Open File Envelope No. 6532

EL 1315

MOUNT EBA

PROGRESS AND FINAL REPORTS TO LICENCE SURRENDER FOR THE PERIOD 10/1/86 TO 1/12/89

Submitted by
CRA Exploration Pty Ltd
1989

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Enquiries: Customer Services
Ground Floor
101 Grenfell Street, Adelaide 5000

Telephone: (08) 8463 3000
Facsimile: (08) 8204 1880

PRIMARY INDUSTRIES AND RESOURCES SA

CONTENTS ENVELOPE 6532

Transparencies in Cylinder 6532/1

+T = Transparency

TENEMENT: EL 1315 - Mt. Eba.

Survey Code: 86 SA 06

TENEMENT HOLDER: CRA Exploration Pty Ltd.

REPORT: Sugden, S P, 1986. First quarterly report for Mt Eba EL 1315, South Australia, for the period 9th April, 1986. (CRA Report no. 13885). Pgs 3-12

APPENDIX 1: Rock chip assay results. Pgs 13-20

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality plan.	1:250000	SAa 3552	Pg. 12
Rock chip samples.	1:100000	SAa 3763	6532-1
Magnetic contours Wallabying Range area.	1: 10000	SAa 4051	6532-2

REPORT: Sugden, S P, 1986. Second quarterly report for Mt Eba EL 1315, South Australia, for the period ending 9th July, 1986. (CRA Report no. 14067). Pgs 21-28

APPENDIX 1: Rock chip assay results. Pgs 29-30

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality map.	1:250000	SAa 3552	Pg. 28
Rock chip sample locations.	1:100000	SAa 3763	6532-3

REPORT: Sugden, S P, 1986. Third quarterly report for the period ending 9 October, 1986. (CRA Report no. 14183). Pgs 31-38

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality map.	1:250000	SAa 3552	Pg. 38
Archean and Proterozoic outcrop geology.	1:100000	SAa 4284	6532-4
Radiometric anomalies.	1:100000	SAa 4370	6532-5
Flight path map.	1:100000	SAa 4281	6532-6 + T
Residual magnetic contours.	1:100000	SAa 4282	6532-7 + T

REPORT: Sugden, S P, 1987. Fourth quarterly report for Mt Eba EL 1315, South Australia, for the period ending 9th January, 1987. (CRA Report no. 14309). Pgs 39-45

APPENDIX: Geoterrex Pty Ltd. 1986. Logistics report for an airborne magnetic and radiometric survey of the Coober Pedy Ridge, Mt Eba, Wadinna and Balta Baltana areas. Pgs 46-122

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality map.	1:250000	SAa 3552	Pg. 123
Lake Labyrinth West Grid.	1: 10000	SAa 4449	Pg. 124
Lake Labyrinth West Grid geology.	1: 10000	SAa 4450	Pg. 125
Composite magnetic contours.	1:100000	SAa 4483	6532-8
Magnetic anomalies.	1:100000	SAa 4481	6532-9

REPORT: Johnston, W H, 1987. Mt Eba EL 1315, South Australia. Report for the quarter ended 9th April, 1987. Pg. 126

Johnston, W H, 1987. Mt Eba EL 1315, South Australia. Report for the quarter ended 9th July, 1987. Pg. 127

Mackee, G L, 1987. Seventh quarterly report for Mt Eba EL 1315, South Australia, for the period ending 9th October, 1987. (CRA Report no. 14802). Pgs 128-136

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality map.	1:250000	SAa 3552	Pg. 136
Magnetic anomalies.	1:100000	SAa 4481	6532-10
Lake Labyrinth West Prospect, ground magnetic contours.	1: 10000	SAa 4749	Pg. 137
Lake Labyrinth West Prospect, gravity and magnetic profiles, Line 502200mE.	1: 10000	SAa 4735	Pg. 138
Gravity and magnetic model, Line 502200mE.	1: 10000	SAa 4755	Pg. 139
South Lake Prospect, Prospect Grid location.	1: 50000	SAa 4762	6532-11

REPORT: Palmer, D C, 1987. Eighth quarterly report for Mt Eba EL 1315, South Australia, for the period ending 9th January, 1988. (CRA Report no. 14936). Pgs 140-149

APPENDIX 1: Rock sample ledger - Glenloth Prospect. Pgs 150-152

APPENDIX 2: Drillhole log - DD87ME1. Pgs 153-154

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality plan.	1:250000	SAa 3552	Pg. 155
Rock chip sample locations.	1:100000	SAa 3763	6532-12
Lake Labyrinth West Grid geology and drillhole location - DD87ME1.	1: 10000	SAa 4450	Pg. 156
South Lake Prospect, Prospect Grid location.	1: 50000	SAa 4762	6532-13

REPORT: Palmer, D C, 1988. Ninth quarterly report for Mt Eba EL 1315, South Australia, for the period ending 9th April, 1988. (CRA Report no. 15109). Pgs 157-165

APPENDIX 1: Rock sample ledger - South Lake Prospect. Pgs 166-168

APPENDIX 2: Bedrock sample ledger - South Lake Tin Mine Grid. Pgs 169-175

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality plan.	1:250000	SAa 3552	Pg. 176
Magnetic anomalies.	1:100000	SAa 4481	6532-14
South Lake Prospect, Prospect Grid location.	1: 50000	SAa 4762	6532-15
South Lake Prospect, stacked magnetic profiles.	1: 25000	SAa 4860	6532-16

PLANS:

	Scale	Company Plan No.	SADME Plan No.
South Lake Prospect, Rock sample location plan.	1: 25000	SAa 4894	6532-17
South Lake Option - First schedule exploration area - Wilgena Area, South Australia.	1: 63360	SA 385	Pg. 177
South Lake Area - Plan showing costean location and weathered rock sample location and results.	1: 2000	SAa 118	6532-18

REPORT: Palmer, D C, 1988. Tenth quarterly report for Mt Eba EL 1315, South Australia, for the period ending 9th July, 1988. (CRA Report no. 15225). Pgs 178-187

APPENDIX 1: Drill hole log - DD88ME2. Pgs 188-196

APPENDIX 2: South Lake Prospect gravity data. Pgs 197-209

APPENDIX 3: Bedrock sample ledger - South Lake Tin Mine Grid. Pgs 210-216

APPENDIX 4: Petrological report numbers 5222 and 5268. Pgs 217-236

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality plan.	1:250000	SAa 3552	Pg. 237
Lake Labyrinth West Grid, geology with drill hole locations.	1:100000	SAa 4450	Pg. 238
South Lake Prospect, Prospect grid location.	1: 50000	SAa 4762	6532-19
South Lake Prospect, stacked gravity profiles.	1: 25000	SAa 4898	6532-20
South Lake option - First schedule exploration area, Wilgena area - South Australia.	1: 63360	SA 385	Pg. 239
South Lake area - Plan showing costean location and weathered rock sample location and results.	1: 2000	SAa 118	6532-21
South Lake Prospect, Rock sample location plan.	1: 25000	SAa 4894	6532-22
Gravity and magnetic model, Line 502200mE.	1: 10000	SAa 4755	Pg. 240

REPORT: Palmer, D C, 1988. Eleventh quarterly report for Mt Eba EL 1315, South Australia, for the period ending 9th October, 1988. (CRA Report no. 15445). Pgs 241-251

APPENDIX 1: Drill hole log/geochemical assays. Pg. 252

- Log DD88ME2	Sheet 1	6532-23
	Sheet 2	6532-24
	Sheet 3	6532-25
	Sheet 4	6532-26
	Sheet 5	6532-27
	Sheet 6	6532-28
	Sheet 7	6532-29
	Sheet 8	6532-30

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality plan.	1:250000	SAa 3552	Pg. 253
Lake Labyrinth West grid, geology and drill hole locations.	1:100000	SAa 4450	Pg. 254
Lake Labyrinth West Prospect DD88ME2 drill hole logs.	1: 500	SAa 5004	6532-31

PLANS:

	Scale	Company Plan No.	SADME Plan No.
South Lake Prospect grid location and extensions.	1: 50000	SAa 4672	6532-32
South Lake Prospect grid ground magnetics stacked profiles.	1: 25000	SAa 4860	6532-33

REPORT: Palmer, D C; Mackee, G L, 1989. Twelfth quarterly report for Mt Eba EL 1315, South Australia, for the period ending 9th January, 1989. (CRA Report no. 15658). Pgs 255-265

APPENDIX 1: Drill hole DD88ME2 geological logs and geochemical assays. Pg. 266

- Log DD88ME2	Sheet 1	6532-34
	Sheet 2	6532-35
	Sheet 3	6532-36
	Sheet 4	6532-37
	Sheet 5	6532-38
	Sheet 6	6532-39
	Sheet 7	6532-40
	Sheet 8	6532-41

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality plan.	1:250000	SAa 3552	Pg. 267
South Lake Prospect grid location.	1: 50000	SAa 4762	6532-42
South Lake Prospect Bouguer gravity and magnetic profiles.	1: 10000	SAa 5028	6532-43
South Lake Prospect SIROTEM profile, Line 496000mE.	1: 5000	SAa 5048	Pg. 268
South Lake Prospect SIROTEM profile, Line 496400mE.	1: 5000	SAa 5049	Pg. 269
South Lake Prospect SIROTEM profile, Line 499200mE.	1: 5000	SAa 5050	6532-44
Lake Labyrinth West Prospect DD88ME2 drill hole logs.	1: 500	SAa 5004	6532-45

