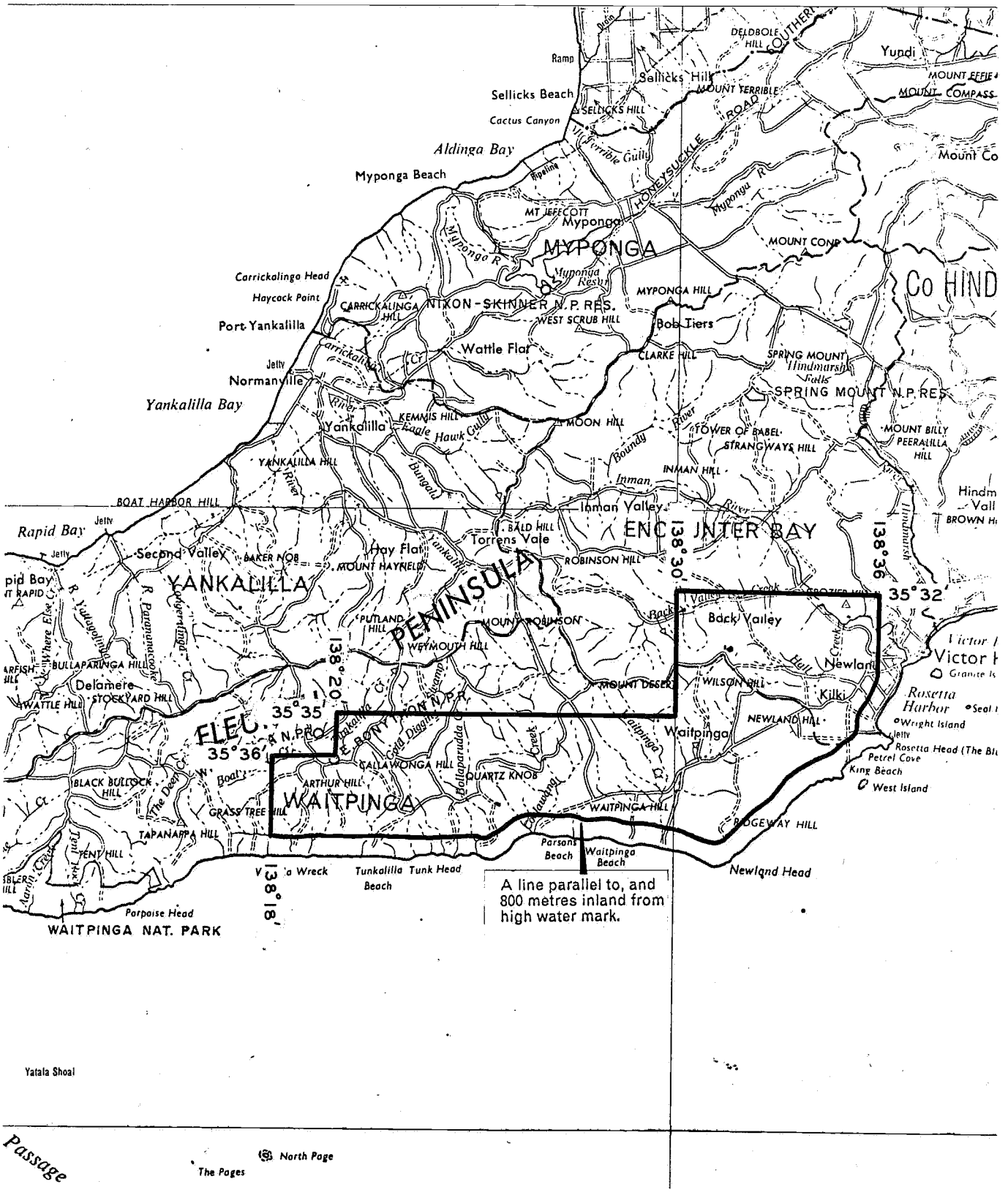
Government of South Australia
Primary Industries and Resources SA

SCHEDULE A



SCALE 1:250 000

KILOMETRES 5 0 5 10 15 20 25 KILOMETRES

APPLICANT: C.R.A. EXPLORATION PTY LIMITED

D.M.: 681/76 AREA: 171 Square kilometres

1: 250 000 PLANS:

BARKER

EXPIRED

LOCALITY: FLEURIEU PENINSULA AREA

EXPIRY DATE: 21·4·78 EXPIRED E.L. No.: 313

Pg A

CONTENTS ENVELOPE 3050

TENEMENT: EXPLORATION LICENCE 313

TENEMENT HOLDER: C.R.A. EXPLORATION PTY. LTD

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Soil sample logs continued

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Pg D

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Appendix 2

C.R.A. EXPLORATION PTY. LIMITED
(INC. IN N.S.W.)
95 COLLINS STREET, MELBOURNE, AUSTRALIA 3001

P.O. BOX 384D
TELEPHONE: 63 0491
TELEGRAMS: "CONRIO"
TELEX AA 30108

001

16th September, 1977.

The Director of Mines,
P.O. Box 151,
EASTWOOD, S.A. 5063

Dear Sir,

E.L. 313 - Fleurieu, S.A.
Report for the Quarter Ended 21st July, 1977

Please find attached a report by D. O. Mason entitled "First Quarterly Report on Fleuirieu E.L. 313, South Australia" dated 22nd August, 1977.

Exploration results are much as expected to date.

Expenditure for the period ended 31st July, the nearest accounting period, amounted to $798 comprising:

Salaries	$151
General Supplies	176
Travel and Accommodation	232
General Overheads	239
	$798

Yours faithfully,

for: J. Collier
General Manager

SAF:jm

Attach.

C.R.A. EXPLORATION PTY. LIMITED

FIRST QUARTERLY REPORT ON

FLEURIEU E.L. 313 SOUTH AUSTRALIA

Author: D.O. Mason

Date: 22th August, 1977

Submitted to: G.D. Klingner

CONTENTS

1. SUMMARY

Work carried out during the first quarter consisted of an appraisal of previous work in the area and the completion of a regional soil sampling programme over pyritic units previously mapped.

Assay results are not yet to hand, however, previous wide-spaced soil sampling by B.J. Morris of the S.A. Department of Mines showed that the pyritic units of the Brukunga Formation do contain higher base metal values than the surrounding rocks in E.L. 313. Base metal values appear relatively lower than those encountered in pyritic units North of Strathalbyn.

2. INTRODUCTION

On the basis of the encouraging results from work carried out in the Mt. Torrens area(CRAE Reports 8775,8953) all available ground containing pyritic units of the Brukunga Formation was obtained under Exploration Licences. The southern area containing outcropping Brukunga Formation, west from Victor Harbor to Tunkalilla Beach, is now held under E.L. 313.

To date soil samples have been taken over and along strike from all previously mapped pyritic units within the E.L. Access is difficult in the rugged southern parts of the E.L. but traverses are roughly at 500 metres spacings. The length of traverses is variable with a minimum coverage of 250 metres either side of any pyritic unit. Assay results are awaited.

3. CONCLUSIONS

Previous work within E.L. 313 boundaries by Comstock Minerals, and the S.A. Mines department gives evidence to the fact that pyritic units of the Brukunga Formation do contain higher concentrations of base metals than the surrounding rocks. It should be noted that although the base metal values within the pyritic units appear to be lower than values in corresponding pyritic units north of Strathalbyn, the values in the surrounding units are also correspondingly lower than those to the north.

Thus the relatively higher values in the pyritic units compared to those of the surrounding rocks gave the encouragement to conduct a regional soil sampling programme.

4. RECOMMENDATIONS

Any anomalous area outlined by the regional soil sampling programme should be followed up by close-spaced soil sampling and possibly stream sediment sampling. Percussion drilling will further test promising areas.

5. GEOLOGY

For a detailed geological picture of the rocks contained in E.L. 313 reference is made to the Barker 1:250,000 sheet, B.P. Thomson's description of the Kanmantoo Trough in the recently published Economic Geology of Australia and Papua New Guinea, Metals Volume, and B. Daily and A.R. Milnes' detailed description of the Kanmantoo Group type section east of Tunkalilla Beach. The stratigraphic sequence used by B.P. Thomson has been used throughout the report because of its simplicity and ease of extrapolation to other areas and because it has been utilized on published geological maps of the area.

E.L. 313 covers part of the southern portion of the Kanmantoo Trough which is a deep, partly fault-controlled Cambrian basin. This basin was formed by rapid subsidence during the Early-Mid Cambrian, as seen in the abundant sedimentary slump structures and the general lack of sorting in the sediments. The Kanmantoo Group sediments were probably mainly derived from the Proterozoic sediments of the Adelaide geosyncline located directly to the west of the rapidly sinking Kanmantoo Trough. The trough sediments are comprised in the main of grey-wacke, quartzite, arkose, black pyritic shale, and minor limestone units.

The Inman Hill Formation, the coarsest unit of the Kanmantoo Group sediments, outcrops mainly along the western and north-western sections of E.L. 313.

The Brukunga Formation, which is generally a fine grained sequence that contains the pyritic units of interest occurs in the central and eastern portions of the E.L. It should be noted that the best out-cropping units of pyritic formations occur largely within 800 metres of the southern coast and as such are reserved from the operation of the Mining Act(1971-1975). Permian glacial and fluvioglacial deposits, and Tertiary ferruginised sands and gravels also occur in parts of E.L. 313 and overly Kanmantoo Group sediments.

A regional N.E.-S.W. trending syncline occurs through the centre of E.L. 313. The Metamorphic grade of the sediments tends to rise towards the coast, being particularly noticeable near the Victor Harbor-Encounter Bay granites where andalusite and staurolite schists are common.

6. SOIL SAMPLING

To date 25 traverses of soil samples have been completed over the pyritic units and their possible extensions within the E.L. The traverses are roughly 500 metres apart and samples were taken on 25-metre spacing. Samples were taken to at least 250 metres either side of any pyritic unit, or its extrapolated position where there was no outcrop. Traverse positions were plotted on 1:50,000 scale photomosaics(see Plan No. SAa 94)

D.O. Mason

D.O. MASON

REFERENCES

Daily B. & Milnes A.R.(1972) — Revision of the stratigraphic nomenclature of the Cambrian Kanmantoo Group, S.A. J. Geol. Soc. Aust, 19 197-202

Daily B. & Milnes A.R.(1973) — Stratigraphy, structure and metamorphism of the Kanmantoo Group(Cambrian) in its type section east of Tunkalilla Beach, S.A. Trans-Roy-Soc.,S.A. 97(3), 213-242, 31st August, 1973.

Lynch G.H. & Boydell M.C.(1961) — Comstock Minerals Ltd., Final Report on SML 542 Fleurieu Peninsula, S.A. (S.A. Mines Department Open File Envelope 1011)

Morris B.J. (1974) — A Regional Soil Sampling of the Kanmantoo Group Metasediments, Mt. Barker to Cape Jervis. S.A. Mines Department Report Book No.74/202.

Thomson B.P. (1964) — Regional Geochemical Sampling in the Cambrian and Upper Proterozoic Rocks of S.A. S.A. Mines Department Report Book No.58/21.

Thomson B.P. (1969) — The Kanmantoo Group and Early Palaeozoic Tectonics in Handbook of S.A. Geology. Editor L.W. Parkin (Geol. Soc. Aust.)

Thomson B.P.(1976) — Kanmantoo Trough Regional Geology and comments on mineralization in Economic Geology of Australia and Papua New Guinea - Metals Volume 1

Thomson B.P. and Horwitz R.C. (1962) Barker 1:250,000 Geological Map S1 54-13

KEYWORDS

Locality: Barker S1 54-13

Cambrian, Kanmantoo Group, Lead, Zinc, Copper, Pyrite, Black shale, Metasediments, Soil Sampling

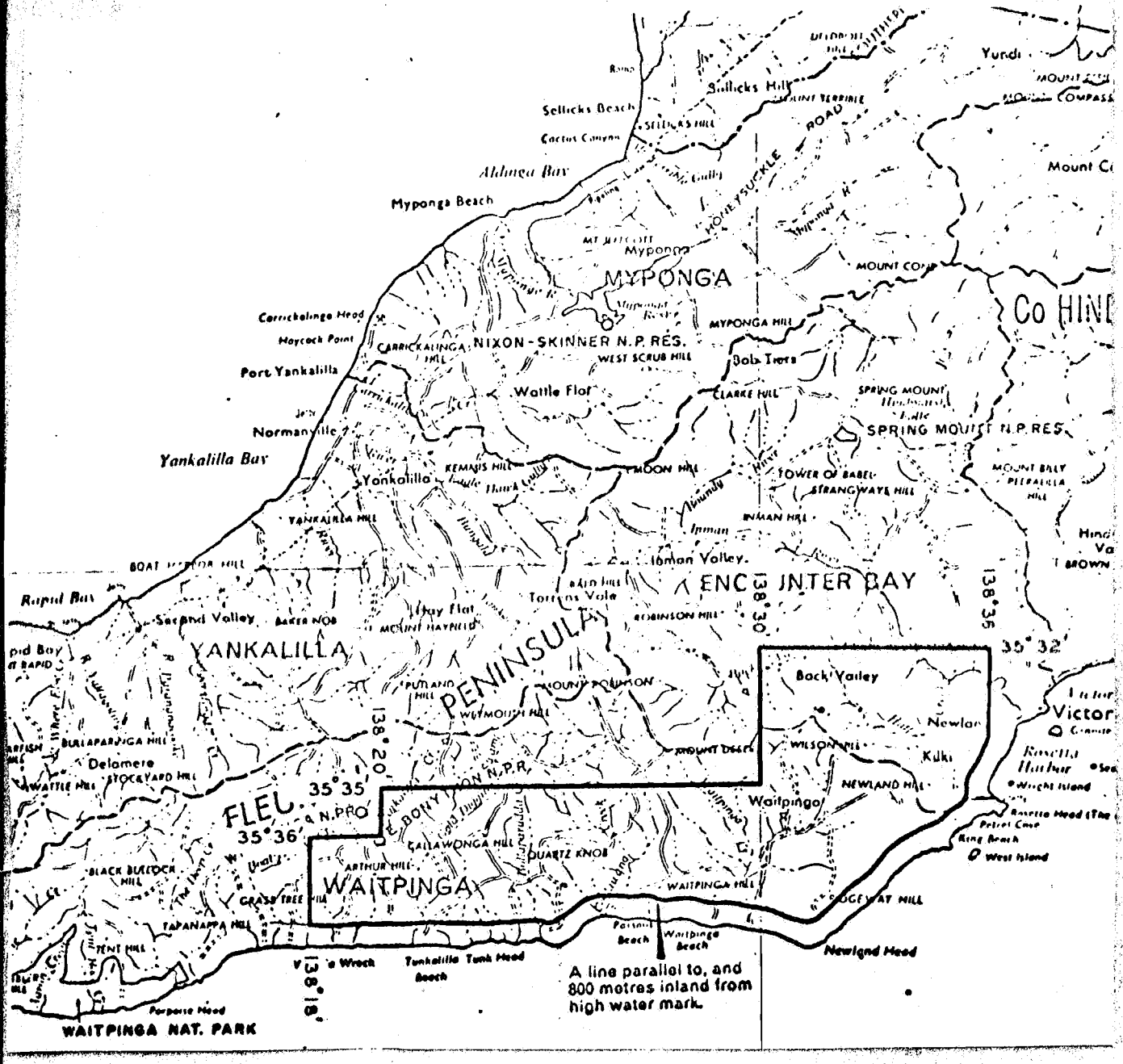
LIST OF ATTACHMENTS

Plans

SAa 99 Location Map. Scale 1:250,000

SAa 94 Geological Maps showing traverse locations. Scale 1:50,000

Appendix 1: Soil Sample Logs.



C.R.A. EXPLORATION PTY LIMITED

FLEURIEU E.L. 313.
LOCATION MAP.

SHEET REFERENCE BARKER SI 54-13

Geologist: D.O.M.	Scale: 1:250 000	Drawn: C. McL.
Report No: 9016	Date: August, '77	Plan No: SAa 99

APPENDIX 1.

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 1

TENEMENT Flinders EL 313 D.P.O. No.

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697123 → 697133 GEOLOGIST T.E.M. DATE 1/8/77

PLAN REFERENCE Encounter 1:50 000 Sheet ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations	Sample Interval (m)
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag				
Encounter	697123	0	0	0	40	60	C	50	Br	-	✓	100							Decomp. siltstone (?)	40
Beach	24	30	0	0	40	30	C	30	Br	-	✓	60							Ditto	50
Traverse 1.	25	100	-	-	-	-	-	-	Gr-Br	✓	-	-							Grey-brown siltstone in road cutting	30
E → W.	26	100	-	-	-	-	-	-	Grey	✓	-	-							Wthrd. arkose in cutting	30
	27	100	-	-	-	-	-	-	Gr-Br	✓	-	-							Ditto	35
	28	100	-	-	-	-	-	-	Br & Gr	✓	-	-							V. wthrd carbonaceous siltstone with Fe stain	30
	29	100	-	-	-	-	-	-	Br & Gr	✓	-	-							Extremely wthrd gossanous siltstone	30
	697130	10	0	0	50	40	C	40	Br	-	✓	100							Decomp. siltstone	50
	31	20	0	0	40	40	C	30	Br	-	✓	100							Decomp. Fe-stained siltstone	40
	32	10	0	0	40	50	C	30	Br	-	✓	50							Decomp. siltstone	50
	697133	0	0	0	40	60	C	30	Br	-	✓	50							Decomp. siltstone (?)	

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 2

TENEMENT Flinders E L 313

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697134 → 697145

PLAN REFERENCE Encounter 1:50 000 Sheet

D.P.O. No.

GEOLOGIST T.E.M. DATE 1/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Encounter Bay	697134	0	0	10	40	50	C	40	Br	–	✓	100							Decomp. siltstone
Traverse 2	35	100	–	–	–	–	–	–	Br	✓	–	–							Extremely wthrd arkose
E → W	36	100	–	–	–	–	–	–	Br	✓	–	–							Extremely wthrd fe-stained siltstone
Sample interval	37	100	–	–	–	–	–	–	Grey	✓	–	–							Grey wacke
= 25m	38	100	–	–	–	–	–	–	Grey	✓	–	–							Ditto
	39	40	0	0	40	20	C	30	Brown	–	✓	50							Decomp. siltstone
	697140	10	0	0	30	60	C	30	Br	–	✓	50							Ditto with some Fe stain
	41	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	42	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	43	100	–	–	–	–	–	–	Grey-Br	✓	–	–							V. wthrd greywacke
	44	100	–	–	–	–	–	–	Grey	✓	–	–							V. wthrd siltstone
	697145	0	0	0	40	60	C	30	Br	–	✓	50							Decomp. siltstone

TENEMENT Flinders E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 3

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697146 → 697160

D.P.O. No.

PLAN REFERENCE Encounter 1:50 000 Sheet

GEOLOGIST T.E.M. DATE 1/8/77

A 9006

ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Encounter Bay	697146	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
Traverse 3	47	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
SE → NW	48	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
Sample interval	49	100	–	–	–	–	–	–	Gr-Br	✓	–	–							Wthrd greywacke
= 25m.	697150	10	0	0	40	50	C	30	Brown	–	✓	50							Decomp siltstone, partly Fe-stained.
	51	0	0	0	60	40	C	30	Br	–	✓	50							Decomp. siltstone
	52	100	–	–	–	–	–	–	Br-grey	✓	–	–							Greywacke with minor Fe stain
	53	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	54	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	55	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	56	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	57	100	–	–	–	–	–	–	Grey	✓	–	–							Fine grained greywacke
	58	C	0	0	40	60	C	40	Br	–	✓	60							Decomp. siltstone (?)
	59	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	697160	100	–	–	–	–	–	–	Gr-Br	✓	–	–							Greywacke with qtzite interbeds.

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 4

TENEMENT Flaurieu E.L 313 — D.P.O. No.

AREA/PROSPECT Flaurieu Peninsula — SAMPLE Nos. 697161 → 697173 — GEOLOGIST T.E.M. — DATE 2/8/77

PLAN REFERENCE Encounter 1:50000 Sheet — ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag			
Encounter	697161	0	0	80	10	10	C	30	Grey	-	✓	60							Decomp arkose (?)
Bay	62	0	0	0	40	60	C	40	Br	-	✓	60							Decomp. siltstone
Traverse 4	63	0	0	80	10	10	C	40	Grey	-	✓	60							Decomp. arkose (?)
E → W	64	0	0	80	10	10	C	30	Grey	-	✓	60							Ditto
Sample Interval	65	0	0	80	10	10	C	30	Grey	-	✓	60							"
= 25m	66	0	0	60	30	10	C	30	Grey	-	✓	60							"
	67	100	-	-	-	-	-	-	Grey	✓	-	-							Greywacke with minor Fe stain.
	68	40	0	0	30	30	C	20	Br	-	✓	50							Decomp. Fe-stained siltstone
	69	100	-	-	-	-	-	-	Grey	✓	-	-							Greywacke
	697170	100	-	-	-	-	-	-	Grey	✓	-	-							Ditto
	71	100	-	-	-	-	-	-	Grey	✓	-	-							"
	72	100	-	-	-	-	-	-	Grey	✓	-	-							"
	697173	100	-	-	-	-	-	-	Grey	✓	-	-							Greywacke with minor Fe stain.

GEOCHEMICAL SOIL SAMPLING LEDGER

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TENEMENT Flemming E.L. 313 — D.P.O. No.