REPORTS: Palmer, D C; 1989. EL 1315 Mt. Eba - Thirteenth quarterly report for the period ending 9th April, 1989. Pg. 270

Palmer, D C; 1989. EL 1315 Mt Eba - Fourteenth quarterly report for the period ending 9th July, 1989. Pg. 271

Palmer, E C; Mackee G L; 1989. Fifteenth quarterly report for Mt Eba EL 1315, South Australia, for the period ending 9th October, 1989. (CRA Report no. 16191). Pgs 272 - 281

APPENDIX 1: South Lake Prospect infill gravity data. Pgs. 282-284

APPENDIX 2: Hopeful Hill - Rock sample ledger. Pgs 285-286

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Locality plan.	1:250000	SAa 3552	Pg. 287
South Lake Prospect Grid location and SIROTEM coverage.	1: 50000	SAa 4762	6532-46
South Lake Prospect Bouguer gravity and ground magnetic profiles.	1: 10000	SAa 5028	6532-47
South Lake Prospect stacked magnetic profiles.	1: 25000	SAa 4860	6532-48
South Lake Prospect rock sample location plan.	1: 25000	SAa 4894	6532-49
South Lake Prospect Line 499200mE. Geophysical model.	1: 10000	SAa 5207	Pg. 288

REPORT: Palmer, D C, 1989. Final and relinquishment report for Mt Eba EL 1315, South Australia 1st December, 1989. (CRA Report no. 16304). Pgs 289-305

APPENDIX 1: Abandon Holdings drill hole DH 1A - drill hole log and assays. Pgs 306-311

APPENDIX 2: Hopeful Hill - Rock sample ledger. Pgs 312-313

APPENDIX 3: Lake Labyrinth Prospect - Lithological drill hole log (DD88ME2) and geochemical assay data. Pg. 314

- Log DD88ME2 Sheet 1 6532-50
  Sheet 2 6532-51
  Sheet 3 6532-52
  Sheet 4 6532-53
  Sheet 5 6532-54
  Sheet 6 6532-55
  Sheet 7 6532-56
  Sheet 8 6532-57

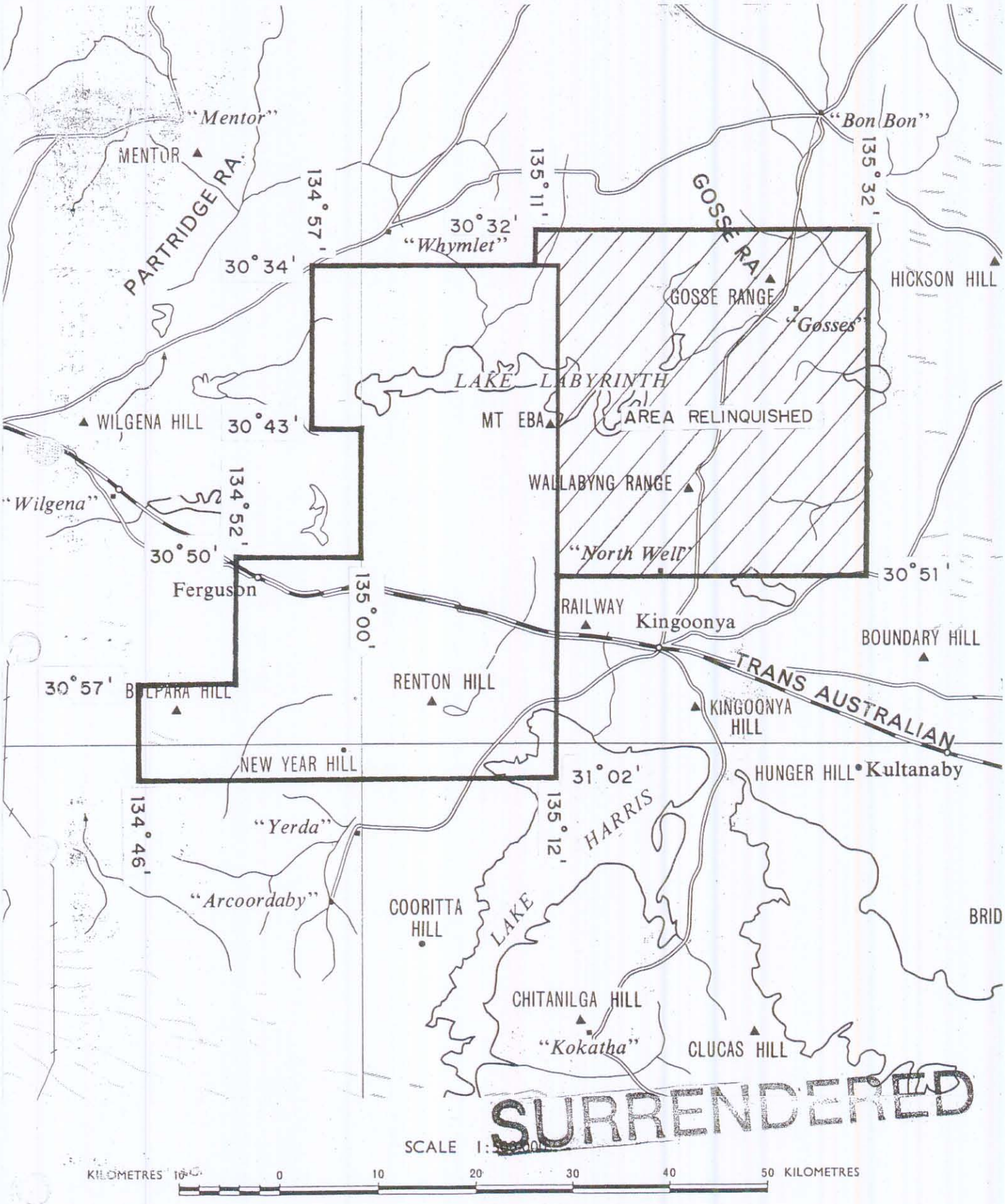
PLANS:

	Scale	Company Plan No.	SADME Plan No.
Location plan.	1:250000	SAa 5332	Pg. 315
Airborne geophysical survey boundary and sheet index.	1:250000	SAa 3765	Pg. 316
Proterozoic and Archaean outcrop geology.	1:100000	SAa 4284	6532-58
Magnetic anomalies.	1:100000	SAa 4481	6532-59

PLANS:

	Scale	Company Plan No.	SADME Plan No.
Gravity and magnetic model, Line 502200mE.	1: 10000	SAa 4755	Pg. 317
South Lake Prospect. Grid locations with drill hole locations.	1: 50000	SAa 4762	6532-60
Rock chip samples.	1:100000	SAa 3763	6532-61
South Lake Prospect. Base map.	1: 25000	SAa 4893	6532-62
South Lake Prospect. Rock sample location plan.	1: 25000	SAa 4894	6532-63
Lake Labyrinth Prospect, DD88ME2 drill logs.	1: 500	SAa 5004	6532-64
South Lake Prospect Bouguer gravity and magnetic profiles.	1:100000	SAa 5028	6532-65
South Lake Prospect SIROTEM profile, Line 499200 mE.	1:100000	SAa 5050	Pg. 318
Radiometric anomalies.	1:100000	SAa 4370	6532-66

SCHEDULE A ✓



APPLICANT: CRA Exploration Pty Limited

DM: 233/85

AREA: ~~2566~~ 1440 square kilometres (approx.)

1:250 000 PLANS: Tarcoola, Kingoonya, Childara, Gairdner

No. 13956

LOCALITY: MT EBA AREA - immediately northwest of Kingoonya

DATE GRANTED: 10-1-86

DATE EXPIRED: 9-1-87 ~~88~~ 90

EL No: 1315

ENV 6532.

SEPARATELY HELD DATA

EL 1315

1) Data Tapes (Held by Geophysics Section)

SURVEY	YEAR	CONTRACTOR	TAPE NO./OTHER DATA
MAGNETIC / RADIOMETRIC	1986	Geoterrex	86 SA 06 (3 located and 1 gridded data tape).

2) Drill Samples (Held in SADME Core Libraries)

HOLE NO.	SAMPLE ~~INTERVAL~~	CORE LIBRARY
DD 88ME2	302m. Core	Glenside.

3) 35mm Slides (Held by Photographic Projects Group)

SURVEY/SUBJECT	REF.	NO. OF SLIDES

4) Transparencies (Held at Glenside)

Transparency Cylinder No.	Plan Title	Scale	Company Plan No.	SADME Plan No
6532/1	Residual magnetic contours and flight path plots	1:100000	SA_a 4282	6532-7
			SA_a 4281	6532-6

I

CRA EXPLORATION PTY. LIMITED

FIRST QUARTERLY REPORT FOR MT. EBA E.L. 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH APRIL, 1986.

The contents of this report remain the property of C.R.A. Exploration Pty. Limited and may not be published in whole or in part nor used in a company prospectus without the written consent of the Company.