AREA/PROSPECT Flemming Peninsula — SAMPLE Nos. 697174 → 697184 — GEOLOGIST T.E.M. — DATE 2/8/77

PLAN REFERENCE Encounter 1:50 000 Sheet — ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Encounter	697174	100	-	-	-	-	-	-	Grey	✓	-	-							Greywacke
Bay	75	100	-	-	-	-	-	-	Grey	✓	-	-							Ditto
Traverse 5	76	100	-	-	-	-	-	-	Grey	✓	-	-							"
SE → NW	77	10	C	60	10	20	C	20	Brown	-	✓	50							Decomp. greywacke.
Sample Interval	78	100	-	-	-	-	-	-	Gr&Br	✓	-	-							Greywacke with minor Fe stain
= 25m.	79	100	-	-	-	-	-	-	Grey	✓	-	-							Arkose
	697180	100	-	-	-	-	-	-	Grey	✓	-	-							Arkose with minor Fe stain
	81	100	-	-	-	-	-	-	Grey	✓	-	-							Greywacke
	82	100	-	-	-	-	-	-	Grey	✓	-	-							Ditto
	83	100	-	-	-	-	-	-	R-grey	✓	-	-							V. wthrd. partly Fe-stained greywacke
	697184	100	-	-	-	-	-	-	Grey	✓	-	-							Greywacke

GEOCHEMICAL SOIL SAMPLING LEDGER

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TENEMENT Flaurieu E.L 313 D.P.O. No.

AREA/PROSPECT Flaurieu Peninsula SAMPLE Nos. 697185 → 697195 GEOLOGIST T.E.M. DATE 2/8/77

PLAN REFERENCE Encounter 1:50000 Sheet ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Encounter Bay	697185	100	–	–	–	–	–	–	Gr-Br	✓	–	–							V. wthrd greywacke
Traverse 6	86	20	0	20	40	20	C	20	R-grey	–	✓	50							Decomp. partly Fe-stained sandy siltstone
SE → NW	87	100	–	–	–	–	–	–	Grey	✓	–	–							Arkose
Sample Interval	88	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
= 25m	89	100	–	–	–	–	–	–	Grey	✓	–	–							Ditto
	697190	100	–	–	–	–	–	–	Grey	✓	–	–							"
	91	100	–	–	–	–	–	–	Gr-Br	✓	–	–							V. wthrd, partly Fe-stained greywacke
	92	100	–	–	–	–	–	–	Gr-Br	✓	–	–							Wthrd arkose, partly Fe-stained.
	93	100	–	–	–	–	–	–	Gr-Br	✓	–	–							Ditto
	94	C	0	0	50	50	C	20	R-Br	–	✓	50							Decomp. Fe-stained siltstone (?)
	697195	0	0	0	40	60	C	20	R-Br	–	✓	50							Ditto

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TENEMENT Flinders E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. No.

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. E97196 → 697206 GEOLOGIST T.E.M. DATE 2/5/77

PLAN REFERENCE Encounter 1:50 000 Sheet ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Encounter Bay	697196	0	0	0	50	50	C	20	R-Br	-	✓	50							Decomp Fe-stained siltstone (?)
Traverse N	97	0	0	0	50	50	C	20	Br	-	✓	50							Ditto
SE → NW	98	10	10	0	40	40	C	20	Br	-	✓	50							Decomp. siltstone (?)
Sample Interval	99	0	0	0	40	60	C	30	Br	-	✓	50							Ditto
= 25m	697200	0	0	0	40	40	C	30	Br	-	✓	50							"
	201	0	0	0	40	60	C	20	Br	-	✓	50							"
	202	10	0	0	40	50	C	20	Br	-	✓	50							Decomp siltstone with some qtz rock chips
	203	20	0	10	40	30	C	20	Br-R	-	✓	50							Decomp Fe-stained siltstone
	204	0	0	20	40	40	C	20	Grey	-	✓	50							Decomp sandy siltstone
	205	100	-	-	-	-	-	-	Grey	✓	-	-							Greywacke
	697206	100	-	-	-	-	-	-	Grey	✓	-	-							Greywacke.

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TENEMENT Flaviem EL. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. No.

AREA/PROSPECT Flaviem Peninsula SAMPLE Nos. 697207 → 697218 GEOLOGIST T.E.M. DATE 2/8/77

PLAN REFERENCE Encounter 1:50 000 Sheet ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Encounter	697207	100	–	–	–	–	–	–	R-grey	✓	–	–							Extremely wthrd Fe-stained siltstone
Bay	208	100	–	–	–	–	–	–	Grey	✓	–	–							Siltstone
Traverse 8	209	100	–	–	–	–	–	–	R-grey	✓	–	–							Extremely wthrd Fe-stained siltstone
SE → NW	697210	100	–	–	–	–	–	–	Grey	✓	–	–							Patchy Fe-stained siltstone
Sample Interval	11	100	–	–	–	–	–	–	Grey	✓	–	–							V. wthrd Fe-stained greywacke with thin qtz veins
= 25m	12	100	–	–	–	–	–	–	R-grey	✓	–	–							Extremely wthrd Fe-stained siltstone
	13	100	–	–	–	–	–	–	R-grey	✓	–	–							Ditto
	14	100	–	–	–	–	–	–	R-grey	✓	–	–							Ditto with thin qtz veins.
	15	100	–	–	–	–	–	–	Red	✓	–	–							Ditto
	16	100	–	–	–	–	–	–	R-grey	✓	–	–							V. wthrd Fe-stained greywacke
	697217	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	697218	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke.

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 9

TENEMENT Fleurieu E.L. 313 D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697219 → 697230 GEOLOGIST T.E.M. DATE 2/8/77

PLAN REFERENCE Encounter 1:50000 Sheet ANALYSED BY Zinc Corporation.

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag			
Encounter	697219	0	0	0	40	60	C	30	Br	-	✓	100							Decomp. siltstone (?)
Bay	697220	0	0	0	50	50	C	30	Br	-	✓	100							Ditto
Traverse 9	21	0	10	0	50	40	C	30	Br	-	✓	100							"
E → W	22	20	0	20	30	30	C	30	Grey	-	✓	100							Decomp. sandy siltstone
Sample Interval	23	20	0	0	40	40	C	20	Br	-	✓	100							Decomp. siltstone with some qtz chips.
= 25m.	24	0	0	0	40	60	C	30	R-Br	-	✓	100							Decomp. Fe-stained siltstone.
	25	0	0	0	40	60	C	30	R-Br	-	✓	100							Ditto
	26	0	0	0	50	50	C	30	R-Br	-	✓	100							"
	27	10	0	10	50	30	C	30	Grey	-	✓	100							Decomp sandy siltstone with minor qtz chips.
	28	20	0	10	50	20	C	30	Grey	-	✓	50							Decomp sandy siltstone
	29	30	0	10	40	20	C	20	Grey/BR	-	✓	50							Ditto with some qtz rock chips.
	697230	40	0	0	40	20	C	30	Yell-Br	-	✓	50							Decomp. Fe-stained siltstone.

TENEMENT Flinders EL 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 10

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697231 → 697241

D.P.O. No.

PLAN REFERENCE Encounter 1:50 000 Sheet

GEOLOGIST T.E.M. DATE 3/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697231	0	0	10	40	50	C	20	Grey	-	✓	100							Decomp sandy siltstone
Traverse 1	32	0	0	40	40	20	C	20	Sandy grey	-	✓	100							Ditto
SE → NW	33	0	0	10	50	40	C	20	Br	-	✓	100							"
Sample Interval	34	0	0	20	40	40	C	20	Br	-	✓	100							"
= 25m	35	0	0	0	40	60	C	20	R-Br	-	✓	100							Decomp. siltstone with some Fe stain
	36	0	0	0	50	50	C	20	R-Br	-	✓	50							Ditto
	37	0	0	0	40	60	C	20	Orange	-	✓	50							"
	38	100	-	-	-	-	-	-	White	✓	✓	-							Qtzite subcrop.
	39	20	0	0	40	40	C	20	Br	-	✓	50							Decomp. Fe-stained siltstone
	697240	0	0	0	40	60	C	20	Br	-	✓	50							Ditto
	697241	0	0	10	50	40	C	20	Br	-	✓	50							Decomp. sandy silestone

TENEMENT Fleurieu E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 1

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697242 → 697255

D.P.O. No.

PLAN REFERENCE Encounter 1:50 000 Sheet

GEOLOGIST T.E.M. DATE 3/8/77

ANALYSED BY Zinc Corporation.

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag			
WAITPINGA	697242	40	0	0	40	20	C	20	Br	–	✓	50							Decomp. Fe-stained siltstone
Traverse 2	43	10	0	0	50	40	C	20	Br	–	✓	50							Ditto
SE → NW	44	0	0	60	20	20	C	20	Sandy Br	–	✓	50							Decomp. arkose (?) with some Fe stain
Sample Interval	45	20	0	0	50	30	C	20	Br	–	✓	50							Decomp. siltstone with some Fe stain
= 25m	46	0	0	10	50	40	C	20	Br	–	✓	50							Ditto
	47	0	0	0	50	50	C	20	Red	–	✓	50							Decomp. Fe-stained siltstone
	48	0	0	10	40	50	C	20	Red	–	✓	50							Ditto
	49	0	10	0	50	40	C	20	Br	–	✓	50							Decomp. siltstone
	697250	10	0	0	50	40	C	20	Br	–	✓	50							Ditto
	51	0	10	0	50	40	C	20	Br	–	✓	50							"
	52	0	0	0	50	50	C	20	Br	–	✓	50							"
	53	10	0	10	40	40	C	20	Br	–	✓	50							"
	54	100	–	–	–	–	–	–	Red	✓	–	–							Gossanous (?) greywacke subcrop
	55	100	–	–	–	–	–	–	Red	✓	–	–							Gossanous siltstone subcrop.

GEOCHEMICAL SOIL SAMPLING LEDGER

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TENEMENT Fleurieu E.L. 313 — D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula — SAMPLE Nos. 697256 → 697271 — GEOLOGIST T.E.M. — DATE 3/8/77

PLAN REFERENCE Torrens Vale 1:50 000 Sheet — ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697256	100	–	–	–	–	–	–	Grey	✓	–	–							Crenulated schist
Traverse 3	57	60	0	0	30	10	C	20	Grey	–	✓	50							Decomp. schist
N → S	58	0	0	0	80	20	C	30	Br	–	✓	50							Ditto
Sample Interval	59	100	–	–	–	–	–	–	Grey	✓	–	–							Silty schist
= 25m	697260	100	–	–	–	–	–	–	Grey	✓	–	–							Siltstone
	61	100	–	–	–	–	–	–	Grey	✓	–	–							Sandy siltstone
	62	100	–	–	–	–	–	–	Grey	✓	–	–							Silty schist
	63	100	–	–	–	–	–	–	R/Grey	✓	–	–							Fe-stained dark grey carbonaceous(?) siltstone
	64	100	–	–	–	–	–	–	Dk Grey	✓	–	–							Dark grey carbonaceous siltstone with some Fe
	65	100	–	–	–	–	–	–	Grey	✓	–	–							Grey sandy siltstone
	66	100	–	–	–	–	–	–	Grey	✓	–	–							Micaceous sandy siltstone
	67	100	–	–	–	–	–	–	Grey	✓	–	–							Sandy siltstone
	68	50	0	0	30	20	C	20	Br	✓	✓	50							Decomp schist with minor Fe.
	69	100	–	–	–	–	–	–	Gr Br	✓	–	–							Arkose
	697270	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	697271	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke.

GEOCHEMICAL SOIL SAMPLING LEDGER

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TENEMENT Flaurieu E.L 313 D.P.O. No.

AREA/PROSPECT Flaurieu Peninsula SAMPLE Nos. 697272 → 697286 GEOLOGIST T.E.M. DATE 3/8/77

PLAN REFERENCE Torrens Vale 1:50 000 Sheet ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697272	100	-	-	-	-	-	-	Grey	✓	-	-							Schist
Traverse 4	73	100	-	-	-	-	-	-	Grey	✓	-	-							Schist
N → S	74	100	-	-	-	-	-	-	Grey	✓	-	-							Schist
Sample Interval	75	100	-	-	-	-	-	-	Grey	✓	-	-							Siltstone
= 25m	76	40	0	0	40	20	C	30	Br	-	✓	50							Decomp. schist
	77	100	-	-	-	-	-	-	Grey	✓	←	-							Siltstone
	78	100	-	-	-	-	-	-	Grey	✓	-	-							Siltstone
	79	100	-	-	-	-	-	-	Gr-Br	✓	-	-							Arkose
	697280	0	0	0	60	40	C	30	Br	-	✓	50							Decomp. siltstone
	81	60	0	0	30	10	C	20	Br	-	✓	50							Ditto
	82	0	0	0	60	40	C	30	Br	-	✓	50							"
	83	100	-	-	-	-	-	-	Grey	✓	-	-							Grey wacke
	84	100	-	-	-	-	-	-	Grey	✓	-	-							Ditto
	85	0	0	0	60	40	C	30	Br	-	✓	50							Decomp. siltstone
	697286	100	-	-	-	-	-	-	Grey	✓	-	-							Schist.

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GEOCHEMICAL SOIL SAMPLING LEDGER

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D.P.O. No.

AREA/PROSPECT Flaurieu Peninsula SAMPLE Nos. 697287 → 697307 GEOLOGIST T.E.M. DATE 3/8/77

PLAN REFERENCE Torrens Vale 1:50,000 Sheet ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Vastpinga	697287	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
Traverse 5	88	100	–	–	–	–	–	–	R-grey	✓	–	–							Wthrd carbonaceous siltstone with limonite pseudomorphs
N → S	89	40	0	C	40	20	C	30	Br	–	✓	50							Decomp. siltstone
Sample Interval	697290	40	0	C	40	20	C	20	Br	–	✓	50							Ditto
= 25m	91	0	0	C	70	30	C	30	Br	–	✓	60							"
	92	0	0	C	40	60	C	30	Br	–	✓	60							" (?)
	93	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	94	100	–	–	–	–	–	–	Grey	✓	–	–							Ditto
	95	100	–	–	–	–	–	–	Grey	✓	–	–							"
	96	100	–	–	–	–	–	–	Grey	✓	–	–							"
	97	100	–	–	–	–	–	–	Grey	✓	–	–							"
	98	100	–	–	–	–	–	–	Grey	✓	–	–							"
	99	0	0	C	60	40	C	20	Gr.Br	–	✓	50							Decomp. greywacke (?)
	697300	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke with minor Fe stain
	301	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	302	100	–	–	–	–	–	–	Grey	✓	–	–							Arkose
	303	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke with minor Fe stain
	304	100	–	–	–	–	–	–	Br	✓	–	–							Wthrd greywacke with some Fe stain
	305	100	–	–	–	–	–	–	R-grey	✓	–	–							Wthrd gossanous grey carbonaceous siltstone with baswork
	306	100	–	–	–	–	–	–	Grey	✓	–	–							Arkose
	697307	100	–	–	–	–	–	–	Br	✓	–	–							Wthrd greywacke

TENEMENT Fleurieu E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 15

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697308 → 697320

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000

GEOLOGIST T.E-M. DATE 4/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697308	100	–	–	–	–	–	–	Grey	✓	–	–							Arkose
Traverse 6	309	100	–	–	–	–	–	–	Grey	✓	–	–							Micaceous sandy siltstone
N→S	697310	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	11	100	–	–	–	–	–	–	Grey	✓	–	–							Ditto
	12	C	C	C	60	40	C	30	Br	–	✓	50							Decomp. siltstone
	13	100	–	–	–	–	–	–	Gr-Br	✓	–	–							Wthd sandy siltstone sub o/c with minor Fe stain
	14	100	–	–	–	–	–	–	Gr-Br	✓	–	–							Sandy siltstone
	15	40	0	0	40	20	C	30	Br	–	✓	50							Decomp. carbonaceous(?) siltstone
	16	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	17	100	–	–	–	–	–	–	Grey	✓	–	–							Ditto
	18	100	–	–	–	–	–	–	Grey	✓	–	–							"
	19	30	0	0	40	30	C	30	R-Br	–	✓	50							Decomp. Fe-stained siltstone
	697320	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke

TENEMENT Fleurieu E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

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AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697321 → 697341

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000

GEOLOGIST T.E.M. DATE 4/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697321	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
Traverse 7	22	20	0	0	50	30	C	30	Br	–	✓	50							Decomp. partly Fe-stained siltstone.
N→S	23	100	–	–	–	–	–	–	Grey	✓	–	–							Siltstone subcrop.
Sample Interval	24	100	–	–	–	–	–	–	Pink-grey	✓	–	–							Micaceous siltstone with minor Fe stain
= 25m	25	50	0	0	25	25	C	30	Br	–	✓	50							Ditto, decomp.
	26	60	0	0	20	20	C	40	Br	–	✓	50							Decomp. Fe-stained schist.
	27	20	0	0	40	40	C	30	Br	–	✓	50							Ditto
	28	0	0	0	60	40	C	30	Br	–	✓	50							Decomp. schist
	29	0	0	0	50	50	C	30	Br	–	✓	50							Ditto
	697330	0	0	0	60	40	C	30	Br	–	✓	50							" (?)
	31	100	–	–	–	–	–	–	Grey	✓	–	–							Sandy siltstone
	32	20	0	0	40	40	C	30	Br	–	✓	50							Decomp. Fe-stained siltstone
	33	30	0	0	40	30	C	30	Br	–	✓	50							Decomp. siltstone
	34	40	0	0	40	20	C	20	Br	–	✓	50							Decomp. phyllite with minor Fe stain.
	35	0	0	10	40	50	C	20	Br	–	✓	50							Decomp. sandy siltstone
	36	20	0	10	40	30	C	20	Br	–	✓	50							Decomp. greywacke
	37	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	38	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	39	100	–	–	–	–	–	–	Gr-Br	✓	–	–							Micaceous greywacke with minor Fe stain
	697340	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	697341	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke.

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GEOCHEMICAL SOIL SAMPLING LEDGER

TENEMENT Fleurieu E.L. 313

AREA/PROSPECT Fleurieu Peninsula

PLAN REFERENCE Torrens Vale 1:50 000 Sheet

SAMPLE Nos. 697342 → 697350

D.P.O. No.

GEOLOGIST T.E.M. DATE 4/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition: Rock %	Organic %	Sand %	Silt %	Clay %	Soil Horizon	Sample: Depth cm.	Colour	Bedrock: Outcrop	Con-cealed	Est. Depth to	Metal Content in ppm.: Pb	Zn	Cu	Ag			Geological observations
Waitpinga	697342	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
Traverse 8	43	100	–	–	–	–	–	–	Grey	✓	–	–							Ditto
N → S	44	100	–	–	–	–	–	–	Gry-Br	✓	–	–							W'thd greywacke
Sample Interval	45	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
= 25m	46	100	–	–	–	–	–	–	Grey	✓	–	–							Ditto
	47	100	–	–	–	–	–	–	Grey	✓	–	–							Sandy siltstone
	48	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	49	100	–	–	–	–	–	–	Grey	✓	–	–							Ditto
	697350	100	–	–	–	–	–	–	Grey	✓	–	–							Arkose.

GEOCHEMICAL SOIL SAMPLING LEDGER

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TENEMENT Fleurieu E.L. 313 D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697351 → 697361 GEOLOGIST T.E.M. DATE 4/8/77

PLAN REFERENCE Torrens Vale 1:50 000 Sheet ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697351	100	–	–	–	–	–	–	Grey	✓	–	–							Grey carbonaceous? wthrd phyllite
Traverse 9	52	100	–	–	–	–	–	–	Grey	✓	–	–							Phyllite
N → S	53	100	–	–	–	–	–	–	Grey	✓	–	–							Phyllite
Sample Interval	54	100	–	–	–	–	–	–	Grey	✓	–	–							Phyllite
= 25m	55	60	0	0	30	10	C	30	Br	✓	✓	50							Decomp. Phyllite
	56	100	–	–	–	–	–	–	R-grey	✓	–	–							Gossanous brecciated siltstone
	57	100	–	–	–	–	–	–	Gr-Br	✓	–	–							Greywacke
	58	100	–	–	–	–	–	–	Grey	✓	–	–							Ditto
	59	100	–	–	–	–	–	–	Grey	✓	–	–							"
	697360	100	–	–	–	–	–	–	Grey	✓	–	–							"
	697361	100	–	–	–	–	–	–	Grey	✓	–	–							"

GEOCHEMICAL SOIL SAMPLING LEDGER

TENEMENT Fleurieu E.L. 313 D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697362 → 697369 GEOLOGIST T.E.M. DATE 4/8/77

PLAN REFERENCE Torrens Vale 1:50 000 ANALYSED BY Zinc Corporation.

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697362	100	—	—	—	—	—	—	Grey	✓	—	—							Phyllite with v minor Fe disseminations
Traverse 10	63	100	—	—	—	—	—	—	Grey	✓	—	—							Phyllite
NW → SE	64	100	—	—	—	—	—	—	Grey	✓	—	—							Ditto
Sample Interval	65	100	—	—	—	—	—	—	Grey	✓	—	—							"
= 25m	66	0	10	0	40	50	B	20	Br	—	✓	80							Decomp. Phyllite (?)
	67	0	0	0	50	50	B	20	Br	—	✓	80							Ditto
	68	100	—	—	—	—	—	—	Grey	✓	—	—							Greywacke
	697369	100	—	—	—	—	—	—	Grey	✓	—	—							Greywacke.

GEOCHEMICAL SOIL SAMPLING LEDGER

TENEMENT Fleurieu E.L. 313 D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697370 → 697380 GEOLOGIST T.E.M. DATE 5/8/77

PLAN REFERENCE Torrens Vale 1:50 000 ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697370	20	0	0	40	40	C	30	Br	–	✓	50							Decomp. siltstone with minor Fe stain
Traverse II	71	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
SE → NW	72	0	0	0	30	70	C	30	Br	–	✓	80							Decomp. siltstone (?)
Sample Interval	73	100	–	–	–	–	–	–	R-grey	✓	–	–							Micaceous silt stone with some Fe stain
= 25m	74	0	0	0	40	60	C	30	Br	–	✓	60							Decomp. siltstone
	75	0	0	0	50	50	C	30	R-Br	–	✓	60							Ditto
	76	20	0	0	40	40	C	30	Br-R	–	✓	60							Ditto with Fe stain.
	77	10	0	0	40	50	C	30	Br	–	✓	50							Decomp. siltstone
	78	100	–	–	–	–	–	–	Grey	✓	–	–							Greywacke
	79	10	0	10	50	30	C	40	Grey	–	✓	80							Decomp. greywacke
	697380	0	0	20	60	20	C	30	Pale grey	–	✓	50							Ditto

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 21

TENEMENT Fleurieu E.L. 313 D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697381 → 697391 GEOLOGIST T.E.M. DATE 5/8/77

PLAN REFERENCE Torrens Vale 1:50000 Sheet ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697381	0	0	0	60	40	C	20	R-Br	–	✓	100							Decomp. Fe-stained siltstone
Traverse 12	82	10	0	0	40	50	C	20	R-Br	–	✓	100							Ditto with some qtz rock chips.
SE → NW	83	0	0	0	40	60	C	20	R-Br	–	✓	100							Decomp. Fe-stained silt stone (?)
Sample Interval	84	0	0	0	40	60	C	20	Br	–	✓	100							Decomp. silt stone (?)
= 25m	85	10	0	0	40	50	C	20	Br	–	✓	100							Ditto with some qtz rock chips
	86	0	0	0	60	40	C	20	Br	–	✓	100							Decomp. silt stone (?)
	87	10	0	0	40	50	C	20	R-Br	–	✓	100							Ditto with Fe stain and some qtz chips.
	88	20	0	0	40	40	C	20	R-Br	–	✓	100							Ditto
	89	0	0	30	40	30	C	20	Grey	–	✓	100							Decomp sandy silt stone (?)
	697390	20	0	20	30	30	C	20	Grey	–	✓	100							Ditto with some qtz rock chips.
	697391	0	0	10	40	50	C	20	Br	–	✓	100							Decomp. sandy siltstone.

TENEMENT Flinders E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 22

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697392 → 697402

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 Sheet

GEOLOGIST T.E.M. DATE 5/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697392	0	10	0	30	60	C	30	Orange										Decomp. siltstone (?)
Traverse 13	93	20	0	0	40	40	C	20	Brown										Ditto with some qtz rock chips
SE → NW	94	0	10	0	40	50	C	20	Or-Br										Decomp. siltstone
Sample Interval	95	30	0	0	40	30	C	20	Brown										Decomp Fe-stained greywacke
= 25m	96	0	0	0	40	60	C	20	Grey										Decomp siltstone
	97	0	10	0	40	50	C	20	Brown										Ditto
	98	0	0	0	40	60	C	30	Br										Decomp. schist
	99	0	10	0	40	50	C	20	Br										Ditto
	697400	0	0	0	40	60	C	30	Or-Br										Decomp. siltstone (?)
	401	40	0	0	40	20	C	20	Or-Br										Decomp. Fe-stained greywacke
	697402	0	10	0	40	50	C	30	Or-Br										Decomp. Fe-stained siltstone (?)

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 23

TENEMENT Fleurieu E.L. 313 D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697403 → 697413 GEOLOGIST T.E.M. DATE 5/8/77

PLAN REFERENCE Torrens Vale 1:50 000 Sheet ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697403	0	0	0	40	60	C	20	Br	–	✓	100							Decomp. siltstone
Traverse 14	404	0	10	0	40	50	C	20	Br	–	✓	100							Ditto
SE → NW	405	0	0	0	40	60	C	20	Or-Br	–	✓	100							"
Sample Interval	406	0	0	20	40	40	C	20	Br	–	✓	100							Decomp sandy siltstone
= 25m	407	0	0	0	40	60	C	20	Orange	–	✓	100							Decomp. Fe-stained siltstone
	408	40	0	20	20	20	C	20	Grey	–	✓	50							Decomp greywacke with some Fe stain
	409	0	0	0	40	60	C	30	Orange	–	✓	60							Decomp Fe-stained siltstone (?)
	697410	0	0	0	40	60	C	30	Orange	–	✓	100							Ditto
	11	0	0	0	40	60	C	30	Orange	–	✓	100							"
	12	0	0	0	40	60	C	30	Orange	–	✓	100							"
	697413	100	–	–	–	–	–	–	Grey	✓	–	–							Hornfels

GEOCHEMICAL SOIL SAMPLING LEDGER

TENEMENT Flinders E.L. 313 — Page No. 24

AREA/PROSPECT Flinders Peninsula — SAMPLE Nos. 697414 → 697426 — D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 Sheet — GEOLOGIST T.E.M. — DATE 5/8/77

A 9006 — ANALYSED BY Zinc Corporation.

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag			
Westpinga	697414	100	—	—	—	—	—	—	Grey	✓	—	—							Greywacke
Traverse 15	15	100	—	—	—	—	—	—	Grey	✓	—	—							Ditto
SE → NW	16	100	—	—	—	—	—	—	Grey	✓	—	-							Micaceous siltstone
Sample Interval	17	100	—	—	—	—	—	—	Grey	✓	—	—							Ditto
= 25m	18	100	—	—	—	—	—	—	Grey	✓	—	—							Siltstone with minor Fe stain
	19	100	—	—	—	—	—	—	Grey	✓	—	—							Greywacke
	697420	100	—	—	—	—	—	—	Grey	✓	—	—							Arkose
	21	100	—	—	—	—	—	—	Grey	✓	—	—							Ditto
	22	100	—	—	—	—	—	—	Grey	✓	—	—							V. wthrd. friable greywacke
	23	100	—	—	—	—	—	—	Grey	✓	—	—							Ditto
	24	0	10	0	40	50	C	30	Br	—	✓	50							Decomp. greywacke(?) with some Fe stain
	25	100	—	—	—	—	—	—	R-grey	✓	—	—							Gossanous siltstone sub O/C assoc with qtz ve
	697426	100	—	—	—	—	—	—	R-grey	✓	—	—							Gossanous qtzite sub O/C associated with qtz veins.

GEOCHEMICAL SOIL SAMPLING LEDGER

TENEMENT Fleurieu E.L. 313 — Page No. 25

AREA/PROSPECT Fleurieu Peninsula — SAMPLE Nos. 697427 → 697437 — D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 Sheet — GEOLOGIST T.E.M. — DATE 5/8/77

A 9006 — ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag			
Waitpinga	697427	0	0	0	30	70	C	30	Yell-Br	–	✓	100							Decomp Siltstone (?)
Traverse 16	28	0	0	0	30	70	C	30	Yell-Br	–	✓	100							Ditto
SE S→N	29	0	0	0	30	70	C	30	Yell-Br	–	✓	100							"
Sample Interval	697430	10	0	0	30	60	C	30	Yell-Br	–	✓	100							" with some qtz chips
= 25m	31	0	0	0	40	60	C	30	Yell-Br	–	✓	100							Decomp siltstone (?)
	32	0	0	0	40	60	C	30	Yell-Br	–	✓	100							Ditto
	33	0	0	0	40	60	C	30	Yell-Br	–	✓	100							"
	34	10	0	0	30	60	C	30	R-Yell	–	✓	100							"
	35	0	0	0	40	60	C	30	Yellow	–	✓	100							"
	36	0	0	0	40	60	C	30	Yellow	–	✓	100							"
	697437	0	0	0	40	60	C	30	Yell-Br	–	✓	100							"

E.L. 313

4E 5E 6E 7E 3E 9E 8E 2W 1W 699202 699203 2E 1E 12W 13W 11W 16W 15W 14W 10W 9W 7W 8W 5W 6W 3W 4W

Tunkalilla Beach

Waitpinga Beach

E.L. 313

Newland Head

T Ferruginised sands and gravel

P Glacial and fluvioglacial deposits, cross-bedded silts and sands.

B Brukunga Formation - Pyritic phyllites and schists including the Nairne Pyrite Member.

I Inman Hill Formation - Coarse grained impure arkose.

12W Traverse 12 in Hundred of Waitpinga

4E Traverse 4 in Hundred of Encounter Bay

Geological boundary - approximate

Road.

Exploration Licence boundary.

30 50 - 1

C.R.A. EXPLORATION PTY LIMITED.

FLEURIEU E.L. 313 — GENERALISED GEOLOGY

Regional geology after B.P. Thomson (Barker 1:250 000) and B. Morris (1974).

SHEET REFERENCE BARKER SI 54-13

Geologist: D.O.M.	Scale: 1:50 000	Drawn: C.McL.
Report No.: 9016, 9223	Date: July, 1977	Plan No: SA a 94

FINAL

C.R.A. EXPLORATION PTY. LIMITED
(INC. IN N.S.W.)
95 COLLINS STREET, MELBOURNE, AUSTRALIA 3001

036

P.O. BOX 384D
TELEPHONE: 63 0491
TELEGRAMS: "CONRIO"
TELEX AA 30108

1st December, 1977.

The Director of Mines,
P.O. Box 151,
EASTWOOD, S.A. 5063

Dear Sir,

E.L. 313 - Fleurieu, S.A.
Report for the Quarter Ended 21st October, 1977

Please find attached a report by D. O. Mason entitled "Second Quarterly Report on Fleurieu E.L. 313, South Australia" dated 21st October, 1977.

Results have proved disappointing to date, compared with other results obtained in the Kanmantoo Trough.

Expenditure for the period ended 31st October, the nearest accounting period, amounted to $4,143 comprising:

Salaries	$699
Wages	462
General Supplies	445
Vehicles	419
Travel and Accommodation	250
Contractors	750
Assaying	90
General Overheads	1,028
	$4,143

Yours faithfully,

for: J. Collier
General Manager

SAF:jm

C.R.A. EXPLORATION PTY. LIMITED

SECOND QUARTERLY REPORT ON

FLEURIEU EL 313, SOUTH AUSTRALIA

Author: D.O. Mason

Date: 21st October, 1977

Submitted to: G.D. Klingner

CONTENTS

1. SUMMARY

Work conducted during the second quarter consisted of a further review of previous work (including some unreported and unpublished stream sediment sampling conducted by the S.A. Mines Department in 1969) and an appraisal of geochemical assay results from the regional soil sampling programme conducted over pyritic units of the Brukunga Formation.

Results from the soil sampling programme are not highly encouraging with non coincident peak values of 440 ppm Pb, 380 ppm Zn and 140 ppm Cu. These results are lower than values expected and received over pyritic units to the north of EL 313. No major statistical treatment has yet been attempted for these results.

Results of a stream sediment sampling programme for Cu, Pb, Zn, conducted by the S.A. Mines Department are not promising.

2. INTRODUCTION

EL 313 covers an area of 171 square kilometres from Victor Harbour west to Tunkalilla Beach and incorporates most of the known outcrop of Brukunga Formation in the district.

This report discusses results received from a regional geochemical soil sampling programme and also reviews results of an unpublished and unreported stream sediment sampling programme conducted by the S.A. Mines Department.

3. CONCLUSIONS & RECOMMENDATIONS

The results from the regional soil sampling programme were much as expected and not highly promising. However there are several results received from the area that stand out from the rest of the results. The two most outstanding results were collected from traverses 1 and 2 in the Hundred of Encounter Bay.

The results were:

Traverse (1)	440 ppm Pb	134 ppm Zn	55 ppm Cu
Traverse (2)	420 ppm Pb	380 ppm Zn	43 ppm Cu

Further sampling in EL 313 will concentrate within the area of the two above samples near Newland Hill NW of Victor Harbour. Results from a stream sediment survey conducted by the S.A. Mines Department in late 1969 - early 1970 are very uniform from streams within EL 313 and no areas could be considered anomalous in Cu, Pb or Zn.

Further work within EL 313 will include follow-up sampling of the better results produced from the regional soil sampling programme and possibly incorporate percussion drilling in some areas. A major statistical review will be conducted on results from all C.R.A.E. EL's in the Kanmantoo Trough which should help indicate the most promising areas or environments for base metal mineralisation.

4. GEOLOGY

EL 313 covers part of the southern portion of the Kanmantoo Trough, which was a deep, partly fault-controlled, Cambrian basin. This basin was formed by rapid subsidence during the Early-Mid Cambrian, as seen in the abundant sedimentary slump structures, and in the general lack of sorting of the sediments. The Kanmantoo Group sediments were probably mainly derived from the Proterozoic sediments of the Adelaide geosyncline located directly to the west of the rapidly sinking Kanmantoo Trough. The trough sediments are comprised in the main of greywacke, quartzite, arkose, black pyritic shale, and minor limestone units.

The Inman Hill Formation, possibly the coarsest unit of the Kanmantoo Group sediments outcrops mainly along the western and north western sections of EL 313. The Brukunga Formation, which contains the pyritic units of interest occurs in the central and eastern portions of the EL.

The pyritic units of interest that occur within the EL are generally fine grained carbonaceous siltstones or greywackes with usually only a weak iron staining evident on the surface. This lack of the common yellow-red-purple weathered pyrite colours found in the strongly pyritized units to the north is noticeable within the EL.

5. SOIL SAMPLING

A regional soil sampling programme has been completed covering all pyritic units and possible strike extensions within EL 313. Traverses were approximately 500 m apart and samples were collected on a 25 m spacing. The samples were taken to approximately 250 m either side of the expected position of any pyritic unit.

Orientation soil surveys over pyritic units elsewhere in the Kanmantoo Trough (see C.R.A.E. Report 8953) indicated that a fast efficient and effective method of shallow soil sampling discovered high base metal contents in soil over known mineralisation. Soil samples were taken 10 - 50 cm below the surface, which because of the relatively shallow soil horizon over the pyritic units and the surrounding rocks of the Brukunga Formation, were generally collected from the 'C' horizon. Where soil cover was deep, samples were collected from the 'B' horizon, and where there was good outcrop, rock chips within 5 - 10 m radius of the sample site were collected. Care was taken when collecting samples from ploughed paddocks that the collection depth was below the area of surface soil disturbance. The samples were then totally crushed and sent to The Zinc Corporation for assaying. The sample was not sieved as the orientation samples showed that all pyritic units were picked out using a total crush method. Elements selected for assay were Pb, Zn, Cu, Ni, Co, Cr, Mn, Ag with every 10th sample (i.e. at least one per traverse) being assayed for Au, U, Sn, W, Mo, As.

As yet no statistical treatment of the soil sample results has been attempted. However, previous work by B. Morris of the S.A. Mines Department on soil samples collected between Mt. Barker and Cape Jervis indicate base metal values of various Kanmantoo Group Formations (B. Morris 1974). Morris determined cumulative frequency curves, frequency distribution curves, median (Me), and the lower limit of an anomaly (A) for each element. The 'Me' and 'A' values were calculated using the method of Yufa and Gurvich (1964). Any samples with results above the 'A' value were taken as anomalous. The 'Me' and 'A' values of the Kanmantoo Group metasediments calculated from Morris' samples are listed below:-

	Cu (ppm)	Pb (ppm)	Zn (ppm)	As (ppm)
BROWN HILL GREY-WACKE MEMBER				
Median	15	12	35	5
'A'	61	72	143	17
PYRITIC PHYLLITES - SCHISTS OF BRUKUNGA FORMATION				
Median	12	13	30	6
'A'	54	61	126	36
INMAN HILL FORMATION				
Median	12	11	27	5
'A'	54	71	159	55
STRANGWAY HILL FORMATION				
Median	15	9	30	3
'A'	87	45	156	15

Twenty five traverses totalling 315 soil samples have been crushed and assayed. The results calculated by Morris for values in the pyritic phyllites and schists of the Brukunga Formation are used here to indicate the number of samples regarded as 'anomalous'.

Number of samples with Pb > 61 ppm = 9

Number of samples with Zn >126 ppm = 2

Number of samples with Cu >54 ppm = 3

Only one sample gave coincident 'A' values for Cu, Pb and Zn and only one other gave coincident 'anomalous' Pb and Zn values. The others gave only single element values that were greater than 'A'.

Peak non-coincident values were 440 ppm Pb, 380 ppm Zn and 140 ppm Cu. These values are relatively low compared with values received from sampling over pyritic units elsewhere within the Kanmantoo Trough and vindicate the statement made by Thomson, B.P. (1964) that "the same sediments, (Brukunga Formation) although including pyritic black

shales equivalent to the Nairne Pyrite horizon, are low in heavy metals between Strathalbyn and the South Coast."

It should be noted that the best base metal values were located on traverses 1 and 2 in The Hundred of Encounter Bay (see plan S.A.a 94 in First Quarterly Report, C.R.A.E. report no. 9016). No pyritic units have been mapped in this area but some iron stained units were noted in a road cutting in the vicinity. Peak coincident values for the best samples on these traverses 1 and 2 are 440 ppm Pb, 134 ppm Zn, 55 ppm Cu and 420 ppm Pb, 380 ppm Zn and 43 ppm Cu respectively. Further soil sampling and possibly rock chip sampling within EL 313 will concentrate within the area of these two traverses.

For comparison with the values calculated by Morris, the values for mean, standard deviation and total of mean plus two standard deviations are presented for Cu, Pb, Zn for all samples collected.

	Pb	Zn	Cu
mean	18.95	52.88	16.73
standard deviation	44.91	32.53	11.95
mean + 2 standard deviations	108.77	117.94	40.63

These statistically produced results are somewhat misleading and all samples with values of greater than 109 ppm Pb, 118 ppm Zn and 41 ppm Cu are not necessarily anomalous. The convention is to assume that the top 2½% of the samples collected are anomalous. It should be remembered that the samples were collected from two main lithological types - the pyritic phyllites and the surrounding quartz-feldspar-mica schists, both of the Brukunga Formation. Some samples may even have been collected over arkoses and feldspathic sandstones of the Inman Hill Formation.

A more realistic selection of anomalous samples would involve statistical treatment of only those results from samples collected over the pyritic phyllites. However, samples collected from areas of no outcrop make it difficult to select such specific samples. A major statistical review incorporating results from soil sampling programmes within all C.R.A.E. EL's in the Kanmantoo Trough will be conducted when the sampling has been completed and results received. This should help eliminate or highlight only differences in regional, base metal concentrations, in past and present weathering conditions and topographical features, throughout the various EL's on Fleurieu Peninsula and the eastern Mt. Lofty Ranges.

6. S.A. MINES DEPARTMENT STREAM SEDIMENT SAMPLING

This survey apparently conducted in late 1969 - early 1970 covered parts of the Cape Jervis, Torrens Vale and Encounter Bay 1:50,000 sheets. No details of who conducted the survey, how the sample was collected or what size fraction was analysed has been noted. There appears to be no report to cover the work. The maps, and sheets with the assay results for Cu, Pb and Zn indicate no strikingly anomalous areas.

Of the results from streams sampled within EL 313 Pb results range from 5 - 35 ppm, Cu from <5 - 35 ppm and Zn from 5 - 110 ppm. Average assays (eyeball estimate only) would be 15 ppm Pb, 15 ppm Cu and 40 ppm Zn.

As no single result within the EL appear to be related to a Pb-Zn-Cu bearing pyritic unit no further action will be undertaken to analyse the results.

D. O. Mason

D. O. MASON

DOM:CAR

REFERENCES:

Morris, B.J.	1974	A regional soil sampling of the Kanmantoo Group Metasediments, Mt. Barker to Cape Jervis. S.A. Mines Department Report Book No. 74/202.
Yufa, B. Ye. & Gurvich, Yu. N.	1964	The use of the median and quartiles in estimating normal and anomalous values of a geochemical field. Geochem. Internat. pp 801-807
Nichol. I.	1977	Notes for C.R.A.E. Geochemical Workship (unpublished).

Unpublished S.A. Mines Department Stream Sediment Sampling Fleurieu Peninsula 1969 - 70. Dm 1165/69.

KEYWORDS

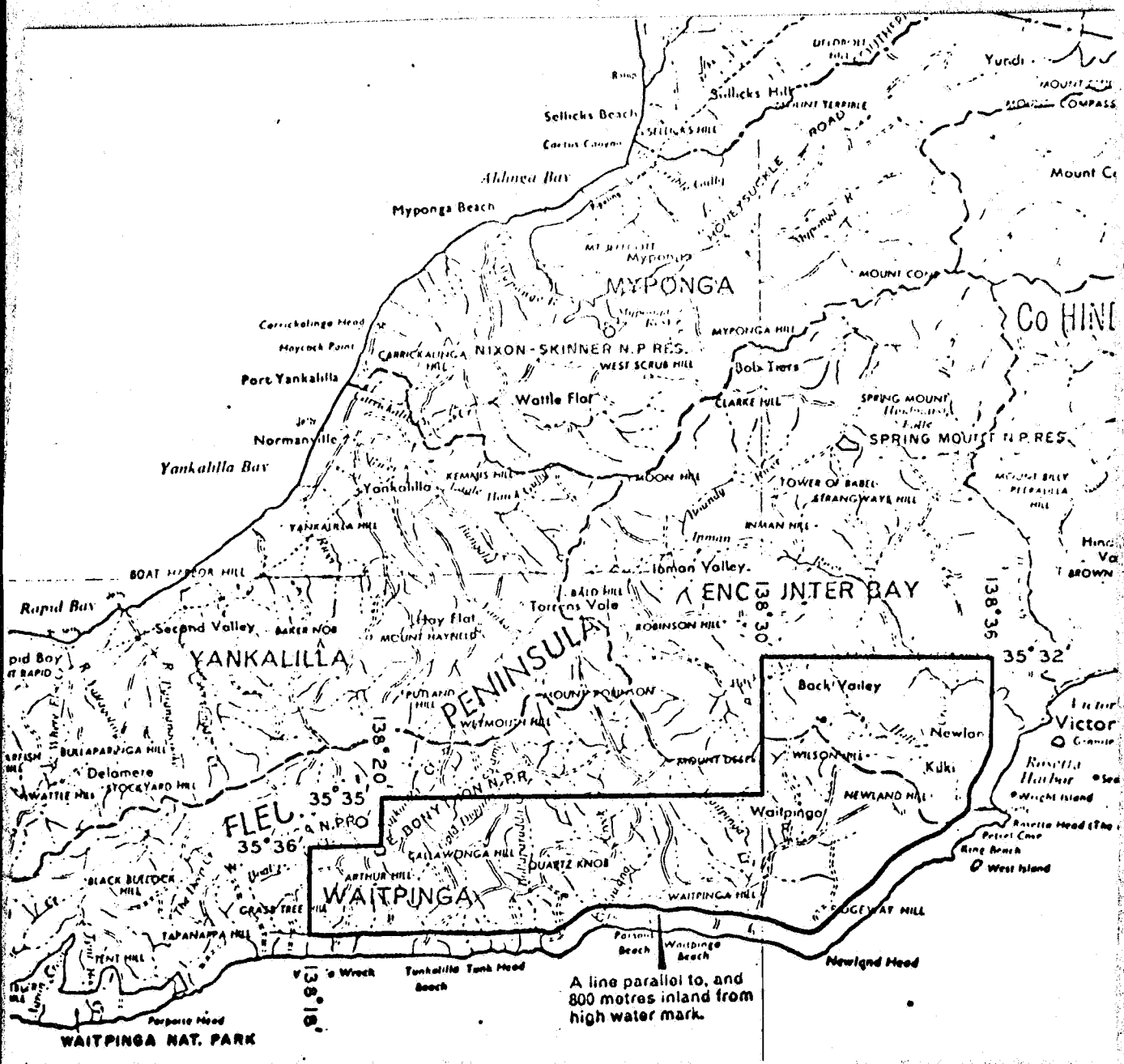
Locality: Barker SI 54-13

Cambrian, Kanmantoo Group, lead, zinc, copper, pyrite, black shale, siltstone, greywacke, metasediments, soil sampling, stream sediment sampling.