AUTHOR: S.P. SUGDEN

COPIES TO: CIS CANBERRA
SADME

DATE: 7TH APRIL, 1986

SUBMITTED BY:

ACCEPTED BY:

RECEIVED
6 MAY 1986
DEPT. OF MINES AND ENERGY SECURITY
6532

CONTENTS

	PAGE
1. SUMMARY	1
2. CONCLUSIONS AND RECOMMENDATIONS	1
3. INTRODUCTION	1
4. PREVIOUS WORK	1
4.1 S.A.D.M.E.	2
4.2 Asarco Aust. Pty. Ltd.	2
4.3 Abadon Holdings N.L.	2
4.4 Australian Development N.L.	2
4.5 Amoco Minerals Australia Co.	3
4.6 B.H.P. Minerals Ltd.	3
4.7 Aberfoyle Exploration/Afmeco Pty. Ltd.	3
4.8 Clarence R. Basin Oil Exploration Co. N.L.	3
4.9 North Australia Petroleum Co. Ltd.	3
4.10 Getty Mining Pty. Ltd.	3
4.11 Carpentaria Exploration Co. Pty. Ltd.	4
5. WORK CARRIED OUT	4
EXPENDITURE	6
LOCATION	7
KEYWORDS	7
LIST OF PLANS	7
LIST OF APPENDICES	7

1. SUMMARY

A literature search was completed of all previous open file S.A.D.M.E. reports relating to the area. Base plans were drawn up and 27 rock chip samples collected and analysed for a suite of elements. A ground magnetic survey (totalling 145.1 line km) in the Wallabying Range area was completed and a contract was let to Geoterrex Pty. Ltd. for a detailed radiometric and magnetic airborne survey.

2. CONCLUSIONS AND RECOMMENDATIONS

Future work programs will be largely based on assessment of the airborne geophysical data and further interpretation of the Wallabyng Range grid magnetic data.

3. INTRODUCTION

Mt. Eba E.L. 1315 is located on the Kingoonya 1:250,000 sheet and adjoining parts of the Tarcoola, Childera and Gardiner 1:250,000 sheets (see plan SAa 3552). The licence was granted to CRA Exploration Pty. Limited on the 9th January 1986 for a period of one year.

E.L. 1315 covers an area of approximately 2566km^2 and is located on parts of the Wilgena, Bon Bon and North Well stations.

The country is semi-arid pastoral lease lands with access being gained by district council roads and station tracks.

4. PREVIOUS WORK

A literature search of open file reports was completed and the following is a summary of work completed on and adjacent to Mt. Eba E.L. 1315.

4.1 S.A.D.M.E.

1973, 1976-79. Env. 1582, 2797, 3200.
In association with AMDEL, petrological and Rb/Sr studies on drill cores and rocks.

1972. RB 72/91 and MRR136, pp. 38-45.
Sampling and assaying of granites in the Glenloth, Kingoonya area for tin and other elements.

1976. MRR 144, pp. 81-95.
Geochemical stream sediment sampling for Sn, Mo and Au in the Earea Dam and Glenloth mining fields.

1977. SADME.
Aerial Magnetic and radiometric survey - Tarcoola 1:100,000 sheet.

4.2 Asarco Australia Pty. Ltd.

1963. Env. 1880.
Geochemical assay of drill hole and bore spoil held by the SADME for Cu, Pb, Zn and U.

4.3 Abadon Holdings N.L.

1970. Env. 1409.
Geological mapping and soil and rock geochemistry.

1972. Env. 2071.
Ground magnetic surveys, soil and rock geochemistry.

1972. Env. 2276.
Geophysical surveys, using resistivity, I.P. and S.P. methods, and drilling.

4.4 Australian Development N.L.

1966. Env. 650.
Geological mapping, sampling and drilling of stanniferous greisens.

4.5 Amoco Minerals Australia Co.

1980-82. Env. 3726, 3961, 3822, 4033, and 4896.
Reprocessing of SADME aerial magnetic data, detailed ground magnetic and gravity surveys, geological mapping. Drilling of selected anomalies, 8 drill holes totalling 818m, soil and rock chip sampling.

4.6 B.H.P. Minerals Ltd.

1982. Env. 3726.
38 Drill holes totalling 928m on ground magnetic anomalies.

4.7 Aberfoyle Exploration/Afmeco Pty. Ltd.

1978-81. Env. 5234.
Aerial magnetic and gravity surveys with I.P. surveys over selected areas. Geological mapping. 3519m R.C. drilling. Rock and water samples for U. Tertiary drainage channel identified. Minor coal measures identified.

4.8 Clarence R. Basin Oil Exploration Co. N.L.

1959-60. Env. 52 and 55.
Field mapping, borehole logging and paelontological reports.

4.9 North Australian Petroleum Co. Ltd.

1965. Env. 493.
Aeromagnetic contours.

4.10 Getty Mining Pty. Ltd.

1975. Env. 2682.
Airborne radiometric survey and limited follow-up.

4.11 Carpentaria Exploration Co. Pty. Ltd.

1980. Env. 3509.
Drilling of 4 holes with 878m sampled.

5. WORK CARRIED OUT.

A base plan was drawn up at 1:100,000 scale for the licence.

Twenty-seven rock chip samples were collected (Table 1). These were analysed for Cu, Pb, Zn, Bi, Ag, Mo, Au, Ni, Co, Cr, Fe, Mn, As, Ba, Ce, La, Sn, U and W. Results are attached in Appendix 1 and locations plotted on plan SAa 3763. Slightly elevated assay values in samples 1159716, 717 and 728 were associated with a thin iron/manganese rich gossan over a weathered basic rock. All other assays were normal for the lithologies sampled.

From open file data an area of complex magnetic activity located in the Wallabyng Range area was selected for further work. A detailed ground magnetic survey totalling 145.1 line km. was completed over the area and a contour plan (SAa 4051) compiled. Further interpretation of this data is planned.

Quotes were invited from 4 contractors to a detailed radiometric and magnetic airborne survey. A contract was subsequently let to Geoterrex Pty. Ltd. 1:87,000 photography was acquired over the licence. Other open file data from previous surveys over parts of the licence were collected and will be appended to the above survey, gridded and contoured to the same specifications.

S.P. SUGDEN

SPS/dp

TABLE 1

Rock Sample Descriptions

1159702	Medium-coarse grained granite
1159703	Coarse grained quartzite
1159704	Banded rhyolite
1159705	Iron rich rhyolite
1159706	Ironstone
1159707	Acid tuff?
1159708	Medium grained mafic
1159709	Wilgena Jasperlite
1159710	Grit
1159711	Angular conglomerate
1159712	Mafic
1159713	Siliceous BIF
1159714	Porphyritic rhyolite (?G.R.V.)
1159715	Quartzite/feldspar/biotite granite
1159716	Concretionary iron gossan
1159717	Mn rich section of above gossan
1159718	BIF
1159719	Porphyritic rhyolite
1159720	Silicified quartz hematite breccia
1159721	Buck quartz
1159722	Sericitic quartz schist (Tarcoola beds?)
1159723	Iron rich gossan
1159724	Breccia
1159725	Hematitic breccia
1159726	Fuchsitic cobble
1159727	Gossanous o/c
1159728	Mafic rock

EXPENDITURE

Expenditure for the period ending 31st March, 1986 the nearest accounting period was $49,175.00, as listed below.

		$
Payroll		15,042
Supplies		2,630
Vehicle		2,478
Travel		3,474
Rent		1,739
Tenement		4,843
Contractors		14,501
Overheads		3,937
	Total	$ 49,175

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Data review, Geophysics, Geochemistry, Magnetics, Base Metals.

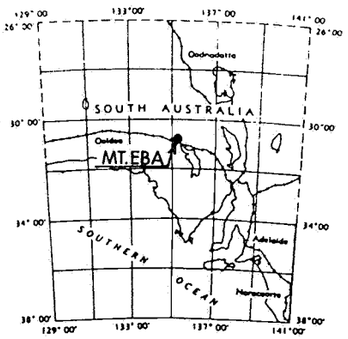
LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba E.L. 1315 - Locality Map	1:250 000
SAa 3763	Mt. Eba E.L. 1315 - Rock Chip Samples	1:100 000
SAa 4051	Magnetic Contours Wallabyng Range Area	1: 10 000

LIST OF APPENDICES

Appendix 1 Rock Chip Assay Results

LOCALITY



CRA EXPLORATION PTY LIMITED

MT. EBA E.L.A. — S.A.
LOCALITY PLAN

REF.	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15	
SCALE	1 : 250 000	
AUTHOR	I.D.F.	REPORT 13885
DATE	April '86	PLAN No SAa 3552

2700

INDEX TO 1:100 000 SHEETS

Bulgunnia 5837	Bon Bon 5937	Eba 6037
Torrowie 5836	Kingoonya 5936	Vivian 6036
Meelera 5835	Kokatha 5935	Coondambo 6035

GN
TN
MN

0 1 2 3 4 5 6 7 8 9 10 Km

134°45' 134°50' 135°00' 135°10' 135°20' 135°30'

480000 mE 490000 mE 500000 mE 510000 mE 520000 mE 530000 mE 540000 mE 550000 mE

6620000 mN
6610000 mN
6600000 mN
6590000 mN
6580000 mN
6570000 mN

30°40' 30°50' 31°00'

Wynbring HS

Gosse Range

Gosse HS

LAKE LABYRINTH

1159715
1159716
1159717
1159728
1159714

COMPANY WELL

1159725
1159727

MOUNT EBA

1159719
1159723

WALLABING RANGE
(AND SEE PLAN SAa 6051

1159720
1159726
1159722
1159721

10000 E
10000 N

1159724

Rocky Hill

Wallabying Range

Highway

Stuart

1159718

To Wilgena HS

Carters Well

Old

KINGOONYA

Loading ground

To Glendambo

1159706
1159708
1159709
1159704
1159705
1159703
1159702

BARTON HILL

BULPARA HILL

LAKE HARRIS

6532-1

CRA EXPLORATION PTY. LIMITED.

MT. EBA E.L.1315 – S.A.

ROCK CHIP SAMPLE LOCATIONS

Ref.:	TARCOOLA SH 53-10 ; CHILDARA SH 53-14	KINGOONYA SH 53-11 ; GAIRDNER SH 53-15	
Scale	1 : 100000	Drawn.	R.D.D.
Author	I. D. F.	Report No.	13885
Date	April '86	Plan No.	SAa 3763

8000E

10000E

12000E

12000N

10000N

8000N

0 200 400 600 800 1000m.

Survey Instrument . . . . Scintrex MP-3 Magnetometer
Sensor Height . . . . . 1·2 m
Line Spacing . . . . . 200 m
Station Spacing . . . . . 20 m
Line Direction . . . . . N – S
Grid North . . . . . 354° Mag
Grid Mesh . . . . . 20 × 100 m
Contour Interval . . . . . 50 nT

10000 mE, 10000 mN is approx. AMG 522200 mE, 6595680 mN

6532-7

CRA EXPLORATION PTY. LIMITED.

MT. EBA E.L. 1315 – S.A.

GROUND MAGNETOMETER SURVEY
WALLABYNG RANGE
CONTOURS OF TOTAL MAGNETIC INTENSITY

Ref.	KINGOONYA SH 53-11		
Scale	1 : 10000		
Author	G.P.J.	Report No.	13885
Date	April '86	PLAN No.	SAa 4051

APPENDIX 1

Rock Chip Assay Results

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

Head Office and
Central Laboratory
305 South Road,
Mile End South,
Sth. Aust. 5031.
Tel: (08) 43 5722
Telex: AA89323

NATA REGISTERED No. 1526

OUR REF.: COM851864

YOUR REF.: B 0977

Mr. I. Finch
CRA Exploration Pty Ltd
31 Osmond Terrace
NORWOOD

SA 5067

October 28, 1985

Dear Ian

RE: JOB COM851864

Enclosed are the assays for the samples delivered to our laboratory on October 10, 1985

Yours Sincerely,
COMLABS PTY LTD

per :

c.c.: Fyshwick - CRA No. of copies : 1

Report Length 6 pages

COMLABS Pty. Ltd.
COMPUTERISED ANALYTICAL LABORATORIES

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ANALYTICAL REPORT

JOB COM851864
O/N : B 0977

SAMPLE	Cu	Pb	Zn	Bi	Ag	Mo	Au
1159702	14	6	16	<4	<1	8	0.05
1159703	10	12	20	6	<1	14	<0.05
1159704	8	55	8	<4	<1	4	<0.05
1159705	20	28	32	<4	<1	<4	<0.05
1159706	6	18	80	<4	<1	<4	<0.05
1159707	5	30	10	<4	<1	4	<0.05
1159708	90	4	32	<4	<1	<4	<0.05
1159709	3	<4	2	<4	<1	8	<0.05
1159710	4	<4	2	<4	<1	6	<0.05
1159711	3	16	2	<4	<1	4	<0.05
1159712	6	16	44	<4	<1	<4	<0.05
1159713	12	4	8	<4	<1	8	<0.05
1159714	3	42	16	<4	<1	6	<0.05
1159715	30	4	44	<4	<1	4	<0.05
1159716	240	410	1550	<4	<1	16	<0.05
1159717	32	180	290	<4	<1	28	<0.05
1159718	5	12	14	<4	<1	8	<0.05
1159719	2	<4	46	<4	<1	<4	<0.05
1159720	3	<4	2	<4	<1	6	<0.05
1159721	5	4	3	<4	<1	10	<0.05
1159722	5	6	9	<4	<1	6	<0.05
1159723	140	<4	145	<4	<1	<4	<0.05
1159724	14	<4	65	<4	<1	<4	<0.05
1159725	5	14	16	<4	<1	12	<0.05
1159726	16	<4	30	<4	<1	6	<0.05
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS1	AAS3	AAS3	AAS5A

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ANALYTICAL REPORT

JOB COM851864
O/N : B 0977

SAMPLE	Cu	Pb	Zn	Bi	Ag	Mo	Au
1159727	60	8	125	<4	<1	4	<0.05
1159728	48	410	300	<4	<1	6	<0.05
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	AAS1	AAS1	AAS1	AAS1	AAS3	AAS3	AAS5A

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ANALYTICAL REPORT

JOB COM851864
O/N : B 0977

SAMPLE	Ni	Co	Cr	Fe	Mn
1159702	4	<4	75	0.76	195
1159703	6	<4	195	1.61	210
1159704	<4	<4	48	0.48	95
1159705	14	<4	55	22.0	320
1159706	80	4	110	21.8	190
1159707	10	<4	50	1.77	60
1159708	22	16	18	4.85	340
1159709	<4	<4	70	19.5	85
1159710	6	<4	70	0.52	36
1159711	<4	<4	55	0.44	38
1159712	80	<4	55	5.00	250
1159713	18	<4	135	3.25	100
1159714	6	<4	65	0.89	85
1159715	50	12	42	2.10	390
1159716	105	26	36	43.0	3600
1159717	55	26	26	36.3	4850
1159718	<4	<4	110	18.6	185
1159719	<4	<4	26	2.40	340
1159720	4	<4	90	0.77	105
1159721	14	<4	135	0.58	290
1159722	6	<4	42	0.94	200
1159723	280	100	100	34.4	2750
1159724	44	28	100	8.35	1300
1159725	6	<4	140	1.81	330
1159726	6	<4	350	0.44	115
UNITS	ppm	ppm	ppm	%	ppm
SCHEME	AAS1	AAS1	AAS2	AAS2 AAS2A	AAS2

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ANALYTICAL REPORT

JOB COM851864
O/N : B 0977

SAMPLE	Ni	Co	Cr	Fe	Mn
1159727	95	30	85	34.4	1850
1159728	38	34	36	9.15	4250
UNITS	ppm	ppm	ppm	%	ppm
SCHEME	AAS1	AAS1	AAS2	AAS2 AAS2A	AAS2

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ANALYTICAL REPORT

JOB COM851864
O/N : B 0977

SAMPLE	As	Ba	Ce	La	Sn	U	W
1159702	<2	320	50	20	80	16	<10
1159703	3	75	70	40	22	8	30
1159704	<2	800	30	20	<4	<4	<10
1159705	6	230	<20	<20	24	<4	<10
1159706	2	75	<20	<20	<4	<4	<10
1159707	2	150	20	20	6	<4	<10
1159708	<2	140	30	<20	6	<4	<10
1159709	2	30	<20	<20	<4	<4	20
1159710	2	55	20	<20	4	<4	<10
1159711	<2	370	<20	<20	6	<4	40
1159712	9	1000	30	20	8	<4	<10
1159713	4	50	<20	<20	<4	<4	<10
1159714	<2	320	40	20	6	<4	<10
1159715	<2	320	70	30	4	<4	<10
1159716	105	40	80	20	<4	<4	25
1159717	55	55	50	20	<4	<4	<10
1159718	10	65	20	<20	<4	<4	<10
1159719	<2	1800	80	50	8	<4	<10
1159720	3	185	20	<20	6	<4	<10
1159721	7	55	20	<20	<4	<4	<10
1159722	36	390	30	20	6	<4	<10
1159723	28	85	30	40	<4	<4	<10
1159724	18	320	70	40	<4	<4	<10
1159725	<2	75	20	<20	<4	<4	<10
1159726	2	120	20	30	4	<4	<10
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1	XRF1	XRF1	XRF1	XRF1

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ANALYTICAL REPORT

JOB COM851864
O/N : B 0977

SAMPLE	As	Ba	Ce	La	Sn	U	W
1159727	16	155	30	20	<4	<4	<10
1159728	<2	240	130	60	8	6	<10
UNITS	ppm	ppm	ppm	ppm	ppm	ppm	ppm
SCHEME	XRF1	XRF1	XRF1	XRF1	XRF1	XRF1	XRF1

CRA EXPLORATION PTY. LIMITED

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SECOND QUARTERLY REPORT FOR MT. EBA E.L. 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH JULY, 1986.

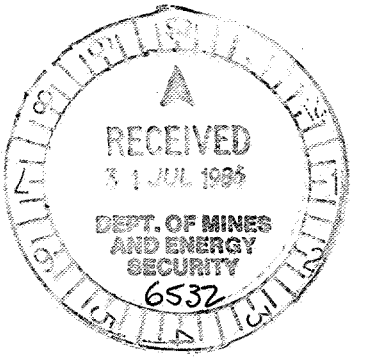
AUTHOR: S.P. SUGDEN

COPIES TO: SADME
CIS CANBERRA

DATE: 22ND JULY, 1986

SUBMITTED BY:

ACCEPTED BY:



CONTENTS

	PAGE
1. INTRODUCTION	1
2. WORK CARRIED OUT	1
EXPENDITURE	2
LOCATION	3
KEYWORDS	3

LIST OF APPENDICES

Appendix I Rock Chip Assay Results

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba E.L. 1315, S.A. - Locality Map	1:250 000
SAa 3763	Mt. Eba E.L. 1315, S.A. - Rock Chip Samples	1:100 000

1. SUMMARY

Mt. Eba E.L. 1315 is located on the Kingoonya 1:250 000 sheet and adjoining parts of the Tarcoola, Childera & Gardiner 1:250 000 sheets (see plan SAa 3552). The licence was granted to CRA Exploration Pty. Limited on the 9th January, 1986 for a period of one year.