LIST OF ATTACHMENTS

S.A.a 99 Location Map 1:250,000

Appendix 1 Geochemical Soil Sampling Ledgers.



C.R.A. EXPLORATION PTY LIMITED

FLEURIEU E.L: 313.
LOCATION MAP.

SHEET REFERENCE BARKER SI 54-13

Geologist: D.O.M.	Scale: 1:250 000	Drawn: C. McL.
Report No: 9016	Date: August, '77	Plan No: SAa 99

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Soil Samples

Sample Tray No..... Storage Box No. ..... Locality FLEURIEU EL 313

Beaker Tray No. ..... Weighed by..... D.P.O. 20169

Date Weighed..... Date Completed..... A/c. No. B14L15G

EXTRA ELEMENT ANALYSES.

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697123	Encounter Bay 1	21	210						
4		17	230						
5		18	350						
6		9	290						
7		13	350						
8		8	190						
9		6	10						
30		8	120						
1		10	200						
2		15	310						
3		19	210						
4	Encounter Bay 2	9	170						
5		14	270						
6		10	90						
7		18	400						
8		19	550						
9		19	230						
40		19	170						
1		17	500						
2		13	270						
3		14	310						
4		20	380						
5		24	290						
6	Encounter Bay 3	13	530						
7		13	440						
8		17	500						
9		17	500						
50		15	210						
1		18	230						
2		13	500						
3		15	420						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality Fleurieu

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697154		15	400						
5		17	460						
6		15	380						
7		18	330						
8		18	170						
9		17	550						
60		13	350						
1	Encounter Bay 4	1	70						
2		22	250						
3		4	90						
4		3	130						
5		6	160						
6		5	150						
7		14	400						
8		9	50						
9		17	460						
70		16	500						
1		18	500						
2		17	490						
3		17	640						
4	Encounter Bay 5	15	440						
5		17	420						
6		13	370						
7		6	120						
8		15	400						
9		15	420						
80		14	420						
1		15	440						
2		14	550						
3		11	270						
4		15	370						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality Fleurieu

Beaker Tray No. .....Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697185	Encounter Bay 6	15	270						
6		6	110						
7		15	350						
8		17	420						
9		14	420						
90		14	400						
1		14	330						
2		11	270						
3		15	320						
4		18	190						
5		15	170						
6	Encounter Bay 7	13	200						
7		11	200						
8		11	340						
9		10	200						
697200		13	190						
1		17	300						
2		10	190						
3		8	160						
4		5	100						
5		18	390						
6		14	410						
7	Encounter Bay 8	8	80						
8		17	280						
9		8	80						
10		14	250						
11		11	320						
12		12	190						
13		17	210						
14		13	310						
15		11	220						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality Fleurieu

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697216		13	220						
17		13	350						
18		13	270						
19	Encounter Bay 9	19	220						
20		6	120						
21		14	250						
22		4	110						
23		10	130						
24		11	120						
25		17	190						
26		19	180						
27		8	120						
28		5	70						
29		4	70						
30		18	120						
31	Waitpinga 1	4	80						
32		3	70						
33		14	170						
34		6	100						
35		13	150						
36		5	50						
37		6	70						
38		1	30						
39		8	110						
40		14	250						
41		3	50						
42	Waitpinga 2	7	90						
43		4	90						
44		2	50						
45		4	50						
46		9	150						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality Fleurieu

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697247		6	90						
48		4	50						
49		4	50						
50		5	50						
51		6	30						
52		4	50						
53		6	50						
54		9	30						
55		9	20						
56	Waitpinga 3	25	780						
57		21	580						
58		17	500						
59		21	790						
60		24	660						
61		18	610						
62		23	750						
63		9	490						
64		3	40						
65		20	570						
66		14	420						
67		17	550						
68		10	280						
69		14	460						
70		17	460						
71		14	490						
72	Waitpinga 4	24	750						
73		26	750						
74		25	660						
75		19	370						
76		19	370						
77		19	380						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality Fleurieu

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697278		15	150						
79		24	520						
80		15	300						
81		19	440						
82		15	330						
83		19	570						
84		17	190						
85		18	460						
86		21	580						
87	Waitpinga 5	14	460						
88		6	20						
89		15	320						
90		12	230						
91		14	210						
92		21	230						
93		18	370						
94		16	460						
95		15	600						
96		15	520						
97		17	490						
98		18	520						
99		11	260						
697300		13	370						
1		11	390						
2		11	390						
3		15	400						
4		15	400						
5		4	40						
6		15	420						
7		17	750						
8	Waitpinga 6	12	580						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality Fleurieu

Beaker Tray No. .....Weighed by.....D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697309		13	420						
10		12	370						
11		11	910						
12		9	210						
13		13	390						
14		15	420						
15		21	350						
16		14	390						
17		13	320						
18		18	490						
19		15	300						
20		17	460						
21	Wattinga >	16	460						
22		20	300						
23		18	520						
24		21	540						
25		24	660						
26		22	490						
27		13	280						
28		22	370						
29		18	350						
30		9	260						
31		13	350						
32		11	300						
33		10	230						
34		12	240						
35		6	130						
36		15	450						
37		14	500						
38		17	500						
39		17	510						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality Fleurieu

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697340		~~20~~ 15	370						
41		~~20~~ 12	600						
42	Waitpinga 8	~~20~~ 14	400						
43		~~20~~ 13	500						
44		~~50~~ 14	450						
45		15	450						
46		15	440						
47		13	390						
48		13	370						
49		18	490						
50		15	470						
51	Waitpinga 9	25	740						
52		26	770						
53		24	770						
54		29	520						
55		24	330						
56		12	380						
57		10	350						
58		10	480						
59		13	420						
60		13	200						
61		15	430						
62	Waitpinga 10	21	570						
63		28	820						
64		25	800						
65		20	680						
66		14	400						
67		14	350						
68		14	420						
69		12	400						
70	Waitpinga 11	9	110						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

9 055

Sample Tray No..... Storage Box No. ..... Locality Fleurieu

Beaker Tray No. .....Weighed by.....D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697371		14	500						
72		14	220						
73		15	450						
74		17	240						
75		4	130						
76		3	110						
77		10	180						
78		15	430						
79		3	130						
80		2	110						
81	Waitpinga 12	10	220						
82		8	210						
83		15	290						
84		12	240						
85		9	220						
86		10	200						
87		10	220						
88		5	110						
89		4	90						
90		3	110						
91		8	130						
92	Waitpinga 13	9	70						
93		8	90						
94		7	110						
95		11	180						
96		14	220						
97		12	180						
98		17	170						
99		14	110						
697400		10	130						
1		12	220						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

10 056

Sample Tray No..... Storage Box No. ..... Locality Fleurieu

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697402		10	180						
3	Waitpinga 14	15	160						
4		15	100						
5		8	40						
6		4	20						
7		8	20						
8		8	20						
9		10	20						
10		9	40						
11		12	100						
12		14	110						
13		12	440						
14	Waitpinga 15.	18	550						
15		18	570						
16		14	300						
17		18	440						
18		16	490						
19		15	630						
20		12	460						
21		10	300						
22		17	320						
23		14	350						
24		9	40						
25		1	<10						
26		1	<10						
27	Waitpinga 16	14	20						
28		14	20						
29		12	20						
30		10	20						
31		12	20						
32		11	20						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality Flewrien

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	ppm	ppm	ppm	ppm	ppm	ppm
697633		11	20						
		12	20						
		10	20						
		9	20						
		12	20						

TENEMENT Fleurieu E.L. 313

AREA/PROSPECT Fleurieu Peninsula

PLAN REFERENCE Encounter 1:50,000 Sheet A 9006

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 1

D.P.O. No.

SAMPLE Nos. 697123 → 697133

GEOLOGIST T.E.M. DATE 1/8/77

ANALYSED BY Zinex Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations	Sample Interval (m)
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr		
Encounter	697123	0	0	0	40	60	C	50	Br	-	✓	100	35	69	32	<1	39	90	Decomp. siltstone (?)	60
Bay	24	30	0	0	40	30	C	30	Br	-	✓	60	18	62	19	<1	33	90	Ditto	50
Traverse 1.	25	100	-	-	-	-	-	-	Gr-Br	✓	-	-	17	83	34	<1	41	70	Grey-brown siltstone in road cutting	40
E → W.	26	100	-	-	-	-	-	-	Grey	✓	-	-	17	48	11	<1	12	60	Wthrd. outcrop in cutting	50
	27	100	-	-	-	-	-	-	Gr-Br	✓	-	-	12	74	24	<1	26	70	Ditto	35
	28	100	-	-	-	-	-	-	Br & Gr	✓	-	-	440	134	55	<1	8	50	V. wthrd carbonaceous siltstone with Fe stain	30
	29	100	-	-	-	-	-	-	Br & Gr	✓	-	-	190	23	44	<1	4	30	Extremely wthrd gossanous siltstone	30
	697130	10	0	0	50	40	C	40	Br	-	✓	100	10	26	11	<1	12	20	Decomp. siltstone	30
	31	20	0	0	40	40	C	30	Br	-	✓	100	10	38	13	<1	17	30	Decomp. Fe-stained siltstone	40
	32	10	0	0	40	50	C	30	Br	-	✓	50	21	68	18	<1	30	70	Decomp. siltstone	50
	697133	0	0	0	40	60	C	30	Br	-	✓	50	30	56	13	<1	34	90	Decomp. siltstone (?)	

TENEMENT Flinders E L 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 2

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697134 → 697145 D.P.O. No.

PLAN REFERENCE Encounter 1:50 000 Sheet GEOLOGIST T.E.M. DATE 1/8/77

A 9006 ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Encounter Bay	697134	0	0	10	40	50	C	40	Br	–	✓	100	13	21	7	<1	10	10	Decomp. siltstone
Traverse 2	35	100	–	–	–	–	–	–	Br	✓	–	–	12	48	15	<1	26	20	Extremely wthrd arkose.
E→W	36	100	–	–	–	–	–	–	Br	✓	–	–	27	38	50	<1	8	30	Extremely wthrd fe-stained siltstone
Sample interval	37	100	–	–	–	–	–	–	Grey	✓	–	–	10	86	24	<1	30	50	Grey wacke
= 25m	38	100	–	–	–	–	–	–	Grey	✓	–	–	17	83	16	<1	36	70	Ditto
	39	40	0	0	40	20	C	30	Brown	–	✓	50	38	68	28	1	34	90	Decomp. siltstone
	697140	10	0	0	30	60	C	30	Br	–	✓	50	420	380	43	1	35	80	Ditto with some Fe stain
	41	100	–	–	–	–	–	–	Grey	✓	–	–	7	65	15	<1	30	70	Greywacke
	42	100	–	–	–	–	–	–	Grey	✓	–	–	7	56	15	<1	24	50	Greywacke
	43	100	–	–	–	–	–	–	Grey-Br	✓	–	–	14	62	22	<1	28	70	V. wthrd greywacke
	44	100	–	–	–	–	–	–	Grey	✓	–	–	10	88	25	<1	37	70	V. wthrd siltstone
	697145	0	0	0	40	60	C	30	Br	–	✓	50	30	73	32	1	39	90	Decomp. siltstone

TENEMENT Flinders E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 3

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697146 → 697160

D.P.O. No.

PLAN REFERENCE Encounter 1:50 000 Sheet

GEOLOGIST T.E.M. DATE 1/8/77

A 9006

ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Encounter Bay	697146	100	–	–	–	–	–	–	Grey	✓	–	–	7	94	21	1	26	70	Greywacke
Traverse 3	47	100	–	–	–	–	–	–	Grey	✓	–	–	17	70	8	1	30	70	Greywacke
SE → NW	48	100	–	–	–	–	–	–	Grey	✓	–	–	46	76	15	1	32	70	Greywacke
Sample interval	49	100	–	–	–	–	–	–	Gr-Br	✓	–	–	16	65	8	<1	32	70	Wthrd greywacke
= 25m.	697150	10	0	0	40	50	C	30	Brown	–	✓	50	19	36	13	<1	26	70	Decomp. siltstone, partly Fe-stained.
	51	0	0	0	60	40	C	30	Br	–	✓	50	19	38	12	<1	34	90	Decomp siltstone
	52	100	–	–	–	–	–	–	Br-grey	✓	–	–	6	62	9	<1	26	70	Greywacke with minor Fe stain
	53	100	–	–	–	–	–	–	Grey	✓	–	–	5	69	9	<1	32	70	Greywacke
	54	100	–	–	–	–	–	–	Grey	✓	–	–	4	62	6	1	34	60	Greywacke
	55	100	–	–	–	–	–	–	Grey	✓	–	–	7	67	10	<1	32	70	Greywacke
	56	100	–	–	–	–	–	–	Grey	✓	–	–	6	59	4	<1	30	50	Greywacke
	57	100	–	–	–	–	–	–	Grey	✓	–	–	5	70	17	<1	38	50	Fine grained greywacke
	58	0	0	0	40	60	C	40	Br	–	✓	60	14	28	9	1	30	60	Decomp. siltstone (?)
	59	100	–	–	–	–	–	–	Grey	✓	–	–	7	70	13	<1	32	70	Greywacke
	697160	100	–	–	–	–	–	–	Gr-Br	✓	–	–	320	56	17	<1	28	40	Greywacke with qtzite interbeds.

TENEMENT Flinders E.L. 313 — GEOCHEMICAL SOIL SAMPLING LEDGER — Page No. 4

AREA/PROSPECT Flinders Peninsula — SAMPLE Nos. 697161 → 697173 — D.P.O. No.

PLAN REFERENCE Encounter 1:50000 Sheet — GEOLOGIST T.E.M. — DATE 2/8/77

A 9006 — ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Encounter Bay Traverse 4 E → W Sample Interval = 25m	697161	0	0	80	10	10	C	30	Grey	–	✓	60	9	10	6	<1	1	10	Decomp arkose (?)
	62	0	0	0	40	60	C	40	Br	–	✓	60	41	41	12	<1	28	50	Decomp. siltstone
	63	0	0	80	10	10	C	40	Grey	–	✓	60	7	12	8	<1	4	20	Decomp. arkose (?)
	64	0	0	80	10	10	C	30	Grey	–	✓	60	7	12	9	<1	2	10	Ditto
	65	0	0	80	10	10	C	30	Grey	–	✓	60	20	19	9	<1	7	10	"
	66	0	0	60	30	10	C	30	Grey	–	✓	60	13	14	8	<1	4	10	"
	67	100	–	–	–	–	–	–	Grey	✓	–	–	14	76	8	<1	28	70	Greywacke with minor Fe stain.
	68	40	0	0	30	30	C	20	Br	–	✓	50	170	31	67	<1	9	60	Decomp. Fe-stained siltstone.
	69	100	–	–	–	–	–	–	Grey	✓	–	–	7	94	17	1	37	70	Greywacke
	697170	100	–	–	–	–	–	–	Grey	✓	–	–	8	64	16	<1	26	50	Ditto
	71	100	–	–	–	–	–	–	Grey	✓	–	–	7	67	17	<1	30	80	"
	72	100	–	–	–	–	–	–	Grey	✓	–	–	6	76	8	1	32	70	"
	697173	100	–	–	–	–	–	–	Grey	✓	–	–	6	46	4	1	30	70	Greywacke with minor Fe stain.

TENEMENT Flemieux E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 5

AREA/PROSPECT Flemieux Peninsula SAMPLE Nos. 697174 → 697184

D.P.O. No.

PLAN REFERENCE Encounter 1:50 000 Sheet

GEOLOGIST T.E.M. DATE 2/8/77

A 9006

ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Encounter	697174	100	–	–	–	–	–	–	Grey	✓	–	–	7	64	4	<1	30	70	Greywacke
Bay	75	100	–	–	–	–	–	–	Grey	✓	–	–	7	82	19	<1	30	50	Ditto
Traverse 5	76	100	–	–	–	–	–	–	Grey	✓	–	–	5	77	17	1	28	50	"
SE → NW	77	10	0	60	10	20	C	20	Brown	–	✓	50	11	19	6	<1	11	30	Decomp. greywacke
Sample Interval	78	100	–	–	–	–	–	–	Gr & Bn	✓	–	–	8	68	7	<1	30	70	Greywacke with minor Fe stain
= 25m.	79	100	–	–	–	–	–	–	Grey	✓	–	–	5	80	9	<1	34	50	Arkose
	697180	100	–	–	–	–	–	–	Grey	✓	–	–	5	65	7	<1	30	50	Arkose with minor Fe stain
	81	100	–	–	–	–	–	–	Grey	✓	–	–	7	72	12	<1	32	70	Greywacke
	82	100	–	–	–	–	–	–	Grey	✓	–	–	30	74	12	<1	34	70	Ditto
	83	100	–	–	–	–	–	–	R-grey	✓	–	–	7	16	3	<1	19	30	V. weathd. partly Fe-stained greywacke
	697184	100	–	–	–	–	–	–	Grey	✓	–	–	7	70	10	<1	32	60	Greywacke

TENEMENT Flinders EL 313 — GEOCHEMICAL SOIL SAMPLING LEDGER — Page No. 6

AREA/PROSPECT Flinders Peninsula — SAMPLE Nos. 697185 → 697195 — D.P.O. No.

PLAN REFERENCE Encounter 1:50000 Sheet — GEOLOGIST T.E.M. — DATE 2/8/77

A 9006 — ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Encounter Bay	697185	100	–	–	–	–	–	–	Gr-Br	✓	–	–	7	62	11	1	32	50	V wthrd greywacke
Traverse 6	86	20	0	20	40	20	C	20	R-grey	–	✓	50	12	19	3	<1	11	30	Decomp, partly Fe-stained sandy siltstone
SE → NW	87	100	–	–	–	–	–	–	Grey	✓	–	–	5	68	3	<1	30	50	Arkose
Sample Interval	88	100	–	–	–	–	–	–	Grey	✓	–	–	7	83	7	1	37	70	Greywacke
= 25m	89	100	–	–	–	–	–	–	Grey	✓	–	–	10	62	7	<1	30	70	Ditto
	697190	100	–	–	–	–	–	–	Grey	✓	–	–	7	59	3	<1	26	60	"
	91	100	–	–	–	–	–	–	Gr-LBr	✓	–	–	11	56	2	<1	28	80	V. wthrd, partly Fe-stained greywacke
	92	100	–	–	–	–	–	–	Gr-LBr	✓	–	–	7	40	2	<1	25	50	Wthrd arkose, partly Fe-stained.
	93	100	–	–	–	–	–	–	Gr-LBr	✓	–	–	7	56	4	<1	30	30	Ditto
	94	0	0	0	50	50	C	20	R-Br	–	✓	50	22	49	17	1	36	90	Decomp. Fe-stained siltstone (?)
	697195	0	0	0	40	60	C	20	R-Br	–	✓	50	16	38	12	<1	30	70	Ditto

TENEMENT Flinders E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 7

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697196 → 697206

D.P.O. No.

PLAN REFERENCE Encounter 1:50,000 Sheet

GEOLOGIST T.E.M. DATE 2/9/77

A 9006

ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Encounter Bay	697196	0	0	0	50	50	C	20	R-Br	-	✓	50	14	45	14	<1	28	50	Decomp Fe-stained siltstone (?)
Traverse N	97	0	0	0	50	50	C	20	Br	-	✓	50	12	42	10	<1	25	30	Ditto
SE → NW	98	10	10	0	40	40	C	20	Br	-	✓	50	15	40	9	<1	21	30	Decomp. siltstone (?)
Sample Interval	99	0	0	0	40	60	C	30	Br	-	✓	50	24	50	15	<1	23	40	Ditto
= 25m	697200	0	0	0	60	40	C	30	Br	-	✓	50	24	45	17	<1	26	40	"
	201	0	0	0	40	60	C	20	Br	-	✓	50	19	69	15	<1	39	60	"
	202	10	0	0	40	50	C	20	Br	-	✓	50	14	37	10	<1	19	30	Decomp siltstone with some qtz rockchips
	203	20	0	10	40	30	C	20	Br-R	-	✓	50	15	28	6	<1	17	30	Decomp Fe-stained siltstone
	204	0	0	20	40	40	C	20	Grey	-	✓	50	12	21	8	<1	10	10	Decomp sandy siltstone
	205	100	-	-	-	-	-	-	Grey	✓	-	-	7	61	6	<1	28	30	Greywacke
	697206	100	-	-	-	-	-	-	Grey	✓	-	-	7	67	8	<1	30	40	Greywacke.

TENEMENT Flinders EL. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 8

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697207 → 697218

D.P.O. No.

PLAN REFERENCE Encounter 1:50,000 Sheet

GEOLOGIST T.E.M. DATE 2/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Encounter	697207	100	–	–	–	–	–	–	R-grey	✓	–	–	24	19	9	<1	11	40	Extremely wthrd Fe-stained siltstone
Bay	208	100	–	–	–	–	–	–	Grey	✓	–	–	37	76	9	1	38	50	Siltstone
Traverse S	209	100	–	–	–	–	–	–	R-grey	✓	–	–	65	28	35	<1	8	50	Extremely wthrd Fe-stained siltstone
SE → NW	697210	100	–	–	–	–	–	–	Grey	✓	–	–	12	77	8	<1	33	30	Partly Fe-stained siltstone
Sample Interval	11	100	–	–	–	–	–	–	Grey	✓	–	–	24	129	17	<1	28	50	V. wthrd Fe-stained greywacke with thin qtz veins
= 25m	12	100	–	–	–	–	–	–	R-grey	✓	–	–	24	56	5	<1	21	40	Extremely wthrd Fe-stained siltstone
	13	100	–	–	–	–	–	–	R-grey	✓	–	–	22	72	33	<1	33	50	Ditto
	14	100	–	–	–	–	–	–	R-grey	✓	–	–	12	64	33	<1	27	50	Ditto with thin qtz veins.
	15	100	–	–	–	–	–	–	Red	✓	–	–	12	55	9	<1	23	50	Ditto
	16	100	–	–	–	–	–	–	R-grey	✓	–	–	29	58	21	1	25	100	V. wthrd Fe-stained greywacke
	697217	100	–	–	–	–	–	–	Grey	✓	–	–	9	53	8	<1	27	40	Greywacke
	697218	100	–	–	–	–	–	–	Grey	✓	–	–	10	55	16	<1	27	40	Greywacke.

TENEMENT Flaurieu E.L 313 — GEOCHEMICAL SOIL SAMPLING LEDGER — Page No. 9

AREA/PROSPECT Flaurieu Peninsula — SAMPLE Nos. 697219 → 697230 — D.P.O. No.

PLAN REFERENCE Encounter 1:50000 Sheet — GEOLOGIST T.E.M. — DATE 2/8/77

A 9006 — ANALYSED BY Zinc Corporation.

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Encounter	697219	0	0	0	40	60	C	30	Br	-	/	100	19	61	13	1	36	80	Decomp. siltstone (?)
Bay	697220	0	0	0	50	50	C	30	Br	-	/	100	12	23	8	<1	29	30	Ditto
Traverse 9	21	0	10	0	50	40	C	30	Br	-	/	100	19	52	16	<1	27	60	"
E → W	22	20	0	20	30	30	C	30	Grey	-	/	100	7	16	6	<1	9	20	Decomp. sandy siltstone
Sample Interval	23	20	0	0	40	40	C	20	Br	-	/	100	14	32	12	<1	19	40	Decomp. siltstone with some qtz chips.
= 25m.	24	0	0	0	40	60	C	30	R-Br	-	/	100	16	30	13	<1	20	60	Decomp. Fe-stained siltstone.
	25	0	0	0	40	60	C	30	R-Br	-	/	100	16	50	15	1	32	90	Ditto
	26	0	0	0	50	50	C	30	R-Br	-	/	100	22	58	21	<1	38	100	"
	27	10	0	10	50	30	C	30	Grey	-	/	100	9	14	8	<1	11	30	Decomp sandy siltstone with minor qtz chips
	28	20	0	10	50	20	C	30	Grey	-	/	50	7	14	9	<1	8	10	Decomp sandy siltstone
	29	30	0	10	40	20	C	20	Grey/R	-	/	50	7	14	10	<1	6	10	Ditto with some qtz rock chips.
	697230	40	0	0	40	20	C	30	Yel-Br	-	/	50	7	18	32	<1	34	50	Decomp. Fe-stained siltstone.

TENEMENT Flinders EL 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 10

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697231 → 697241

D.P.O. No.

PLAN REFERENCE Encounter 1:50 000 Sheet

GEOLOGIST T.E.M. DATE 3/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Wattpinga	697231	0	0	10	40	50	C	20	Grey	-	✓	100	9	14	14	<1	5	10	Decomp sandy siltstone
Traverse 1	32	0	0	40	40	20	C	20	Sandy grey	-	✓	100	7	16	16	<1	3	10	Ditto
SE → NW	33	0	0	10	50	40	C	20	Br	-	✓	100	16	45	20	<1	26	70	"
Sample Interval	34	0	0	20	40	40	C	20	Br	-	✓	100	14	14	12	<1	8	50	"
= 25m	35	0	0	0	40	60	C	20	R-Br	-	✓	100	9	35	15	<1	25	60	Decomp. siltstone with some Fe stain
	36	0	0	0	50	50	C	20	R-Br	-	✓	50	16	11	12	<1	5	40	Ditto
	37	0	0	0	40	60	C	20	Orange	-	✓	50	12	13	9	<1	9	20	"
	38	100	-	-	-	-	-	-	White	✓	✓	-	5	14	20	<1	1	<10	Qtzite subcrop
	39	20	0	0	40	40	C	20	Br	-	✓	50	12	25	7	<1	14	30	Decomp. Fe-stained siltstone
	697240	0	0	0	40	60	C	20	Br	-	✓	50	7	42	17	<1	25	50	Ditto
	697241	0	0	10	50	40	C	20	Br	-	✓	50	5	21	24	<1	5	<10	Decomp. sandy silestone

TENEMENT Flinders E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 1

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697242 → 697255

D.P.O. No.

GEOLOGIST T.E.M. DATE 3/8/77

PLAN REFERENCE Encounter 1:50 000 Sheet

ANALYSED BY Zinc Corperation.

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
WAITPINGA	697242	40	0	0	40	20	C	20	Br	–	✓	50	9	23	15	<1	13	20	Decomp. Fe-stained siltstone
Traverse 2	43	10	0	0	50	40	C	20	Br	–	✓	50	8	13	14	<1	6	20	Ditto
SE → NW	44	0	0	60	20	20	C	20	Sandy Br	–	✓	50	7	16	17	<1	4	10	Decomp. arkose(?) with some Fe stain
Sample Interval	45	20	0	0	50	30	C	20	Br	–	✓	50	7	18	19	<1	5	10	Decomp. siltstone with some Fe stain
= 25m	46	0	0	10	50	40	C	20	Br	–	✓	50	12	28	8	<1	18	50	Ditto
	47	0	0	0	50	50	C	20	Red	–	✓	50	21	18	8	<1	8	40	Decomp. Fe-stained siltstone
	48	0	0	10	40	50	C	20	Red	–	✓	50	19	11	12	<1	5	30	Ditto
	49	0	10	0	50	40	C	20	Br	–	✓	50	14	16	17	<1	4	30	Decomp. siltstone
	697250	10	0	0	50	40	C	20	Br	–	✓	50	14	13	13	<1	6	40	Ditto
	51	0	10	0	50	40	C	20	Br	–	✓	50	24	14	14	<1	8	70	"
	52	0	0	0	50	50	C	20	Br	–	✓	50	9	9	6	<1	5	30	"
	53	10	0	10	40	40	C	20	Br	–	✓	50	19	11	11	<1	6	90	"
	54	100	–	–	–	–	–	–	Red	✓	–	–	56	18	14	1	8	190	Gossanous (?) greywacke subcrop
	55	100	–	–	–	–	–	–	Red	✓	–	–	45	16	16	1	8	160	Gossanous siltstone subcrop.

TENEMENT Flinders E.L. 313 — GEOCHEMICAL SOIL SAMPLING LEDGER — Page No. 12

AREA/PROSPECT Flinders Peninsula — SAMPLE Nos. 697256 → 697271 — D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 Sheet — GEOLOGIST T.E.M. — DATE 3/8/77

A 9006 — ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697256	100	–	–	–	–	–	–	Grey	✓	–	–	5	85	26	<1	56	50	Granulated schist
Traverse 3	57	60	0	0	30	10	C	20	Grey	–	✓	50	7	61	8	<1	56	50	Decomp. schist
N→S	58	0	0	0	80	20	C	30	Br	–	✓	50	11	61	13	<1	40	70	Ditto
Sample Interval	59	100	–	–	–	–	–	–	Grey	✓	–	–	5	61	30	<1	50	70	Silty schist
= 25m	697260	100	–	–	–	–	–	–	Grey	✓	–	–	5	82	17	<1	50	80	Siltstone
	61	100	–	–	–	–	–	–	Grey	✓	–	–	4	67	9	<1	40	70	Sandy siltstone
	62	100	–	–	–	–	–	–	Grey	✓	–	–	7	79	17	<1	55	90	Silty schist
	63	100	–	–	–	–	–	–	R.Grey	✓	–	–	12	66	33	<1	10	70	Fe-stained dark grey carbonaceous(?) siltstone
	64	100	–	–	–	–	–	–	Dk grey	✓	–	–	45	21	10	<1	4	20	Dark grey carbonaceous siltstone with some Fe
	65	100	–	–	–	–	–	–	Grey	✓	–	–	5	220	10	1	28	90	Grey sandy siltstone
	66	100	–	–	–	–	–	–	Grey	✓	–	–	7	65	8	<1	28	50	Micaceous sandy siltstone
	67	100	–	–	–	–	–	–	Grey	✓	–	–	7	86	13	<1	32	70	Sandy siltstone
	68	50	0	0	30	20	C	20	Br	✓	✓	50	100	52	39	<1	12	70	Decomp schist with minor Fe.
	69	100	–	–	–	–	–	–	Gr Br	✓	–	–	7	63	9	<1	29	50	Arkose
	697270	100	–	–	–	–	–	–	Grey	✓	–	–	5	69	6	<1	30	70	Greywacke
	697271	100	–	–	–	–	–	–	Grey	✓	–	–	7	74	14	<1	25	70	Cordywacke.

TENEMENT Flinders E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 13

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697272 → 697286

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 Sheet

GEOLOGIST T.E.M. DATE 3/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697272	100	–	–	–	–	–	–	Grey	✓	–	–	9	86	24	<1	54	70	Schist
Traverse 4	73	100	–	–	–	–	–	–	Grey	✓	–	–	6	74	18	<1	54	90	Schist
N → S	74	100	–	–	–	–	–	–	Grey	✓	–	–	6	54	23	<1	52	70	Schist
Sample Interval	75	100	–	–	–	–	–	–	Grey	✓	–	–	5	34	6	<1	41	70	Siltstone
= 25m	76	40	0	0	40	20	C	30	Br	–	✓	50	7	46	13	<1	38	60	Decomp. schist
	77	100	–	–	–	–	–	–	Grey	✓	–	–	5	34	5	<1	42	80	Siltstone
	78	100	–	–	–	–	–	–	Grey	✓	–	–	5	16	8	<1	46	90	Siltstone
	79	100	–	–	–	–	–	–	Gr-Br	✓	–	–	7	68	22	<1	48	70	Arkose
	697280	0	0	0	60	40	C	30	Br	–	✓	50	9	39	10	<1	34	70	Decomp. siltstone
	81	60	0	0	30	10	C	20	Br	–	✓	50	7	39	8	<1	38	70	Ditto
	82	0	0	0	60	40	C	30	Br	–	✓	50	11	36	9	<1	32	70	"
	83	100	–	–	–	–	–	–	Grey	✓	–	–	5	77	6	<1	36	90	Greywacke
	84	100	–	–	–	–	–	–	Grey	✓	–	–	7	24	9	<1	36	60	Ditto
	85	0	0	0	60	40	C	30	Br	–	✓	50	10	44	13	<1	32	70	Decomp. siltstone
	697286	100	–	–	–	–	–	–	Grey	✓	–	–	7	80	26	<1	40	60	Schist.

TENEMENT Flinders E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. No.

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697287 → 697307

GEOLOGIST T.E.M. DATE 3/8/77

PLAN REFERENCE Torrens Vale 1:50 000 Sheet A 9006

ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Vaikpinga	697287	100	—	—	—	—	—	—	Grey	✓	—	—	10	68	10	<1	28	70	Greywacke
Traverse 5	88	100	—	—	—	—	—	—	R-grey	✓	—	—	64	12	47	<1	4	30	Wthrd carbonaceous siltstone with limonite pseudomorphs
N → S	89	40	0	0	40	20	C	30	Br	—	✓	50	11	77	14	<1	34	70	Decomp. siltstone
Sample Interval	697290	40	0	0	40	20	C	20	Br	—	✓	50	15	69	17	<1	20	50	Ditto
= 25m	91	0	0	0	70	30	C	30	Br	—	✓	60	15	59	19	<1	24	90	"
	92	0	0	0	40	60	C	30	Br	—	✓	60	29	68	26	<1	38	70	" (?)
	93	100	—	—	—	—	—	—	Grey	✓	—	—	10	71	10	<1	31	70	Greywacke
	94	100	—	—	—	—	—	—	Grey	✓	—	—	5	75	15	<1	27	80	Ditto
	95	100	—	—	—	—	—	—	Grey	✓	—	—	7	66	7	<1	30	80	"
	96	100	—	—	—	—	—	—	Grey	✓	—	—	7	74	9	<1	28	80	"
	97	100	—	—	—	—	—	—	Grey	✓	—	—	6	68	9	<1	31	80	"
	98	100	—	—	—	—	—	—	Grey	✓	—	—	8	77	39	<1	23	90	"
	99	0	0	0	60	40	C	20	Gr-Br	—	✓	50	12	44	23	<1	17	50	Decomp. greywacke (?)
	697300	100	—	—	—	—	—	—	Grey	✓	—	—	5	63	8	<1	27	70	Greywacke with minor Fe stain
	301	100	—	—	—	—	—	—	Grey	✓	—	—	7	60	18	<1	13	50	Greywacke
	302	100	—	—	—	—	—	—	Grey	✓	—	—	5	63	36	<1	18	50	Arkose
	303	100	—	—	—	—	—	—	Grey	✓	—	—	7	71	17	<1	28	70	Greywacke with minor Fe stain
	304	100	—	—	—	—	—	—	Br	✓	—	—	10	86	11	<1	28	60	Wthrd greywacke with some Fe stain
	305	100	—	—	—	—	—	—	R-grey	✓	—	—	350	19	44	<1	3	30	Wthrd gossanous grey carbonaceous siltstone with ha
	306	100	—	—	—	—	—	—	Grey	✓	—	—	7	96	17	<1	27	60	Arkose
	697307	100	—	—	—	—	—	—	Br	✓	—	—	7	77	17	<1	28	70	Wthrd greywacke

TENEMENT Flinders E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 15

AREA/PROSPECT Flinders Peninsula SAMPLE Nos. 697308 → 697320

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000

GEOLOGIST T.E.M. DATE 4/8/77

A 9006

ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697308	100	–	–	–	–	–	–	Grey	✓	–	–	6	54	14	<1	20	70	Outcrop
Traverse 6	309	100	–	–	–	–	–	–	Grey	✓	–	–	7	63	15	<1	30	50	Micaceous sandy siltstone
N→S	697310	100	–	–	–	–	–	–	Grey	✓	–	–	7	63	17	<1	18	50	Greywacke
	11	100	–	–	–	–	–	–	Grey	✓	–	–	9	60	17	<1	27	70	Ditto
	12	C	C	C	60	40	C	30	Br	–	✓	50	12	29	21	<1	15	50	Decomp. siltstone
	13	100	–	–	–	–	–	–	Gr-Br	✓	–	–	7	60	19	<1	29	70	Mod sandy siltstone sub o/c mod minor Fe stain
	14	100	–	–	–	–	–	–	Gr-Br	✓	–	–	5	63	12	<1	30	70	Sandy siltstone
	15	40	0	0	40	20	C	30	Br	–	✓	50	11	86	35	<1	41	70	Decomp. carbonaceous (?) siltstone
	16	100	–	–	–	–	–	–	Grey	✓	–	–	7	68	13	<1	29	50	Greywacke
	17	100	–	–	–	–	–	–	Grey	✓	–	–	7	66	20	<1	24	50	Ditto
	18	100	–	–	–	–	–	–	Grey	✓	–	–	10	80	15	<1	34	70	
	19	30	0	0	40	30	C	30	R-Br	–	✓	50	10	54	17	<1	29	50	Decomp. Fe-stained siltstone
	697320	100	–	–	–	–	–	–	Grey	✓	–	–	7	77	15	<1	30	70	Greywacke

TENEMENT Fleurieu E.L 313 — GEOCHEMICAL SOIL SAMPLING LEDGER — Page No. 16

AREA/PROSPECT Fleurieu Peninsula — SAMPLE Nos. 697321 → 697341 — D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 — GEOLOGIST T.E.M. — DATE 4/8/77

A 9006 — ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697321	100	–	–	–	–	–	–	Grey	✓	–	–	4	71	19	<1	30	70	Greywacke
Traverse 7	22	20	0	0	50	30	C	30	Br	–	✓	50	10	55	20	<1	34	70	Decomp. partly Fe-stained siltstone.
N→S	23	100	–	–	–	–	–	–	Grey	✓	–	–	5	74	64	<1	36	90	Siltstone / saboutcrop.
Sample Interval	24	100	–	–	–	–	–	–	Pink-grey	✓	–	–	5	68	18	<1	42	70	Micaceous siltstone with minor Fe stain
= 25m	25	50	0	0	25	25	C	30	Br	–	✓	50	10	83	25	<1	50	90	Ditto, decomp.
	26	60	0	0	20	20	C	40	Br	–	✓	50	15	72	34	<1	48	70	Decomp. Fe-stained schist.
	27	20	0	0	40	40	C	30	Br	–	✓	50	10	46	17	<1	23	30	Ditto
	28	0	0	0	60	40	C	30	Br	–	✓	50	12	68	19	<1	42	90	Decomp. schist
	29	0	0	0	50	50	C	30	Br	–	✓	50	15	80	24	<1	36	90	Ditto
	697330	0	0	0	60	40	C	30	Br	–	✓	50	28	52	13	<1	17	30	" (?)
	31	100	–	–	–	–	–	–	Grey	✓	–	–	7	63	13	<1	25	70	Sandy siltstone
	32	20	0	0	40	40	C	30	Br	–	✓	50	26	63	28	<1	17	90	Decomp. Fe-stained siltstone
	33	30	0	0	40	30	C	30	Br	–	✓	50	15	42	12	<1	21	30	Decomp. siltstone
	34	40	0	0	40	20	C	20	Br	–	✓	50	15	53	21	<1	27	50	Decomp. phyllite with minor Fe stain.
	35	0	0	10	40	50	C	20	Br	–	✓	50	15	25	10	<1	13	30	Decomp. sandy siltstone
	36	20	0	10	40	30	C	20	Br	–	✓	50	10	72	26	<1	36	70	Decomp. greywacke
	37	100	–	–	–	–	–	–	Grey	✓	–	–	7	79	17	<1	34	70	Greywacke
	38	100	–	–	–	–	–	–	Grey	✓	–	–	7	70	17	<1	33	70	Greywacke
	39	100	–	–	–	–	–	–	Grey-Br	✓	–	–	6	64	14	<1	34	70	Micaceous greywacke with minor Fe stain
	697340	100	–	–	–	–	–	–	Grey	✓	–	–	7	56	22	<1	34	70	Greywacke
	697341	100	–	–	–	–	–	–	Grey	✓	–	–	6	68	15	<1	34	70	Greywacke.

TENEMENT Fleurieu E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 17

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697342 → 697350

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 Sheet

GEOLOGIST T.E.Mc DATE 4/8/77

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697342	100	—	—	—	—	—	—	Grey	✓	—	—	11	110	17	<1	36	70	Greywacke
Traverse 8	43	100	—	—	—	—	—	—	Grey	✓	—	—	10	61	17	<1	25	70	Ditto
N → S	44	100	—	—	—	—	—	—	Gr-Br	✓	—	—	10	64	13	<1	32	50	Wthrd greywacke
Sample Interval	45	100	—	—	—	—	—	—	Grey	✓	—	—	7	67	14	<1	32	50	Greywacke
= 25m	46	100	—	—	—	—	—	—	Grey	✓	—	—	7	64	17	<1	27	50	Ditto
	47	100	—	—	—	—	—	—	Grey	✓	—	—	7	61	19	<1	27	80	Sandy siltstone
	48	100	—	—	—	—	—	—	Grey	✓	—	—	7	61	15	<1	27	50	Greywacke
	49	100	—	—	—	—	—	—	Grey	✓	—	—	10	72	21	<1	36	60	Ditto
	697350	100	—	—	—	—	—	—	Grey	✓	—	—	10	61	19	<1	30	50	Arkose

TENEMENT Fleurieu E.L 313

GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697351 → 697361

GEOLOGIST T.E.M. DATE 4/8/77

PLAN REFERENCE Torrens Vale 1:50 000 Sheet

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697351	100	–	–	–	–	–	–	Grey	✓	–	–	14	94	29	<1	54	>0	Grey carbonaceous(?) wthrd phyllite
Traverse 9	52	100	–	–	–	–	–	–	Grey	✓	–	–	10	98	30	<1	52	90	Phyllite
N→S	53	100	–	–	–	–	–	–	Grey	✓	–	–	7	100	22	<1	50	110	Phyllite
Sample Interval	54	100	–	–	–	–	–	–	Grey	✓	–	–	10	48	14	<1	56	90	Phyllite
= 25m	55	60	0	0	30	10	C	30	Br	✓	✓	50	18	56	24	<1	45	60	Decomp. Phyllite
	56	100	–	–	–	–	–	–	Rusty Grey	✓	–	–	52	82	140	<1	16	70	Gossanous brecciated siltstone
	57	100	–	–	–	–	–	–	Gr Br	✓	–	–	12	64	21	<1	20	60	Greywacke
	58	100	–	–	–	–	–	–	Grey	✓	–	–	15	67	15	<1	25	70	Ditto
	59	100	–	–	–	–	–	–	Grey	✓	–	–	10	76	22	<1	27	50	"
	697360	100	–	–	–	–	–	–	Grey	✓	–	–	5	31	13	<1	25	50	"
	697361	100	–	–	–	–	–	–	Grey	✓	–	–	12	91	37	<1	32	70	"

TENEMENT Fleurieu EL 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 19

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697362 → 697369

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000

GEOLOGIST T.E.M. DATE 4/8/77

ANALYSED BY Zinc Corporation.