E.L. 1315 covers an area of approximately 2566 km^2 and is located on parts of the Wilgena, Gosses and North Well stations.

The country is semi-arid pastoral lease lands with access being gained by district council roads and station tracks.

2. WORK CARRIED OUT

A short field trip was made to the licence during the quarter.

Thirty-three rock samples (Table 1 & plan no. SAa 3763) were collected and analysed for 20 elements. Twenty-six of these samples were collected on a 260 m traverse over a basal conglomerate unit at Wallabyng Range, to test for possible mineralisation in the conglomerate. No anomalous geochemistry was noted in any of the samples. Assay results are attached in Appendix I.

A detailed airborne geophysical survey was flown over part of the licence during the quarter. Preliminary magnetic plans and flight line plots were received from the contractor. Final results are still awaited.

S.P. SUGDEN

SPS/pq

TABLE 1

ROCK SAMPLE DESCRIPTIONS

Sample No.	Lithology	Grid Ref.
919353	Banded Iron Formation	496500E 6579100N
919354	Banded Iron Formation	496500E 6579100N
919355	Banded Iron Formation	496500E 6579100N
919356	Ironstone	523200E 6598700N
919357	Hematitic pebble conglomerate	532800E 6795250N
919358	Quartz pebble conglomerate	532800E 6759260N
919359	Quartz pebble conglomerate	532800E 6759270N
919360	Quartz pebble conglomerate	532800E 6759280N
919361	Quartz pebble conglomerate	532800E 6759290N
919362	Quartz pebble conglomerate	532800E 6759300N
919363	Quartz pebble conglomerate	532800E 6759310N
919364	Quartz pebble conglomerate	532800E 6759320N
919365	Quartz pebble conglomerate	532800E 6759330N
919366	Quartz pebble conglomerate	532800E 6759340N
919367	Quartz pebble conglomerate	532800E 6759350N
919368	Quartz pebble conglomerate	532800E 6759360N
919369	Quartz pebble conglomerate	532800E 6759370N
919370	Quartz pebble conglomerate	532800E 6759380N
919371	Quartz pebble conglomerate	532800E 6759390N
919372	Quartz pebble conglomerate	532800E 6759400N
919373	Quartz pebble conglomerate	532800E 6759410N
919374	Quartz pebble conglomerate	532800E 6759420N
919375	Coarse Quartzite/Grit Conglomerate	532800E 6759430N
919376	Coarse Quartzite/Grit Conglomerate	532800E 6759440N
919377	Coarse Quartzite/Grit Conglomerate	532800E 6759450N
919378	Coarse Quartzite/Grit Conglomerate	532800E 6759460N
919379	Coarse Quartzite/Grit Conglomerate	532800E 6759470N
919380	Coarse Quartzite	532800E 6759480N
919381	Coarse Quartzite	532800E 6759490N
919382	Coarse Quartzite	532800E 6759500N
919383	Fe/Mn joint fill in Sullivan Shale?	520100E 6603000N
919384	Orange-red Chert	519700E 6598900N
919385	Rhyodacite	516000E 6598900N

EXPENDITURE

Expenditure for the period ending 30th June, 1986 the nearest accounting period was $13 688.00, as listed below.

	$
Payroll	5135
Supplies	1585
Vehicle	1411
Travel	551
Rent	1184
Contractors	1074
Laboratory	1455
Overheads	1293
Total	$13 688

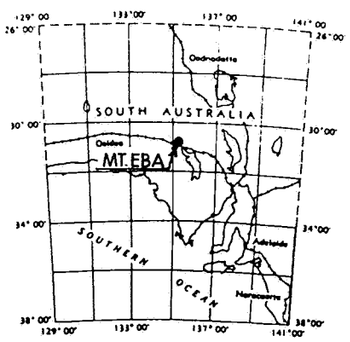
LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geophysics, Geochemistry, Magnetics, Base Metals.

LOCALITY



134°45' 135°00' 135°15' 135°30'

135°11' 135°32'

30°30' 30°32' 30°34' 30°43' 30°45' 30°50' 30°51' 30°57' 31°00' 31°02'

134°57' 137°57' 135°00' 134°52' 135°12' 134°46'

BRIDGE RANGE

"Wymlet" Bore

No 11 Bore No 12 Bore No 13 Bore No 19 Bore No 20 Bore

Telephone line along fence

Ti-tree swamp Ti-tree swamps Salt Claypan Claypans Bore Pipeline Yermin proof fence Rocky outcrop

Company Well Bores Ruins

794 WILGENA HILL

Wilgena Wells Wilgena Hill Lake Maurice Wells

TRANS-AUSTRALIAN RAILWAY

Cutlers Well Gilberts Bore Six-Mile Well (disused) Underground pipeline Bores

LAKE DARYRINTH

MOUNT EBA 575

Ironstone rubble Ironstone outcrop

WOOMERA PROHIBITED AREA BOUNDARY

Hicks Well Big Tank Outstation Underground pipeline

Tomato Camp Rock hole Tomato Camp Rockhole

REMION HILL △527

732 △ BULPARA HILL Rockwater Rockhole

NEW YEAR HILL 181

Lake Harris

LAKE HARRIS

STONY TOP HILL

Yerda Well

Gosse Range Well No 7 GOSSE RANGE

Scotts Well (abandoned) Washpool Gosses Bore Gosse Range Well South Gosses Bore

STUART HIGHWAY

Prestons Well (abandoned) Old Orwell Well (abandoned) "Orwell Well"

Timsels Bore No 8

HICKSON H

Crowings Bore (position approx)

Packridge Bore

Kingoonya Government Well Pumping station Mungillie Well Little Paynters Well Paynter Waterhole Three Wells (disused) Paynters Well Golf course

578 △ BOUNDARY HILL

576 △ KINGOONYA HILL

586 △ CENTRE HILL

Lake Harris Dam Cooks Hut Well Bitter Well Dam Dry Lake

WALLABYNG RANGE △ 702

Wallabyng Well

ROCKY HILL

Lloyds Well Mulga Well No 2

"North Well"

Claypans Claypan Salt Lakes Dry Lake Yermin proof fence Race Underground pipeline Pipeline Telephone line along fence Bore Ruins

BM 464 BM 452 BM 461 BM 442 BM 449 BM 520 BM 469

Sections 1 2 6 7 11 12 13 16 17 18 19 20 21 27 28 30 31 32 33 34 35

5 0 5 10 15 20 25 Kilometres

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 — S.A.
LOCALITY PLAN

REF.	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15		
SCALE	1 : 250000		
AUTHOR	S.P.S.	REPORT	14067
DATE	July '86	PLAN No	SAa 3552

0028

INDEX TO 1:100 000 SHEETS

Bulgunnia 5837	Bon Bon 5937	Eba 6037
Tarcoola 5836	Kingoonya 5936	Vivian 6036
Meelera 5835	Kabanka 5935	Coondambo 6035

GN TN MN

0 1 2 3 4 5 6 7 8 9 10 Km

1159715 1159716 1159717 1159728 1159714 1159718 1159719 1159720 1159721 1159722 1159723 1159724 1159725 1159726 1159727 1159703 1159704 1159705 1159706 1159708 1159709 1159702

919353 919354 919356 919357 919358 919359 919360 919361 919362 919363 919364 919365 919366 919367 919368 919369 919370 919371 919372 919373 919374 919375 919376 919377 919378 919379 919380 919381 919382 919383 919384 919385

LAKE LABYRINTH

COMPANY WELL

MOUNT EBA

WALLABING RANGE GRID SEE PLAN SAo 4051

10000 E 10000 N

Wallabing Range

Rocky Hill

Gawler Ranges

"Gawler" H.S.

HIGHWAY

Stuart

"Wallabing" H.S.

"North Well" H.S.

Carters Well

Old

KINGOONYA

Landing ground

To Glendambo

To "Wallabing" H.S.

BULPARA HILL

RENTON HILL

LAKE HARRIS

1:2500

260m 250m 200m 150m 100m 50m 0m

o 1159723 *1985 Sample Locations*

• 919382 *1986 Sample Locations*

6620000 mN
6610000 mN
6600000 mN
6590000 mN
6580000 mN
6570000 mN

30°30' 30°40' 30°50' 31°00'

134°45' 134°50' 135°00' 135°10' 135°20' 135°30' 135°40' 135°50'

480000 mE 490000 mE 500000 mE 510000 mE 520000 mE 530000 mE 540000 mE 550000 mE

6532-3

CRA EXPLORATION PTY. LIMITED.

MT. EBA E.L.1315 – S.A.