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm,						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697362	100	—	—	—	—	—	—	Grey	✓	—	—	6	64	20	<1	52	90	Phyllite with v mthd Fe disseminations
Traverse 10	63	100	—	—	—	—	—	—	Grey	✓	—	—	9	85	44	<1	54	70	Phyllite
NW → SE	64	100	—	—	—	—	—	—	Grey	✓	—	—	9	103	34	<1	34	110	Ditto
Sample Interval	65	100	—	—	—	—	—	—	Grey	✓	—	—	7	72	28	<1	48	70	"
= 25m	66	0	10	0	40	50	B	20	Br	—	✓	80	12	56	15	<1	26	30	Decomp. Phyllite (?)
	67	0	0	0	50	50	B	20	Br	—	✓	80	15	64	15	<1	26	40	Ditto
	68	100	—	—	—	—	—	—	Grey	✓	—	—	8	76	19	<1	26	50	Greywacke
	697369	100	—	—	—	—	—	—	Grey	✓	—	—	10	70	16	<1	23	60	Greywacke.

TENEMENT Fleurieu E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697370 → 697380

GEOLOGIST T.E.M. DATE 5/8/77

PLAN REFERENCE Torrens Vale 1:50 000 A 9006

ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga Traverse II SE → NW Sample Interval = 25m	697370	20	0	0	40	40	C	30	Br	–	✓	50	18	18	16	<1	16	50	Decomp. siltstone with minor Fe stain
	71	100	–	–	–	–	–	–	Grey	✓	–	–	7	88	20	<1	32	70	Greywacke
	72	0	0	0	30	70	C	30	Br	–	✓	80	20	43	19	<1	25	50	Decomp. siltstone (?)
	73	100	–	–	–	–	–	–	R-grey	✓	–	–	7	72	18	<1	30	70	Micaceous silt stone with some Fe stain
	74	0	0	0	40	60	C	30	Br	–	✓	60	23	53	22	<1	27	90	Decomp. siltstone
	75	0	0	0	50	50	C	30	R-Br	–	✓	60	15	13	13	<1	7	30	Ditto
	76	20	0	0	40	40	C	30	Br-R	–	✓	60	14	18	13	<1	6	10	Ditto with Fe stain.
	77	10	0	0	40	50	C	30	Br	–	✓	50	14	32	9	<1	19	50	Decomp. siltstone
	78	100	–	–	–	–	–	–	Grey	✓	–	–	7	82	22	<1	34	70	Greywacke
	79	10	0	10	50	30	C	40	Grey	–	✓	80	12	16	13	<1	5	10	Decomp. greywacke
	697380	0	0	20	60	20	C	30	Pale grey	–	✓	50	6	21	20	<1	3	20	Ditto

TENEMENT Fleurieu E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 21

D.P.O. No.

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697381 → 697391

GEOLOGIST T.E.M. DATE 5/8/77

PLAN REFERENCE Torrens Vale 1:50000 Sheet

ANALYSED BY Zinc Corporation

A 9006

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697381	0	0	0	60	40	C	20	R-Br	–	✓	100	15	40	12	<1	22	50	Decomp. Fe-stained siltstone
Traverse 12	82	10	0	0	40	50	C	20	R-Br	–	✓	100	11	35	14	<1	14	30	Ditto with some qtz rock chips.
SE → NW	83	0	0	0	40	60	C	20	R-Br	–	✓	100	25	82	22	<1	30	70	Decomp. Fe-stained siltstone (?)
Sample Interval	84	0	0	0	40	60	C	20	Br	–	✓	100	31	72	35	<1	23	70	Decomp. siltstone (?)
= 25m	85	10	0	0	40	50	C	20	Br	–	✓	100	15	48	19	<1	16	30	Ditto with some qtz rock chips
	86	0	0	0	60	40	C	20	Br	–	✓	100	12	50	17	<1	23	30	Decomp siltstone (?)
	87	10	0	0	40	50	C	20	R-Br	–	✓	100	26	50	16	<1	21	50	Ditto with Fe stain and some qtz chips.
	88	20	0	0	40	40	C	20	R-Br	–	✓	100	14	32	22	<1	9	10	Ditto
	89	0	0	30	40	30	C	20	Grey	–	✓	100	10	23	17	<1	5	10	Decomp sandy siltstone (?)
	697390	20	0	20	30	30	C	20	Grey	–	✓	100	20	40	36	<1	7	10	Ditto with some qtz rock chips.
	697391	0	0	10	40	50	C	20	Br	–	✓	100	23	32	25	<1	11	30	Decomp. sandy siltstone.

TENEMENT Flinders E.L. 313 — **GEOCHEMICAL SOIL SAMPLING LEDGER** — Page No. 22

AREA/PROSPECT Flinders Peninsula — SAMPLE Nos. 697392 → 697402 — D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 Sheet — GEOLOGIST T.E.M. — DATE 5/8/77

A 9006 — ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697392	0	10	0	30	60	C	30	Orange	-	✓	100	18	21	11	<1	11	60	Decomp. siltstone (?)
Traverse 13	93	20	0	0	40	40	C	20	Brown	-	✓	100	31	23	17	<1	13	90	Ditto with some qtz rock chips
SE → NW	94	0	10	0	40	50	C	20	Or-Br	-	✓	100	16	25	19	<1	12	30	Decomp. siltstone
Sample Interval	95	30	0	0	40	30	C	20	Brown	-	✓	100	12	40	9	<1	21	50	Decomp Fe-stained greywacke
= 25m	96	0	0	0	40	60	C	20	Gray	-	✓	100	18	61	20	<1	30	70	Decomp siltstone
	97	0	10	0	40	50	C	20	Brown	-	✓	100	12	35	12	<1	21	30	Ditto
	98	0	0	0	40	60	C	30	Br	-	✓	100	18	42	30	<1	30	70	Decomp. schist
	99	0	10	0	40	50	C	20	Br	-	✓	100	12	30	13	<1	30	50	Ditto
	697400	0	0	0	40	60	C	30	Or-Br	-	✓	100	11	32	15	<1	21	40	Decomp. siltstone (?)
	401	40	0	0	40	20	C	20	Or-Br	-	✓	80	12	50	15	<1	28	42	Decomp. Fe-stained greywacke
	697402	0	10	0	40	50	C	30	Or-Br	-	✓	100	11	42	20	<1	18	30	Decomp. Fe-stained siltstone (?)

TENEMENT Fleurieu E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 23

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697403 → 697413

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50,000 Sheet

GEOLOGIST T.E.M. DATE 5/8/77

A 9006

ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Con-cealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697403	0	0	0	40	60	C	20	Br	–	✓	100	15	42	14	<1	26	90	Decomp. siltstone
Traverse 14	404	0	10	0	40	50	C	20	Br	–	✓	100	22	46	23	1	25	90	Ditto
SE → NW	405	0	0	0	40	60	C	20	Or-Br	–	✓	100	15	12	3	<1	11	50	"
Sample Interval	406	0	0	20	40	40	C	20	Br	–	✓	100	12	11	11	<1	6	40	Decomp. sandy siltstone
= 25m	407	0	0	0	40	60	C	20	Orange	–	✓	100	18	13	9	<1	9	90	Decomp. Fe-stained siltstone
	408	40	0	20	20	20	C	20	Grey	–	✓	50	36	11	8	1	11	210	Decomp. greywacke with some Fe stain
	409	0	0	0	40	60	C	30	Orange	–	✓	60	14	16	8	<1	12	90	Decomp. Fe-stained siltstone (?)
	697410	0	0	0	40	60	C	30	Orange	–	✓	100	20	16	10	<1	9	90	Ditto
	11	0	0	0	40	60	C	30	Orange	–	✓	100	28	29	9	1	21	90	"
	12	0	0	0	40	60	C	30	Orange	–	✓	100	22	39	15	1	25	70	"
	697413	100	–	–	–	–	–	–	Grey	✓	–	–	9	57	10	<1	25	70	Arkose.

TENEMENT Fleurieu E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 24

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697414 → 697426

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 Sheet

GEOLOGIST T.E.M. DATE 5/8/77

A 9006

ANALYSED BY Zinc Corporation.

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697414	100	—	—	—	—	—	—	Grey	✓	—	—	7	76	25	<1	35	90	Greywacke
Traverse 15	15	100	—	—	—	—	—	—	Grey	✓	—	—	7	86	34	<1	34	70	Ditto
SE → NW	16	100	—	—	—	—	—	—	Grey	✓	—	-	15	49	14	<1	30	70	Micaceous siltstone
Sample Interval	17	100	—	—	—	—	—	—	Grey	✓	—	—	10	86	21	<1	37	70	Ditto
= 25m.	18	100	—	—	—	—	—	—	Grey	✓	—	—	10	68	18	<1	28	80	Siltstone with minor Fe stain
	19	100	—	—	—	—	—	—	Grey	✓	—	—	7	80	26	<1	31	70	Greywacke
	697420	100	—	—	—	—	—	—	Grey	✓	—	—	7	60	19	<1	21	70	Arkose
	21	100	—	—	—	—	—	—	Grey	✓	—	—	7	51	24	<1	17	70	Ditto
	22	100	—	—	—	—	—	—	Grey	✓	—	—	10	60	11	<1	27	90	V. wthrd. friable greywacke
	23	100	—	—	—	—	—	—	Grey	✓	—	—	11	64	17	<1	27	70	Ditto
	24	0	10	0	40	50	C	30	Br	—	✓	50	12	21	13	<1	17	70	Decomp. greywacke(?) with some Fe stain
	25	100	—	—	—	—	—	—	R-grey	✓	—	—	2	21	28	<1	3	10	Gossanous siltstone sub O/C assoc with qtz vein
	697426	100	—	—	—	—	—	—	R-grey	✓	—	—	2	14	16	<1	3	10	Gossanous qtzite sub O/C associated with qtz vein

TENEMENT Fleurieu E.L. 313

GEOCHEMICAL SOIL SAMPLING LEDGER

Page No. 25

AREA/PROSPECT Fleurieu Peninsula SAMPLE Nos. 697427 → 697437

D.P.O. No.

PLAN REFERENCE Torrens Vale 1:50 000 Sheet A 9006

GEOLOGIST T.E.M. DATE 5/8/77

ANALYSED BY Zinc Corporation

Grid Co-ordinate	Sample No.	Soil Composition					Soil Horizon	Sample		Bedrock			Metal Content in ppm.						Geological observations
		Rock %	Organic %	Sand %	Silt %	Clay %		Depth cm.	Colour	Outcrop	Concealed	Est. Depth to	Pb	Zn	Cu	Ag	Ni	Cr	
Waitpinga	697427	0	0	0	30	70	C	30	Yell-Br	–	✓	100	17	19	10	1	20	90	Decomp Siltstone (?)
Traverse 16	28	0	0	0	30	70	C	30	Yell-Br	–	✓	100	17	19	9	<1	22	90	Ditto
SE S→N	29	0	0	0	30	70	C	30	Yell-Br	–	✓	100	17	20	12	1	20	90	"
Sample Interval	697430	10	0	0	30	60	C	30	Yell-Br	–	✓	100	19	9	4	<1	14	100	" with some qtz chips
= 25m	31	0	0	0	40	60	C	30	Yell-Br	–	✓	100	15	16	8	<1	17	90	Decomp siltstone (?)
	32	0	0	0	40	60	C	30	Yell-Br	–	✓	100	17	11	6	<1	13	90	Ditto
	33	0	0	0	40	60	C	30	Yell-Br	–	✓	100	16	14	6	<1	15	90	"
	34	10	0	0	30	60	C	30	R-Yell	–	✓	100	15	14	6	<1	17	90	"
	35	0	0	0	40	60	C	30	Yellow	–	✓	100	15	16	8	<1	15	90	"
	36	0	0	0	40	60	C	30	Yellow	–	✓	100	15	14	10	<1	12	80	"
	697437	0	0	0	40	60	C	30	Yell-Br	–	✓	100	18	12	3	<1	15	90	"

C.R.A. EXPLORATION PTY. LIMITED
(INC. IN N.S.W.)
95 COLLINS STREET, MELBOURNE, AUSTRALIA 3001

P.O. BOX 384D
TELEPHONE: 63 0491
TELEGRAMS: "CONRIO"
TELEX AA 30108

28th February, 1978.

The Director of Mines,
P.O. Box 151,
EASTWOOD, S.A. 5063

Dear Sir,

E.L. 313 - Fleurieu, S.A.
Report for the Quarter Ending 21st January, 1978

Please find attached a report by D. O. Mason entitled "Third Quarterly Report on Fleurieu E.L. 313, South Australia" dated 17th January, 1978.

Results in this exploration licence are disappointing to date. The prospective pyritic horizons within the Brukunga Formation are not well developed and the results of our geochemical survey are, for the most part, disappointing.

Expenditure for the period ended 31st January, the nearest accounting period, amounted to $3,547 comprising:

Salaries	$736
Wages	144
General Supplies	182
Assaying	2,108
General Overheads	377
	$3,547

Yours faithfully,

SAF:jm

for: J. Collier
General Manager

C.R.A. EXPLORATION PTY. LIMITED

QUARTERLY REPORT ON FLEURIEU E.L. 313 SOUTH AUSTRALIA FOR PERIOD ENDING 21.1.78

AUTHOR: D. O. MASON

DATE: 17TH JANUARY 1978

SUBMITTED TO: G. D. KLINGNER

CONTENTS

1. SUMMARY & INTRODUCTION.

This report summarizes the work conducted on Fleurieu E.L. 313 during the quarter ending 21st January 1978. This work largely comprised a statistical treatment of results from the regional soil sampling programme conducted over pyritic units of The Brukunga Formation within E.L. 313.

The statistical treatment pinpointed the only promising area near Newland Hill as previously reported. Further soil sampling will be conducted within the area.

2. CONCLUSIONS & RECOMMENDATIONS.

Statistical treatment of the soil sampling results confirmed the visual examination that suggested overall low base metal values in the Brukunga Formation metasediments in E.L. 313. Two samplesin The Hundred of Encounter Bay appear to be the most promising with peak base metal values of 440 ppm pb, 134 ppm Zn, 55 ppm Cu, and 420 ppm Pb, 380 ppm Zn and 43 ppm Cu. These values are the best obtained in E.L. 313 but are low compared with base metal values over pyritic units elsewhere in the Kanmantoo Trough.

It is recommended that further soil sampling be done in the vicinity of these traverses to try to improve upon these base metal values.

3. GEOCHEMICAL SOIL SAMPLE STATISTICS

A statistical treatment has been conducted on the results of soil samples collected during the regional soil sampling programme. It was found that every second sample could be used in this treatment and give very similar results to those received when every sample was used.

Where histograms of the raw data were highly skewed, more meaningful results were achieved by converting all data to a logarithmic base. This method gave results showing approximately normal distribution of data on the histogram and thus a realistic mean and standard deviation could be calculated. The data

was classified into groups based on standard deviation values.

The mean, standard deviation, and the five groupings of values have been calculated for Pb, Zn, Cu, Ni, Co, Cr and Mn. (Table 1.)

The distribution of all samples grouped in these five intervals has been examined within the area of the Fleurieu E.L. The only pattern that emerged as being anomalous was in the Hundred of Encounter Bay where base metal highs occur on traverses 1. and 2. This area will be followed up by further soil sampling.

REFERENCES

Nichol I. 1977 Notes for C.R.A.E. Geochemical Workshop.

KEYWORDS

Locality Barker Sl 54-13.

Kanmantoo Group, lead, zinc, copper, metasediments, geochemistry soil sampling, statistics.

LIST OF ATTACHMENTS

Table 1.

Plan No. SAa 164 - Lead Histogram
165 Zinc "
166 Copper "
167 Nickel "
168 Cobalt "
169 Chromium "
170 Manganese "

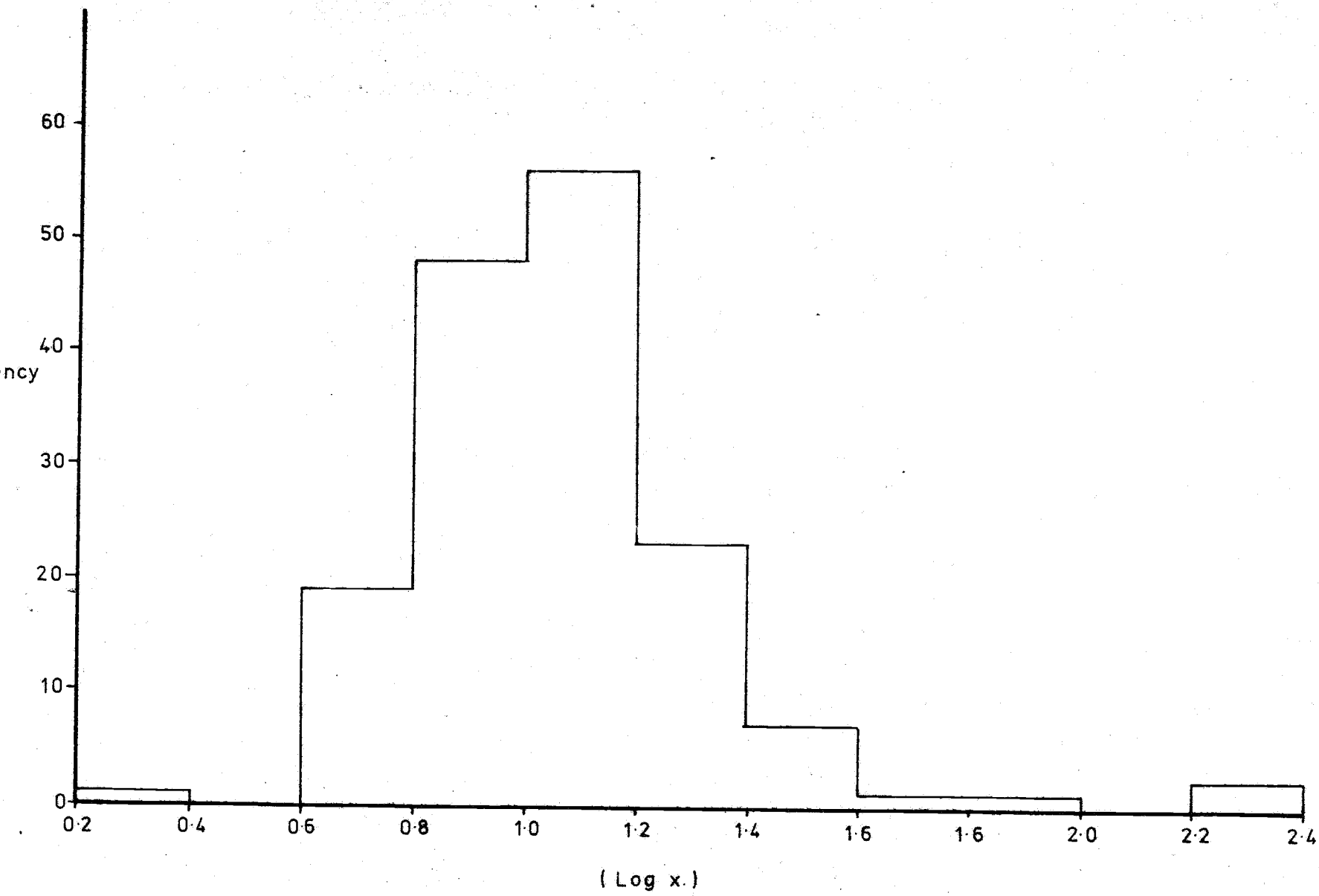
D. O. Mason

D. O. MASON

TABLE 1.

	Pb		Zn		Cu		Ni		Co		Cr		Mn	
	log	ppm	log	ppm	log	ppm	log	ppm	log	ppm	log	ppm	log	ppm
Mean	1.04		1.64		1.14		1.33			13.7	1.72		2.37	
S.D.	0.27		0.29		0.27		0.31			5.45	0.25		0.43	
$\bar{x}$ - 2SD.	0.50	3	1.06	11	0.60	4	0.71	5		3	1.22	17	1.51	33
$\bar{x}$ - S.D.	0.77	6	1.35	22	0.87	7	1.02	10		8	1.47	30	1.94	87
$\bar{x}$	1.04	11	1.64	44	1.14	14	1.33	21		14	1.72	52	2.37	234
$\bar{x}$ + S.D.	1.31	20	1.93	85	1.41	26	1.64	44		19	1.97	93	2.80	6.31
$\bar{x}$ + 2SD.	1.58	38	2.22	166	1.68	48	1.95	89		25	2.22	166	3.23	1698

Sheet Ref.: BARKER SI 54-13.



HISTOGRAM OF LEAD VALUES FOR FLEURIEU E.L.313 SOIL GEOCHEM 158 VALUES.

Frequency/(log x).

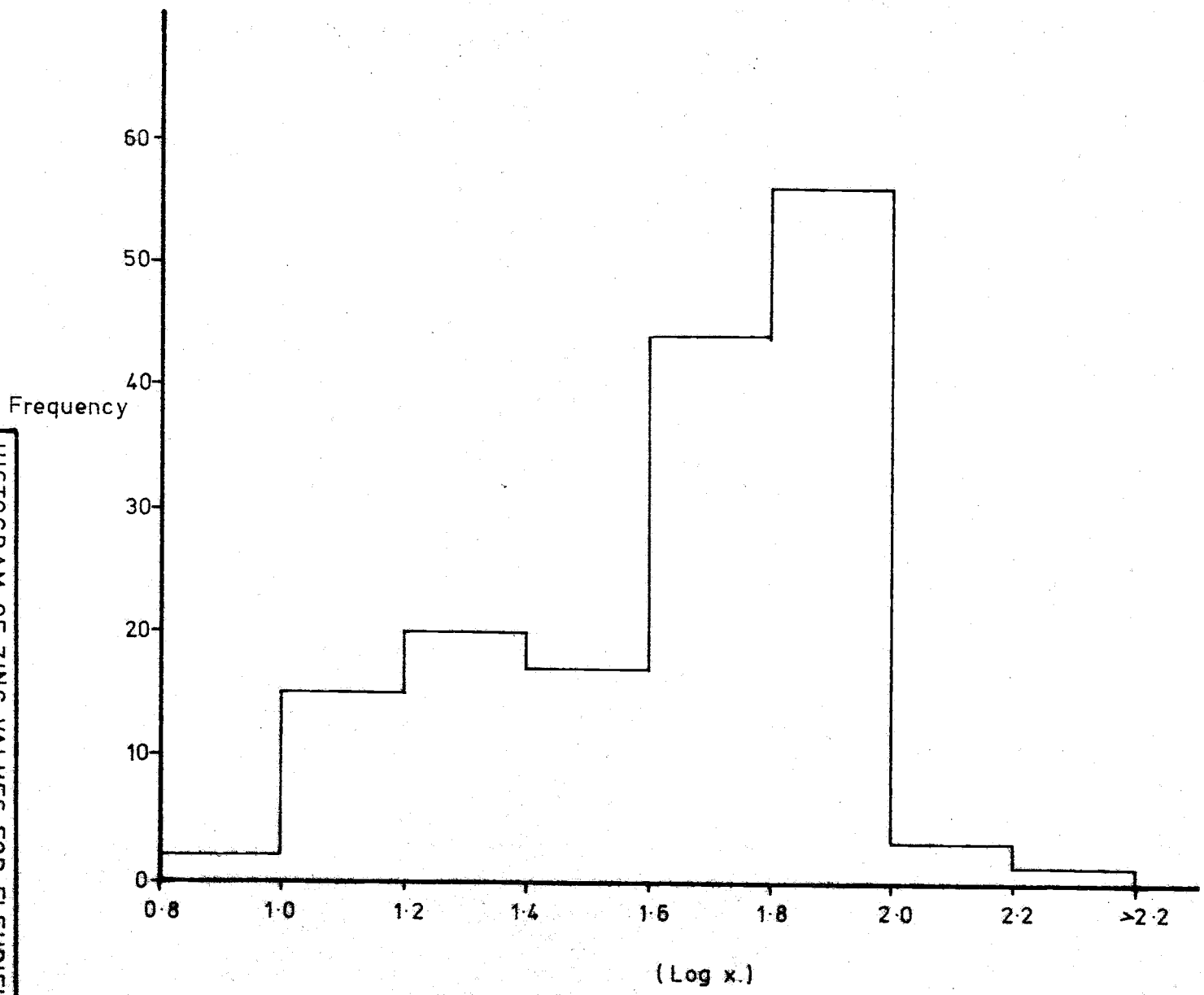
Plan No.: SAa 164.

Sheet Ref.: BARKER SI 54-13.

HISTOGRAM OF ZINC VALUES FOR FLEURIEU E.L.313.
SOIL GEOCHEM. 158 VALUES.

Frequency/ log x [p.p.m.]

Plan No.: SAa 165.

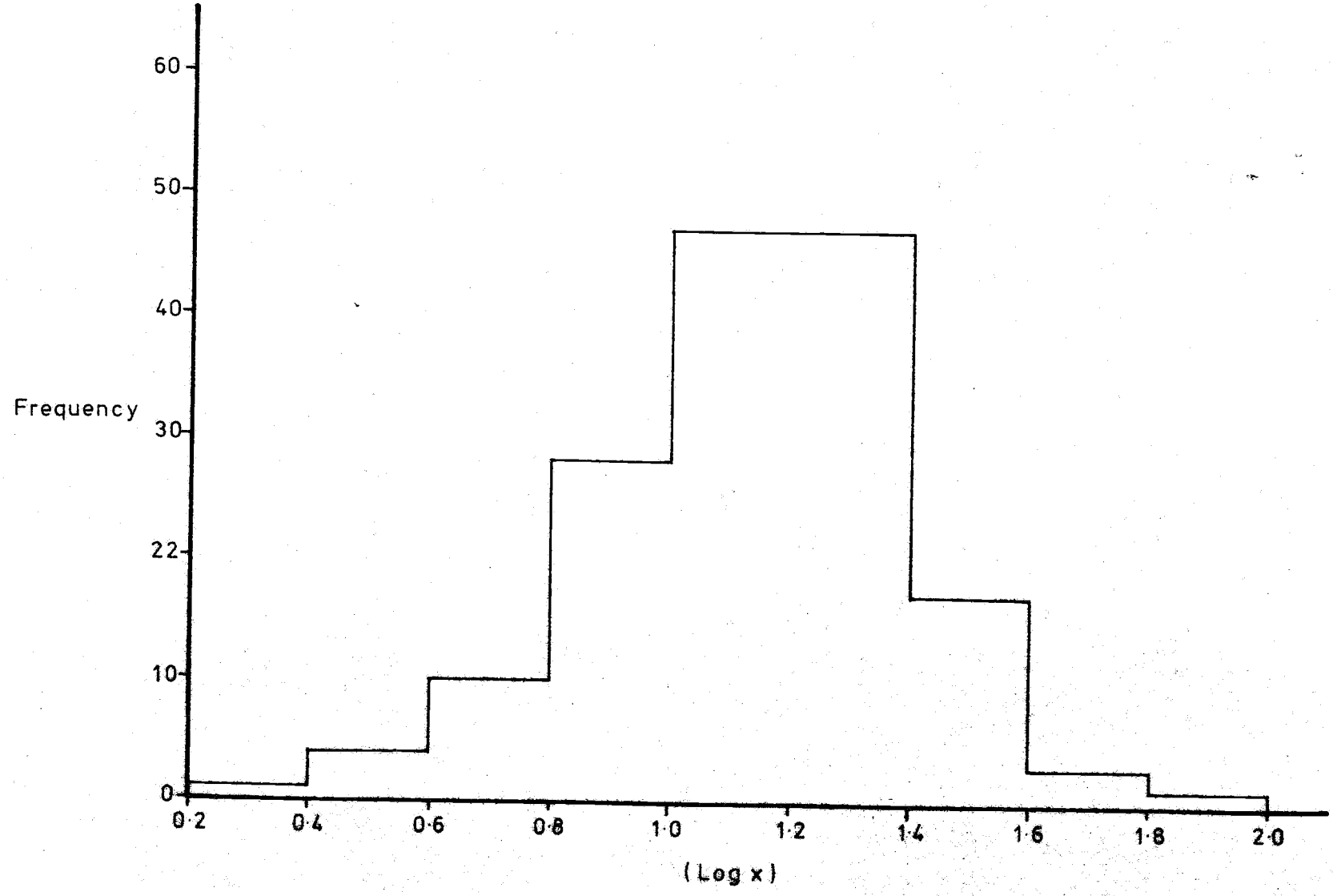


Sheet Ref.: BARKER S154-13.

HISTOGRAM OF COPPER VALUES FOR FLEURIEU EL.313
SOIL GEOCHEM. 158 VALUES.

Frequency / (log x).

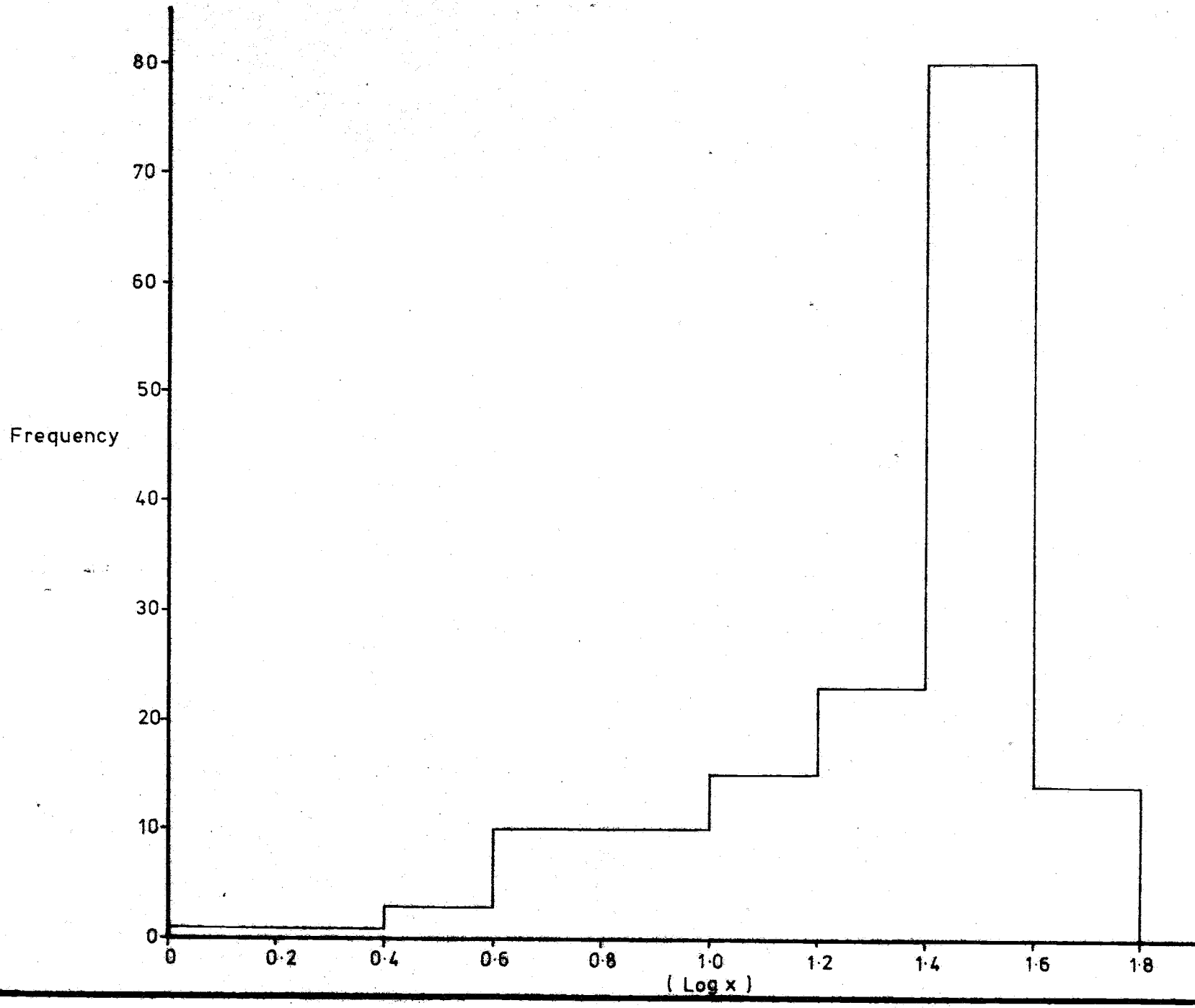
Plan No.: SAa 166.



Sheet Ref.: BARKER SI54-13.

HISTOGRAM OF NICKEL VALUES FOR FLEURIEU. E.L.313.
SOIL GEOCHEM. 157 VALUES.
Frequency/ (log x).

Plan No.: SAa 167.

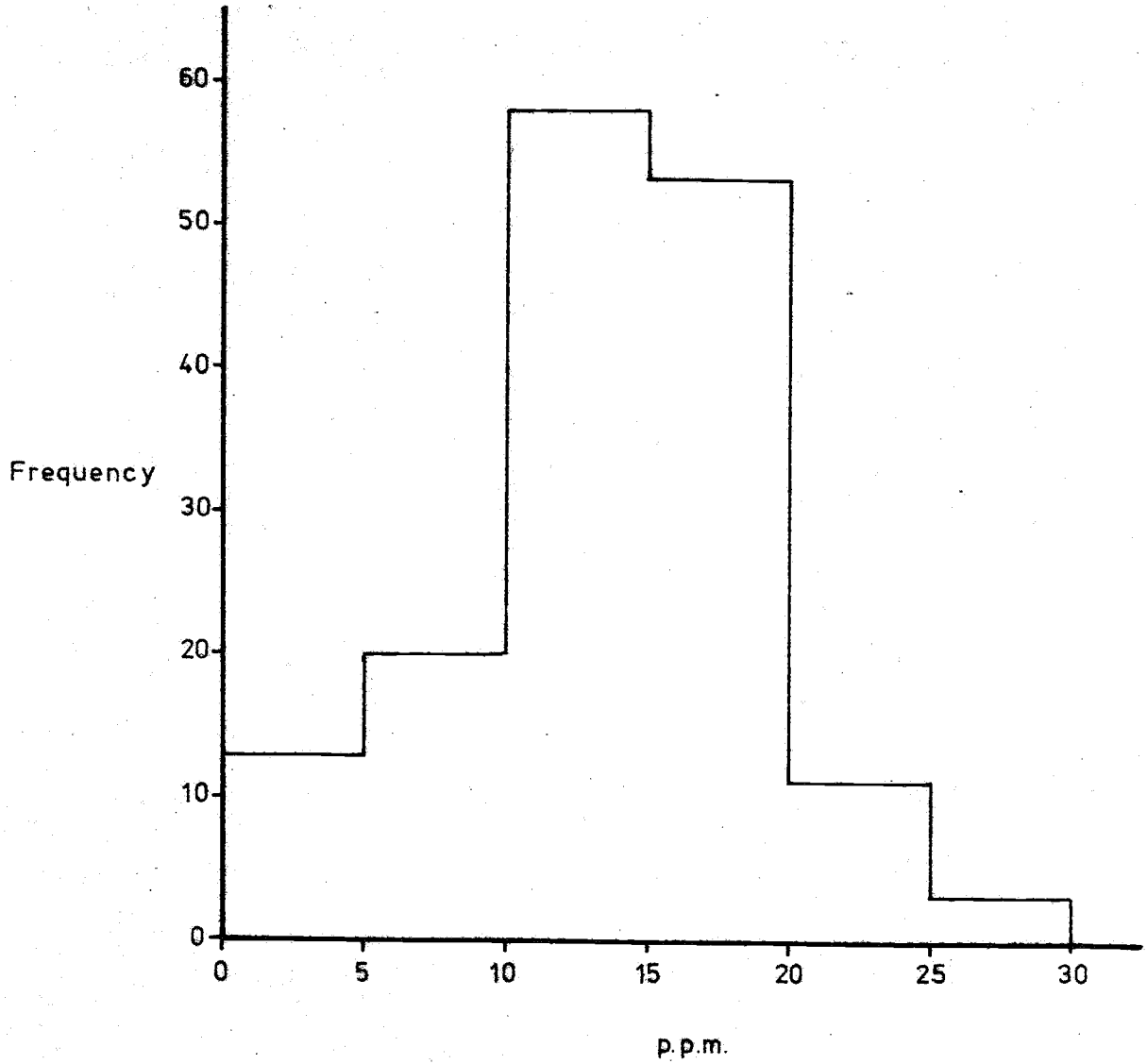


Sheet Ref.: BARKER SI 54-13.

HISTOGRAM OF COBALT VALUES FOR FLEURIEU E.L.313.
SOIL GEOCHEM. - 158 VALUES.

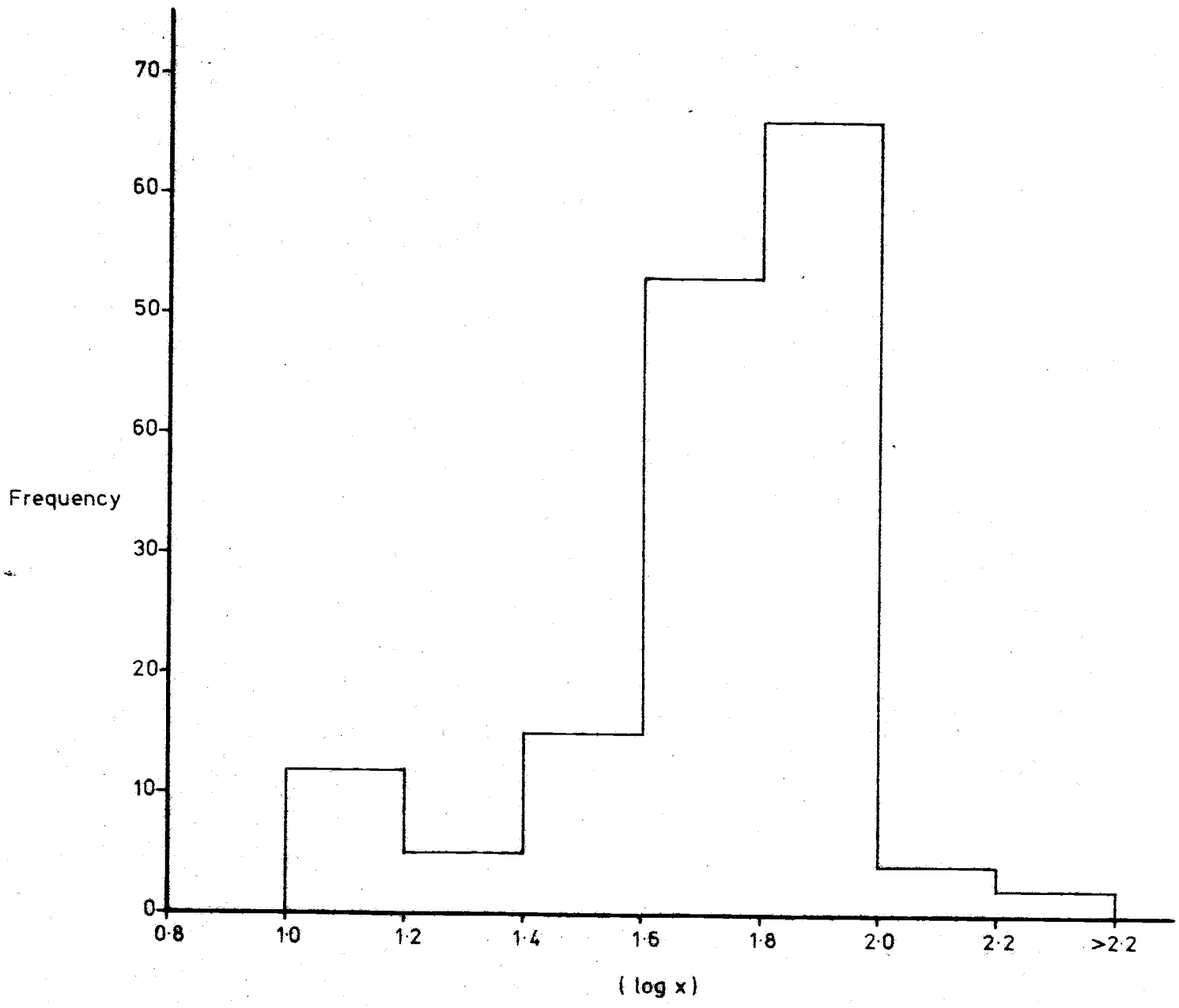
Frequency / x (p.p.m.)

Plan No.: SAo 168.



Sheet Ref.: BARKER SI 54-13.

HISTOGRAM OF CHROMIUM VALUES FOR FLEURIEU E.L. 313
SOIL GEOCHEM. 157 VALUES.
Frequency/ (log x).
Plan No SAa 169.

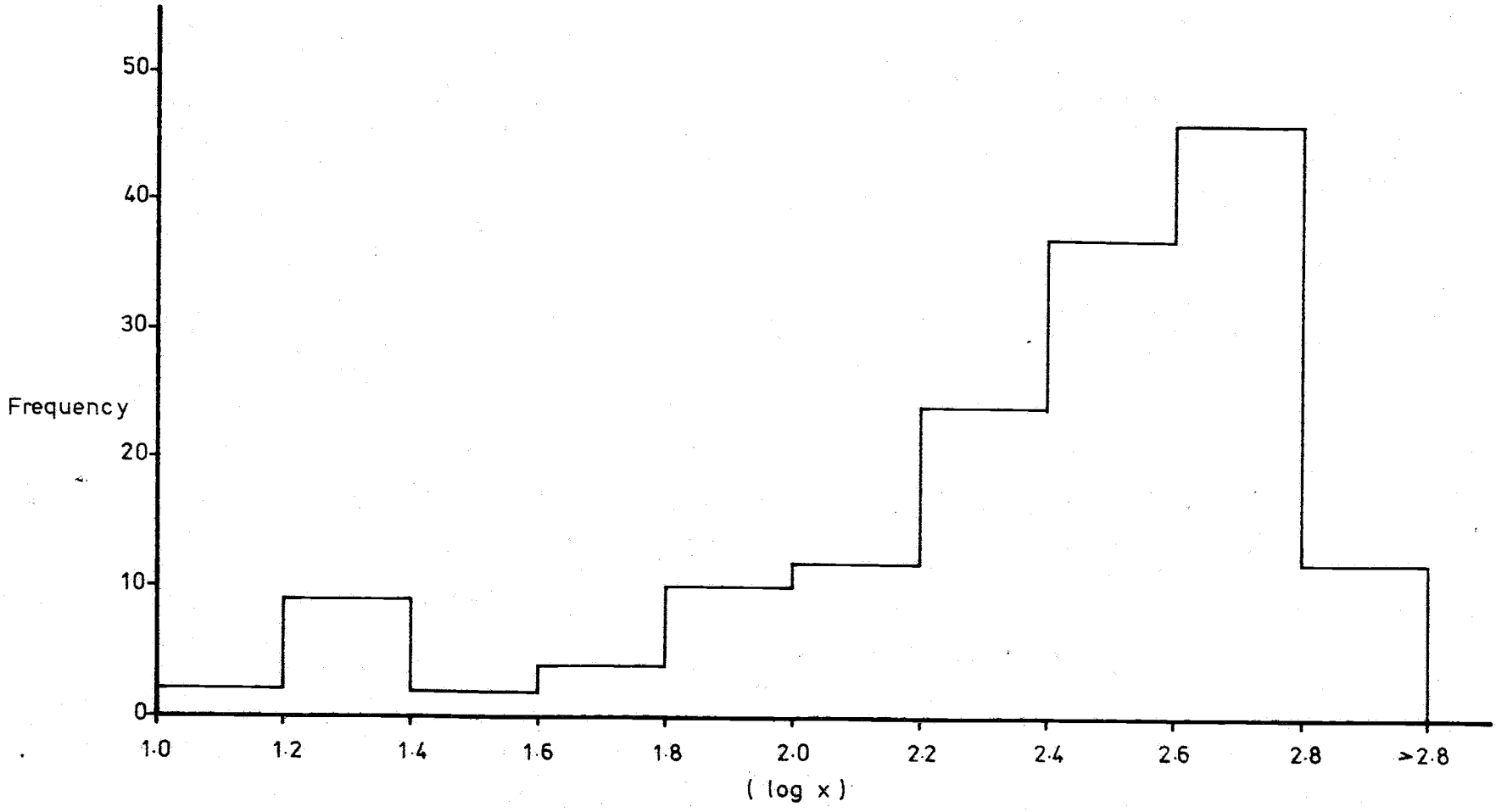


Sheet Ref.: BARKER SI54-13.