ROCK CHIP SAMPLE LOCATIONS

Ref.:	TARCOOLA SH 53-10 ; CHILDARA SH 53-14	KINGOONYA SH 53-11 GAIRDNER SH 53-15	
Scale	1:100 000	Drawn	R.D.D.
Author	S.P.S.	Report No.	14067
Date	July '86	Plan No.	SAo 3763

APPENDIX 1

ROCK CHIP ASSAY RESULTS

CRA EXPLORATION PTY. LIMITED

ROCK CHIP SAMPLE LEDGER
GEOCHEMICAL RESULTS

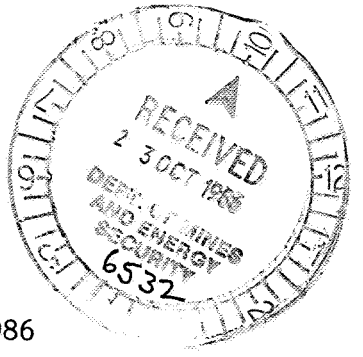
PROJECT: MOUNT EBA E.L. 1315
LABORATORY: COMLABS
DPO NO.: 37555

SAMPLE	Cu	Pb	Zn	Bi	Ag	Mo	V	Ni	Co	Cr	Fe	Mn	Au	As	Ce	La	U	W	Sb	Sn
919353	14	28	70	<4	1	8	30	65	6	55	36.5	380	<0.05	16	<20	<20	<4	30	<4	<4
919354	3	16	90	<4	<1	18	25	40	<4	170	20.7	220	<0.05	<2	<20	<20	<4	20	8	<4
919355	16	135	185	<4	<1	10	30	50	6	60	33.6	420	<0.05	18	<20	<20	<4	<10	10	28
919356	240	4	85	<4	<1	4	155	220	140	75	43.9	1350	<0.05	<2	20	<20	<4	10	<4	<4
919357	7	6	16	<4	<1	10	20	8	<4	85	12.5	120	<0.05	<2	<20	<20	<4	30	12	160
919358	7	<4	5	<4	<1	12	30	10	<4	130	1.46	80	<0.05	<2	20	<20	<4	45	8	85
919359	5	<4	4	<4	<1	18	30	8	<4	185	1.10	80	<0.05	<2	20	<20	<4	35	12	115
919360	3	<4	4	<4	1	10	20	<4	<4	70	0.53	70	<0.05	5	30	20	<4	25	10	50
919361	2	<4	2	<4	<1	8	20	4	<4	80	0.67	75	<0.05	3	30	<20	<4	10	<4	65
919362	<2	4	3	<4	<1	10	20	6	<4	85	0.39	50	<0.05	<2	30	<20	<4	10	4	130
919363	4	4	<2	<4	<1	12	10	4	<4	85	0.44	65	<0.05	<2	30	20	<4	20	10	70
919364	<2	<4	2	<4	<1	8	10	<4	<4	40	0.31	55	<0.05	<2	30	20	<4	<10	8	80
919365	3	<4	3	<4	<1	8	10	4	<4	50	0.36	50	<0.05	5	30	20	<4	20	8	150
919366	2	<4	<2	<4	<1	8	10	<4	<4	60	0.38	65	<0.05	<2	30	30	<4	<10	14	125
919367	<2	<4	2	<4	<1	10	<10	4	<4	85	0.37	65	<0.05	4	30	40	<4	25	12	115
919368	<2	<4	<2	<4	<1	10	<10	6	<4	80	0.42	70	<0.05	<2	30	20	<4	25	12	85
919369	<2	4	4	<4	<1	6	<10	4	<4	65	0.34	75	<0.05	<2	30	30	<4	30	8	150
919370	3	4	3	<4	<1	10	<10	6	<4	85	0.42	75	<0.05	<2	30	<20	<4	30	6	38
919371	4	4	4	<4	<1	22	10	12	<4	230	0.67	90	<0.05	<2	20	20	<4	<10	8	145
919372	4	4	3	<4	<1	24	10	12	<4	260	0.71	90	<0.05	<2	40	<20	<4	15	12	110
919373	9	<4	2	<4	<1	20	10	12	<4	230	0.75	90	<0.05	<2	20	<20	<4	20	10	230
919374	9	<4	4	<4	<1	20	10	10	<4	210	0.68	85	<0.05	4	30	20	6	20	12	105
919375	9	4	5	<4	<1	20	20	12	<4	180	0.65	80	<0.05	<2	30	<20	<4	15	6	105
919376	9	<4	4	<4	<1	22	20	12	<4	250	0.70	80	<0.05	<2	40	<20	<4	45	4	120
919377	9	4	4	<4	<1	20	25	12	<4	190	0.68	90	<0.05	12	20	<20	<4	30	6	85
919378	9	<4	4	<4	<1	22	30	12	<4	240	0.70	95	<0.05	<2	30	<20	<4	30	10	85
919379	10	<4	3	<4	<1	26	20	12	<4	240	0.81	80	<0.05	<2	30	<20	<4	35	8	85
919380	8	<4	3	<4	<1	22	35	14	<4	250	0.70	90	<0.05	2	30	<20	<4	40	8	55
919381	8	<4	4	<4	<1	22	20	14	<4	260	0.77	130	<0.05	<2	30	<20	4	20	12	125
919382	9	<4	3	<4	<1	26	30	16	<4	280	0.72	95	<0.05	14	30	<20	8	40	4	44
919383	175	8	50	<4	<1	8	20	14	4	28	40.1	2500	<0.05	120	70	20	<4	25	<4	<4
919384	16	<4	7	<4	<1	44	50	18	<4	330	1.31	230	<0.05	26	<20	<20	<4	15	16	8
919385	12	20	9	<4	<1	14	<10	10	<4	95	1.03	130	<0.05	8	100	60	<4	15	<4	8
	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm

CRA EXPLORATION PTY. LIMITED

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THIRD QUARTERLY REPORT FOR MT. EBA E.L. 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH OCTOBER, 1986.



AUTHOR: S.P. SUGDEN

COPIES TO: SADME
CIS CANBERRA

DATE: 6TH OCTOBER, 1986

SUBMITTED BY:

ACCEPTED BY:

CONTENTS

	PAGE
1. INTRODUCTION	1
2. WORK CARRIED OUT	1
EXPENDITURE	2
LOCATION	3
KEYWORDS	3

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba E.L. 1315, S.A. - Locality Map	1:250 000
SAa 4284	Mt. Eba E.L. 1315, S.A. - Archean and Proterozoic Outcrop Geology	1:100 000
SAa 4370	Mt. Eba E.L. 1315, S.A. - Radiometric Anomalies	1:100 000
SAa 4281	Mt. Eba E.L. 1315, S.A. - Flight Path Map	1:100 000
SAa 4282	Mt. Eba E.L. 1315, S.A. - Residual Magnetic Contours	1:100 000

1. SUMMARY

Mt. Eba E.L. 1315 is located on the Kingoonya 1:250 000 sheet and adjoining parts of the Tarcoola, Childera & Gardiner 1:250 000 sheets (see plan SAa 3552). The licence was granted to CRA Exploration Pty. Limited on the 9th January, 1986 for a period of one year.

E.L. 1315 covers an area of approximately 2566 km^2 and is located on parts of the Wilgena, Gosses and North Well stations.

The country is semi-arid pastoral lease lands with access being gained by district council roads and station tracks.

2. WORK CARRIED OUT

Final plans were received during the quarter from Geoterrex for the recent airborne survey, covering the western half of the licence. Magnetic data from the earlier BHP/Aerodata and Amoco/Geoex surveys are presently being gridded to be compatible with the above survey. Interpretation of the magnetic data has commenced and will be completed when the remaining data is received.

A list of radiometric anomalies was compiled from the flight charts (Table 1) and plotted (SAa 4370). In general, most anomalies were associated with clay pans. This is interpreted as the concentration of the radioactive elements in the muds of the pans. Two anomalies (416N & 422N) were associated with an area of quiet magnetic activity which is interpreted as Hiltaba granite. One anomaly (432S) plotted in an area of interpreted Archaean Gneisses.

A compilation map showing Proterozoic and Archaean outcrop geology was produced at 1:100 000 scale from SADME mapping.

S.P. SUGDEN

SPS/pq

EXPENDITURE

Expenditure for the period ending 30th September, 1986 the nearest accounting period was $65 236.00, as listed below.

	$
Payroll	1 152
Supplies	787
Vehicle	282
Travel	1 041
Rent	1 924
Contractors	59 859
Overheads	191
Total	$65 236

0036

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geophysics, Magnetics, Radiometrics, Base Metals.