HISTOGRAM OF MANGANESE VALUES FOR FLURIEU EL 313 SOIL GEOCHEM – 158 VALUES.

Frequency/(log x)

Plan No.: SAa 170.



C.R.A. EXPLORATION PTY. LIMITED
(INC. IN N.S.W.)
95 COLLINS STREET, MELBOURNE, AUSTRALIA 3001

096

P.O. BOX 384D
TELEPHONE: 63 0491
TELEGRAMS: "CONRIO"
TELEX AA 30108

11th April, 1978.

The Director of Mines,
P.O. Box 151,
EASTWOOD, S.A. 5063

Dear Sir,

E.L. 313 - Fleurieu, S.A.
Final Report

Enclosed is a report by D. O. Mason entitled "Final Report on Fleurieu E.L. 313, South Australia" dated 8th March, 1978.

Final expenditure to 28th February, 1978 amounted to $8,519 comprising:

Salaries	$1,586
Wages	606
General Supplies	805
Vehicles	448
Travel and Accommodation	482
Contractors	750
Assaying	2,198
General Overheads	1,644
	$8,519

This E.L. is part of a group of E.L.'s held by CRAE in the Kanmantoo Trough in which the target of pyrite associated base metals is identical in each case. Exploration is therefore being pursued as a single project rather than on an E.L. by E.L. basis, with the consequence that, although the total amount spent is in excess of the total required commitment, there may be underexpenditure on some titles and overexpenditure on others.

Yours faithfully,

SAF:jm

for: J. Collier
General Manager

C.R.A. EXPLORATION PTY. LIMITED

FINAL REPORT ON FLEURIEU E.L. 313.

SOUTH AUSTRALIA.

AUTHOR: D.O. MASON

SUBMITTED TO: G. D. KLINGNER

DATE: 8 MARCH 1978.

CONTENTS

1. SUMMARY

Work conducted during the year of tenure of E.L. 313 comprised a review of all exploration carried out in the area, and the completion of a regional soil sampling programme over all known pyritic units within the Brukunga Formation.

The geochemical results were not encouraging. A simple statistical analysis was conducted on these results and the only area of interest was revisited. This field inspection and the results of rock chip samples reaffirmed the conclusion that no results were highly anomalous in base metal values and that no further work should be conducted in the area.

Following this conclusion it was recommended that E.L. 313 be relinquished.

2. INTRODUCTION

On the basis of encouraging results from work carried out by C.R.A.E. elsewhere in the Kanmantoo Trough, E.L. 313 was applied for, in order to be able to explore for base metal orebodies associated with the pyritic units of the Brukunga Formation. E.L. 313 was granted to C.R.A.E. on 21/4/77 and covered an area of 171 square kilometres from Victor Harbour west to Tunkalilla Beach.

3. CONCLUSIONS

Stream sediment sampling by Comstock Minerals Ltd. in 1971, plus rock chip, soil, and stream sediment sampling programmes by the S.A. Mines Department did not produce any anomalous area. However it was found that the pyritic units of the Brukunga Formation contained higher base metal values than the surrounding rocks.

The results from the regional soil sampling programme conducted by C.R.A.E. during the last year were much as expected and not very encouraging. Traverses were spaced 500 m apart over the strike length of the pyritic units with samples every 25 m extending to 250 m either side of the mapped pyritic units.

The maximum non-coincident soil rock chip values received were 440 ppm Pb and 380 ppm Zn. Maximum non-coincident values taken from the promising zone were of much the same order of magnitude - 450 ppm Pb and 154 ppm Zn. This lack of upgrading of the assay values from follow-up sampling downgraded the prospectivity of the whole E.L. and thus its relinquishment was recommended.

4. GEOCHEMICAL SOIL SAMPLING PROGRAMME

Soil samples have been taken over and along strike from all previously mapped pyritic units within the E.L. Access was relatively difficult in the rugged, southern portions of the E.L. but traverses are roughly at 500 metre spacings. The length of traverses was variable with a minimum coverage of 250 metres either side of any mapped pyritic unit. The sample spacing was 25 metres. Orientation soil sampling elsewhere in the Kanmantoo Trough had indicated that shallow soil sampling was sufficient to pick up dispersion haloes of base metals associated with pyritic units of the Brukunga Formation. The samples were collected 10-50 cm below the surface which, because of the relatively shallow soil horizon in the south eastern Mt. Lofty Ranges, was often within the 'C' horizon. Where outcrop was good, rock chip samples were taken. Care was taken when collecting samples from ploughed paddocks that the collection depth was below the area of surface soil disturbance. The samples were then totally crushed and assayed for Pb, Zn, Cu, Ni, Co, Cr, Mn by A.A.S. by the Zinc Corporation. One sample in every traverse was also assayed for Au, U, Sn, W, Mo and As.

A total of 315 soil samples were collected and subjected to statistical analysis. It was found that every second sample could be used in this treatment and give very similar results to those received when every sample was used.

Where histograms of the raw data were highly skewed as it was with most elements, more meaningful results were achieved by converting all data to a logarithmic base. This method gave results showing approximately normal distribution of data on the histogram and thus a realistic mean and standard deviation could be calculated. The data was classified into groups based on standard deviation values.

The mean, standard deviation, and the five groupings of values have been calculated for Pb, Zn, Cu, Ni, Co, Cr, Mn (see Table 1.).

The distribution of all samples grouped in these five intervals has been examined within the area of the Fleurieu E.L. The only interesting area produced from the statistical analysis was the Newland Hill area traversed on Traverses 1 and 2 in The Hundred of Encounter. This area was inspected again, rock chip samples were taken of the 3-5 m wide weakly iron-stained fine-grained siltstone/phyllite, but the assay values received did not upgrade the area at all, and thus no further work was recommended within E.L. 313.

D. O. Mason.

D. O. MASON

REFERENCES

Mason D. O. First, Second & Third Quarterly Reports on Fleurieu E.L. 313 South Australia.

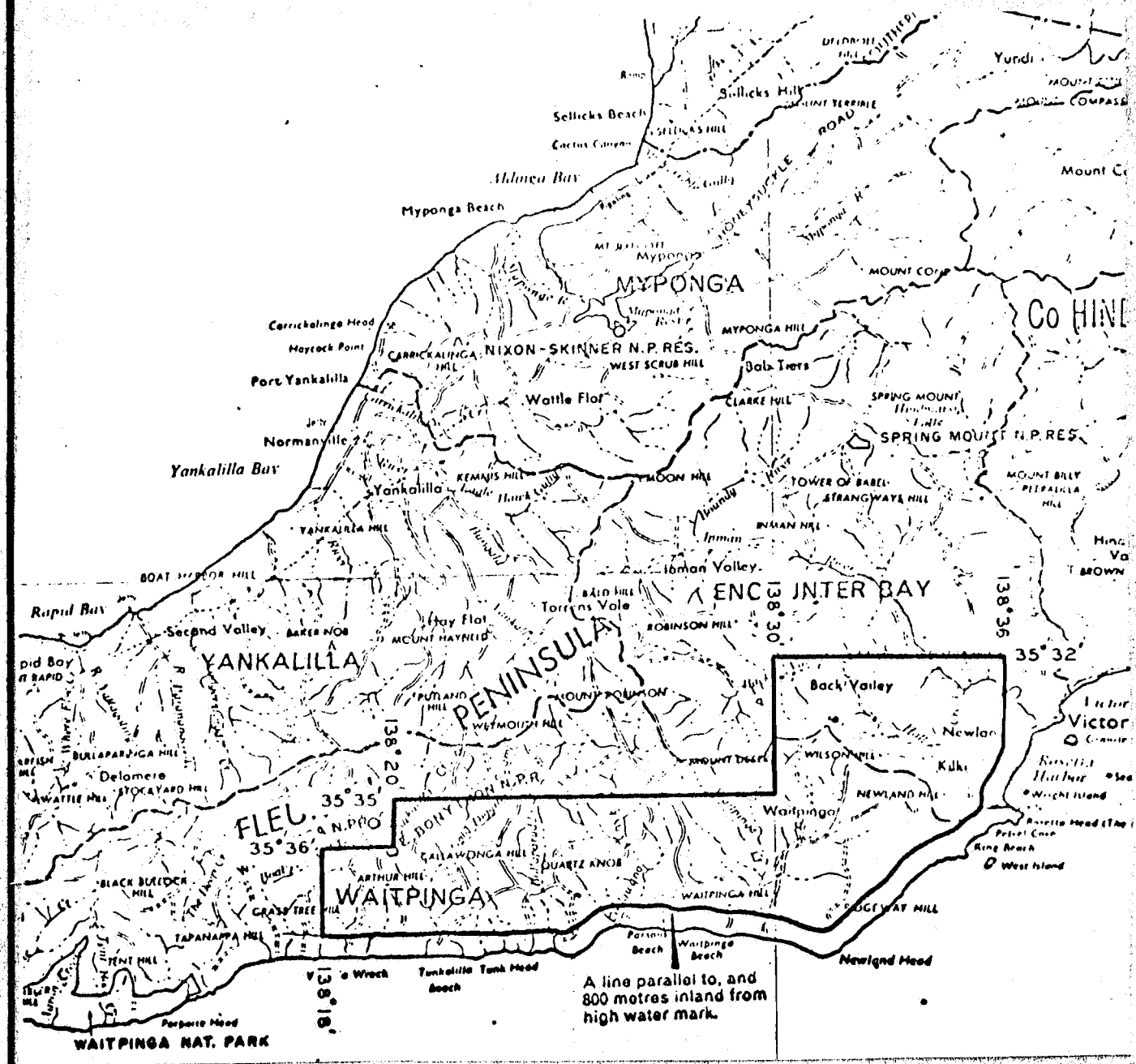
KEYWORDS

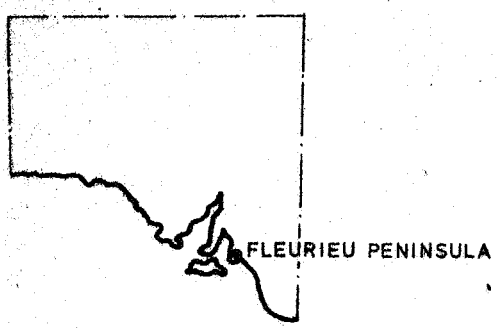
Locality Barker Sl 54-13.
Kanmantoo Group, lead, zinc, copper, pyrite, black shale, metasediments, soil sampling, rock chip sampling, stream sediment sampling.

LIST AT ATTACHMENTS

SAa 99 Location Map 1:250,000
SAa 94 Geological map showing rock chip and soil traverse locations. 1:50,000

Appendix 1. Rock chip sample logs
Appendix 2. Extra Element analyses soil sample logs.
Table 1.





C.R.A. EXPLORATION PTY LIMITED

FLEURIEU E.L. 313.
LOCATION MAP.

SHEET REFERENCE BARKER SI 54-13

Geologist: D.O.M.	Scale: 1:250 000	Drawn: C. McL.
Report No. 4223	Date: August, '77	Plan No. SAa 99

APPENDIX 1.

GEOCHEMICAL ROCK CHIP SAMPLING

Area / Prospect: EL 313 Sample Nos.: 699202 - 3 Analysed by: ZC

Plan Reference: _____ D.P.O. No.: _____ Collected by: D.O. MASON Date: _____

Sample No.	Metal Content in p.p.m									Remarks.
	Pb	Zn	Cu	Ni	Mn	Ag				
699202	290	154	75			<1				3-5m wide weakly Fe stained siltstone
699203	450	71	57			<1				" " " " " "

APPENDIX 2.

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality Flewin EL 317

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

EXTRA ELEMENT ANALYSES — SOIL SAMPLES. Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697123	Encounter Bay 1	21	210						
24		17	230						
25		18	350						
26		9	290						
27		13	350						
28		8	190						
29		6	10						
30		8	120						
31		10	200						
32		15	310						
33		19	210						
34	Encounter Bay 2	9	170						
35		14	270						
36		10	90						
37		18	400						
38		19	550						
39		19	230						
40		19	170						
41		17	500						
42		13	270						
43		14	310						
44		20	380						
45		24	290						
46	Encounter Bay 3	17	520						
47		13	440						
48		17	500						
49		17	500						
50		15	210						
51		18	230						
52		13	500						
53		15	420						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality EL 313

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697154		15	400						
55		17	460						
56		15	380						
57		18	330						
58		18	170						
59		17	550						
60		13	350						
61	Encounter Bay 4	1	70						
62		22	250						
63		4	90						
64		3	130						
65		6	180						
66		5	150						
67		14	400						
68		9	50						
69		17	460						
70		16	500						
71		18	500						
72		17	490						
73		17	640						
74	Encounter Bay 5	15	440						
75		17	420						
76		13	370						
77		6	120						
78		15	400						
79		15	420						
80		14	420						
81		15	440						
82		14	550						
83		11	220						
84		15	370						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality.....

Beaker Tray No. .....Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697185	Encounter Bay 6	15	270						
86		6	110						
87		15	350						
88		17	420						
89		14	420						
90		14	400						
91		14	330						
92		11	270						
93		15	320						
94		18	190						
95		15	170						
96	Encounter Bay 7	13	200						
97		11	200						
98		11	360						
99		10	200						
697200		13	190						
1		17	300						
2		10	190						
3		8	160						
4		5	100						
5		18	390						
6		14	410						
7	Encounter Bay 8	8	80						
8		17	280						
9		8	80						
10		14	250						
11		11	320						
12		12	190						
13		17	210						
14		13	310						
15		11	220						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality EL 713

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697216		13	220						
17		13	350						
18		13	270						
19	Encounter Bay 9	19	220						
20		6	120						
21		14	250						
22		4	110						
23		10	130						
24		11	120						
25		17	190						
26		19	180						
27		8	120						
28		5	70						
29		4	70						
30		18	120						
31	Waitpinga 1	4	80						
32		3	70						
33		14	170						
34		6	100						
35		13	150						
36		5	50						
37		6	70						
38		1	30						
39		8	110						
40		14	250						
41		3	50						
42	Waitpinga 2	7	90						
43		4	90						
44		2	50						
45		4	50						
46		9	150.						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality EL 313

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697145		6	90						
48		4	50						
49		4	50						
50		5	50						
51		6	30						
52		4	50						
53		6	50						
54		9	30						
55		9	20						
56	Waitpinga 3	25	780						
57		21	580						
58		17	500						
59		21	790						
60		24	640						
61		18	610						
62		23	750						
63		9	490						
64		3	40						
65		20	570						
66		14	420						
67		17	550						
68		10	280						
69		14	440						
70		17	440						
71		14	490						
72	Waitpinga 4	24	750						
73		26	750						
74		25	660						
75		19	770						
76		19	370						
77		19	380						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality EL 313

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697278		15	150						
79		24	520						
80		15	300						
81		19	440						
82		15	370						
83		19	570						
84		17	140						
85		18	440						
86		21	580						
87	Wait pulp 5	44	460						
88		6	20						
89		15	320						
90		12	230						
91		14	210						
92		21	290						
93		18	370						
94		16	460						
95		15	600						
96		15	520						
97		17	490						
98		18	520						
99		11	260						
697300		13	370						
1		11	390						
2		11	390						
3		15	400						
4		15	400						
5		4	40						
6		15	420						
7		17	750						
8	Wait pulp 6	12	580						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality EL 713

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697309		13	420						
10		12	370						
11		11	910						
12		9	210						
13		13	390						
14		15	420						
15		21	350						
16		14	390						
17		17	320						
18		18	490						
19		15	300						
20		17	460						
21	Wait pinga)	18	460						
22		20	300						
23		18	520						
24		21	540						
25		24	660						
26		22	490						
27		13	280						
28		22	370						
29		18	350						
30		9	260						
31		13	350						
32		11	300						
33		10	230						
34		12	240						
35		6	130						
36		15	450						
37		14	500						
38		17	500						
39		17	510						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality EL 313

Beaker Tray No. ..... Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697340		15	370						
341		12	600						
42	Waitpinga 8	14	400						
43		13	500						
44		14	450						
45		15	450						
46		15	440						
47		13	390						
48		13	370						
49		18	490						
50		15	470						
51	Waitpinga 9	25	740						
52		26	770						
53		24	770						
54		29	520						
55		24	330						
56		12	380						
57		10	350						
58		10	480						
59		13	420						
60		13	200						
61		15	430						
62	Waitpinga 10	21	570						
63		28	820						
64		25	800						
65		20	680						
66		14	400						
67		14	350						
68		14	420						
69		12	400						
70	Waitpinga 11	9	110						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality EL 313

Beaker Tray No. .....Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697371		14	500						
72		14	220						
73		15	450						
74		17	240						
75		4	130						
76		3	110						
77		10	180						
78		15	430						
79		3	130						
80		2	110						
81	Waitpinga 12	10	220						
82		8	210						
83		15	290						
84		12	240						
85		9	220						
86		10	200						
87		10	220						
88		5	110						
89		4	90						
90		3	110						
91		8	130						
92	Waitpinga 13	9	70						
93		8	90						
94		7	110						
95		11	180						
96		14	220						
97		12	180						
98		17	170						
99		14	110						
697400		10	130						
1		12	220						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality EL 717

Beaker Tray No. .....Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697402		10	180						
3	Waitpinga 14,	15	160						
4		15	100						
5		8	40						
6		4	20						
7		8	20						
8		8	20						
9		10	20						
10		9	40						
11		12	100						
12		14	110						
13		12	440						
14	Waitpinga 15	18	550						
15		18	570						
16		14	300						
17		18	460						
18		16	490						
19		15	630						
20		12	460						
21		10	300						
22		17	320						
23		14	350						
24		9	40						
25		1	<10						
26		1	<10						
27	Waitpinga 16	14	20						
28		14	20						
29		12	20						
30		10	20						
31		12	20						
32		11	20						

*Sample selected for routine check assay

C. R. A. EXPLORATION PTY. LIMITED
GEOCHEMICAL ANALYSIS

Sample Tray No..... Storage Box No. ..... Locality EL 313

Beaker Tray No. .....Weighed by..... D.P.O. .....

Date Weighed..... Date Completed..... A/c. No. .....

Tray checked in ☐

Determinations by									
Checked by									
		Co ppm	Mn ppm	Sn ppm	W ppm	Mo ppm	Au ppm	As ppm	U ppm
697.33		11	20						
34		12	20						
35		10	20						
36		9	20						
37		12	20						

TABLE 1.

	Pb		Zn		Cu		Ni		Co	Cr		Mn	
	log	ppm	log	ppm	log	ppm	log	ppm	ppm	log	ppm	log	ppm
Mean	1.04		1.64		1.14		1.33		13.7	1.72		2.37	
S.D.	0.27		0.29		0.27		0.31		5.45	0.25		0.43	
- 2SD.	0.50	3	1.06	11	0.60	4	0.71	5	3	1.22	17	1.51	33
- S.D.	0.77	6	1.35	22	0.87	7	1.02	10	8	1.47	30	1.94	87
	1.04	11	1.64	44	1.14	14	1.33	21	14	1.72	52	2.37	234
+ S.D.	1.31	20	1.93	85	1.41	26	1.64	44	19	1.97	93	2.80	631
+ 2SD.	1.58	38	2.22	166	1.68	48	1.95	89	25	2.22	166	3.23	1698

E.L. 313

4E 5E 6E 7E 3E 9E 8E 2W 1W 699202 699203 2E 1E 12W 13W 11W 16W 15W 14W 10W 9W 7W 8W 5W 6W 3W 4W

Tunkalilla Beach

Waitpinga Beach

E.L. 313

Newland Head

T Ferruginised sands and gravel

P Glacial and fluvioglacial deposits, cross-bedded silts and sands.

B Brukunga Formation - Pyritic phyllites and schists including the Nairne Pyrite Member.

I Inman Hill Formation - Coarse grained impure arkose.

12W Traverse 12 in Hundred of Waitpinga

4E Traverse 4 in Hundred of Encounter Bay

Geological boundary - approximate

Road.

Exploration Licence boundary.

30 50 - 1

C.R.A. EXPLORATION PTY LIMITED.

FLEURIEU E.L. 313 — GENERALISED GEOLOGY

Regional geology after B.P. Thomson (Barker 1:250 000) and B. Morris (1974).

SHEET REFERENCE BARKER SI 54-13

Geologist: D.O.M.	Scale: 1:50 000	Drawn: C.McL.
Report No.: 9016, 9223	Date: July, 1977	Plan No: SA a 94

FINAL