TABLE 1
MT.EBA TOTAL COUNT AND URANIUM ANOMALIES

ANOMALY NO.	GRID.REF.		(BY BACKGROUND) T.C.	K	U	Th	COMMENTS
416N	482700E	6574900N	7	6.8	7.9	6.3	Quiet magnetic zone
422N	484200E	6575500N	6.3	6.3	8.5	7.2	" " "
432S	487300E	6580300N	1.7	-	2.2	-	Interpreted Archean Gneisses?
462S(1)	496000E	6577900N	5.4	4.6	4	6.3	
476S(1)	499900E	6578400N	1.6	-	2.3	1.3	
476S(2)	499600E	6580200N	1.7	-	2	1.6	Broard low anomaly.
482S	501700E	6605100N	2	-	4.2	1.8	Broad low anomaly
484S(1)	502300E	6572200N	-	-	2	-	Noise ?
484S(2)	503200E	6606800N	1.6	2	1.8	-	Low broad anomaly 2 peaks.
485N	502600E	6605100N	2	1.5	2.8	2	
487N	503200E	6606100N	1.4	-	2	-	
488S	503400E	6606800N	1.9	-	2.9	-	
489N	503700E	6605900N	2	1.4	4	1.4	U max 100 cps
492N	504700E	6573300N	1.6	-	3.1	-	
493S	505000E	6571800N	1.8	-	2.8	-	
496N	505900E	6572700N	1.8	-	4.2	-	
498N	506400E	6608600N	2.9	-	7.5	-	
499S	506700E	6608900N	2.2	-	6.2	-	
500N	507000E	6573800N	1.8	-	3.1	-	
502N	507500E	6609400N	2	-	4.4	-	
506N	508900E	6608400N	2.9	-	3.8	-	2 peaks.
507S	509300E	6609100N	2	-	3.4	-	Indistinct anomaly
512N(1)	510600E	6607900N	1.5	-	2.6	-	
512N(2)	510600E	6606200N	1.7	-	2.3	-	Assoc. with 512N(1)
517S	512100E	6610600N	1.7	1.5	2	-	Indistinct anomaly
538N	518400E	6608600N	1.2	-	2	-	

LOCALITY

SOUTH AUSTRALIA

MT. EBA

SOUTHERN OCEAN

CRA EXPLORATION PTY LIMITED

MT. EBA E.L. 1315 — S.A.
LOCALITY PLAN

REF.	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15		
SCALE	1 : 250 000		
AUTHOR	S.P.S.	REPORT	14183
DATE	Oct. '86	PLAN No	SAa 3552

0038

INDEX TO 1:100000 SHEETS

Bulgunnia 5837	Bon Bon 5937	Eba 6037
Tarcoola 5836	Kingoonya 5936	Vivian 6036
Meelera 5835	Kokatha 5935	Coondambo 6035

G.N.
T.N.
M.N.

0 1 2 3 4 5 6 7 8 9 10 Km

LAKE LABYRINTH

LAKE HARRIS

MOUNT FINNISS

KINGOONYA

BULPARA HILL

RENTON HILL

Wallabying Range

Rocky Hill

Gosse Range

Stuart Highway

Old

"Whyalla" N.S.

"Gosse" N.S.

"North Well" N.S.

Carters Well

Landing ground

To Wilgena N.S.

To Glendambo

Pθh	Hiltaba Granite
Pθk	Kimbian Granites
Pth	Wilgena Hill Jasperlite
Pts	Sullivan Shale
Ptf	Fabian Quartzite
Ptp	Peela Conglomerate
Pa4	Wiltabee Volcanics
Pa3	Carnding Rhyodacite
Pa2	Ealbara Rhyolite
Pa1	Konkaby Basalt
APm8	Glenloth Granite
APmb	Metagabbro and Mafic Schist
APm	Mulgathing Complex Gneisses

Sources : TARCOOLA 1:250000 Geological sheet – S.J Daley 1985
KINGOONYA 1:100000 Prelim Geol sheet – W Cowley 1986
CHILDARA 1:250000 Geological sheet – A.H Blissett 1977
GAIRDNER 1:250000 Geological sheet – A.H Blissett 1977

6532-4

CRA EXPLORATION PTY. LIMITED.

MT. EBA E.L.1315 – S.A.

PROTEROZOIC AND ARCHEAN OUTCROP GEOLOGY

Ref. :	TARCOOLA SH 53-10 ; CHILDARA SH 53-14 ;	KINGOONYA SH 53-11 GAIRDNER SH 53-15	
Scale	1:100000	Drawn.	R.D.D.
Author	S.P.S.	Report No.	14183
Date	Oct. 1986	Plan No.	SAa 4284

30° 30' | 134°45' | 134°50' | 135° 00' | 135°10' | 135°20' | 135°30'

80000 mE | 90000 mE | 100000 mE | 110000 mE | 120000 mE | 130000 mE | 140000 mE | 150000 mE

6620000 mN

6610000 mN

30° 40'

6600000 mN

0 1 2 3 4 5 6 7 8 9 10 Km

INDEX TO 1:100000 SHEETS

Bulgunnia 5837	Bon Bon 5937	Eba 6037
Tarcoola 5836	Kingoonya 5936	Vyvyan 6036
Meeltera 5835	Kokatha 5935	Coondambo 6035

GN
TN
MN

6590000 mN

30° 50'

6580000 mN

6570000 mN 31° 00'

Whymlet "H.S."

Gosses Range

"Gosses" H.S.

Stuart Highway

Old Stuart Highway

Rocky Hill

Wallabing Range

"North Well" H.S.

To Glendambo

To "Wilgena" H.S.

Carters Well

KINGOONYA

Landing ground

MOUNT EBA

LAKE LABYRINTH

LAKE HARRIS

BULPARA HILL

RENTON HILL

517S
502N
499S
498N
507S
506N
512N(2)
538N
512N(1)
488S
4845(2)
487N
489N
482S
485N
432S
476S(2)
476S(1)
462S(1)
416N
422N
492N
500N
4845(1)
496N
493S

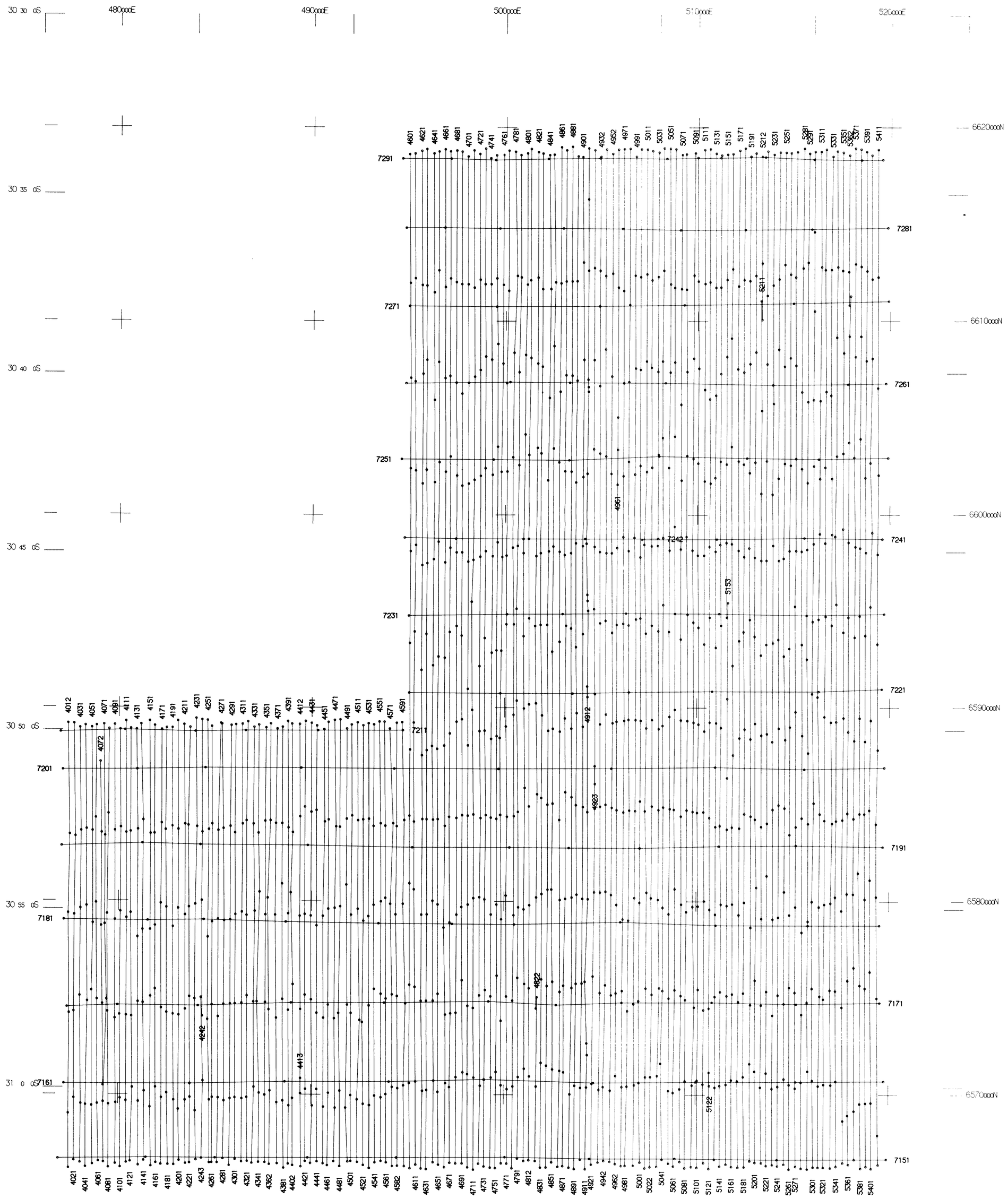
6532-5

CRA EXPLORATION PTY LIMITED.

MT. EBA E.L.1315 – S.A.

RADIOMETRIC ANOMALIES

Ref	TARCOOLA SH 53-10 ; CHILDARA SH 53-14	KINGOONYA SH 53-11 ; GAIRDNER SH 53-15	
Scale	1:100000	Drawn	R.D.D.
Author	S.P.S.	Report No	14183
Date	Oct '86	Plan No	SAa 4370

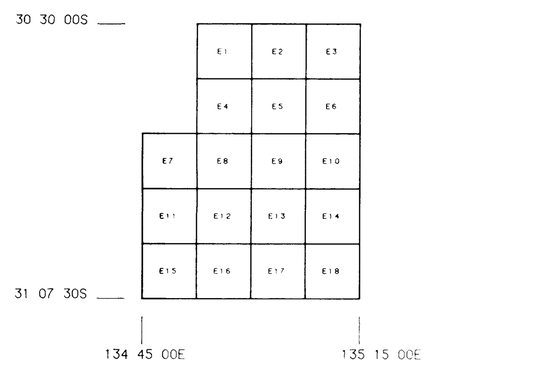


AIRBORNE SURVEY SPECIFICATIONS

MAGNETOMETER :	Cesium Vapour optical absorption. Sensitivity : 0.04 nT.
RECORDING INTERVAL :	0.2 sec (approx 13m sampling) at mean ground speed of 220 km/hour.
SPECTROMETER :	Nuclear Data 256 channel ADC Volume : 33.5 litres
TOTAL COUNT WINDOW :	0.8 - 3.00 MeV
AUX. URANIUM WINDOW :	1.048 - 1.21 MeV
POTASSIUM WINDOW :	1.36 - 1.56 MeV
URANIUM WINDOW :	1.66 - 1.86 MeV
THORIUM WINDOW :	2.42 - 2.82 MeV
RECORDING INTERVAL :	1.0 sec (approx 60m sampling) at mean ground speed of 220 km/hour.
DATA RECORDING :	Geoterrex MADACS acquisition system. Digital to magnetic tape.
NOMINAL TERRAIN CLEARANCE :	Both detectors in aircraft at 80m.
NOMINAL LINE SPACING :	Traverse lines 300 metres. Tie lines 4.0 km.
FLIGHT PATH NAVIGATION :	Visual, aided by SINGER KEARFOTT AN/ASN 128 Doppler navigation system with SPERRY C12 compass and VG14 vertical gyro
FLIGHT PATH RECORD :	Geocam 35mm continuous tracking camera and computed Doppler AMG coordinates
FLIGHT LINE RECOVERY :	Visually to 1:25.000 black & white enlargements of high level photography to control Doppler positioning

FLIGHT PATH MAP

Grid notation refers to Australian Map Grid Zone 53
Digitised from 1:25.000 black & white enlargements of high level photography.
Reference Tarcoola SH53-10, Kingoonya SH53-11
Childara SH53-14, Gairdner SH53-15
Recovered Fiducial .



6532-6

JOB NO : 87-329
Flown by GEOTERREX PTY LTD : JUNE 1986
Compiled by Geoterrex Pty Ltd., Sydney, NSW.
Processed by Engineering Computer Services, Bowral

CRA EXPLORATION PTY LIMITED

MT EBA EL 1315 S.A.
FLIGHT PATH MAP

Ref :	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15		
Date Aug '86	Author G P J	Report No 14183	Plan No SAa 4281

MT. EBA E.L 1315

SURVEY SPECIFICATIONS

LEGEND

Magnetic contours (values in gammas)

Magnetic Low

SHEET INDEX

(1)

(2)

SURVEY SPECIFICATIONS

The survey was flown by Aerial Surveys Pty. Ltd. for the U.S. Department of Energy and Minerals in 1979.

The survey was flown using Magnetic Guidance from Locomotive Series (Proton) equipment.

The above map is based on the data obtained by the Bendix Aviation Corporation for the U.S. Department of Energy, Mining, Industry, Technology and Commerce, Subsidiary Agreement No. 1 to the Agreement of 1974 between the Commonwealth of Australia and the United States of America for Cooperation in Mineral Resources Development.

Values are the total magnetic field minus 50,000 gammas.

6532-8

CRA EXPLORATION PTY LIMITED

MT. EBA E.L 1315 – S.A.

COMPOSITE MAGNETIC CONTOURS

Ref	TARCOOLA SH 53-10 ORROROO SH 53-11 HILDARA SH 53-14 QUORN SH 53-15		
Scale	1: 100 000	Drawn	K. D. D.
Author	G. P. S.	Report No	14309
Date	Mar. 80	Plan No	SAm 4483

CRA EXPLORATION PTY. LIMITED

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FOURTH QUARTERLY REPORT FOR MOUNT EBA E.L. 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH JANUARY, 1987.

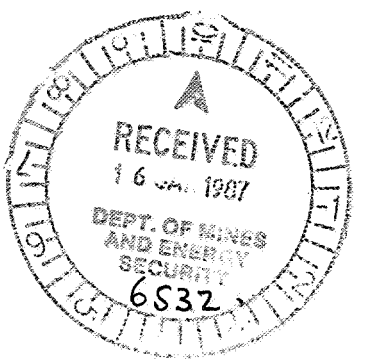
AUTHOR: S.P. SUGDEN

COPIES TO: SADME
CIS CANBERRA

DATE: 12TH JANUARY, 1987

SUBMITTED BY: Lucille de Messurier

ACCEPTED BY:



CONTENTS

	PAGE
LIST OF APPENDICES	
LIST OF PLANS	
1. INTRODUCTION	1
2. WORK CARRIED OUT	1
2.1 Geophysics	1
2.2 Field Work	2
EXPENDITURE	3
LOCATION	4
KEYWORDS	4

LIST OF APPENDICES

Appendix I Logistics Report For Mount Eba Survey

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba E.L. 1315, S.A. - Locality Map	1:250 000
SAa 4449	Mt. Eba E.L. 1315, S.A. - Lake Labyrinth West Grid	1: 10 000
SAa 4450	Mt. Eba E.L. 1315, S.A. - Lake Labyrinth West Grid Geology	1: 10 000
SAa 4483	Mt. Eba E.L. 1315, S.A. - Composite Magnetic Contours	1:100 000
SAa 4481	Mt. Eba E.L. 1315, S.A. - Magnetic Anomalies	1:100 000

1. SUMMARY

Mount Eba E.L. 1315 is located on the Kingoonya 1:250 000 sheet and adjoining parts of the Tarcoola, Childara & Gairdner 1:250 000 sheets (see plan SAa 3552). The licence was granted to CRA Exploration Pty. Limited on the 9th January, 1986 for a period of one year. An application was made on the 1st December, 1986 for an extension of term of 12 months.

E.L. 1315 covers an area of approximately 2566 km^2 and is located on parts of the Wilgena, Gosses and North Well stations.

The country is semi-arid pastoral lease lands with access being gained by district council roads and station tracks.

2. WORK CARRIED OUT

2.1 Geophysics

Magnetic data from earlier surveys was appended to the recent CRAE survey (plan SAa 4483). The BHP/Geoex survey was not used as the quality of the data and the contouring was poor.

An interpretation of the magnetic data was made and three magnetic anomalies selected for further work. These are:

1. A distinctive reversely polarised dipole anomaly found in the north east of the survey area. This anomaly may be an intrusion and possibly a carbonatite (Lake Labyrinth West anomaly).

2. Two discrete highs also found over mapped outcrops of Glenloth Granite in a zone of quiet magnetics with the Glenloth goldfield nearby to the south (Glenloth anomaly).

3. An area of quiet magnetic activity within a complex zone located to the north of the above highs. According to published geology this area is within an area of Archean Gneisses. A situation the magnetics suggest is unlikely. A number of mineral occurrences are found around the periphery of the zone. These are the Earea Dam gold mine in the north, the South Lake Tin mine and in the south Abadon Holdings NL intersected 1.63% Zn from 122-131 m in hole DH1a (South Lake anomaly).

These anomalies are shown in plan SAa 4481.

A logistics report was received from Geoterrex for this and other surveys. A section of the report relating to this licence is contained in Appendix I.

2.2 Field Work

A field trip was made to the licence to ground recover the Lake Labyrinth West anomaly. A surveyed AMG grid of 26 line km was pegged over the anomaly as shown in plan SAa 4449. Ground magnetic and geological traverses were then made over the grid.

The anomaly is situated in an area of salt lakes and unconsolidated sparsely to moderately vegetated undulating sand. No outcrop was found on the grid. Plan SAa 4450 shows the geology for the grid.

The magnetic data is presently being compiled for contouring.

Lucille Le Mesurier
for.
S.P. SUGDEN

SPS/pq

EXPENDITURE

Expenditure for the period ending 31st December, 1986 the nearest accounting period was $14 190.00, as listed below.

	$
Payroll	3911
Supplies	605
Vehicle	1368
Travel	550
Rent	2200
Contractors	282
Overheads	5274
Total	$14 190

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geophysics, Magnetics, Base Metals.

APPENDIX I

LOGISTICS REPORT FOR MOUNT EBA SURVEY

LOGISTICS REPORT

FOR AN

AIRBORNE MAGNETIC & RADIOMETRIC SURVEY

OF

THE COOBER PEDY RIDGE, MT EBA,

WUDINNA AND BALTA BALTANA AREAS

FOR

CRA EXPLORATION PTY LTD

BY

GEOTERREX PTY LTD

JOB NO. 87-329

TABLE OF CONTENTS

	PAGE
INTRODUCTION	
1. SURVEY OPERATIONS SUMMARY	1
2. DATA ACQUISITION PARAMETERS	5
3. EQUIPMENT AND SPECIFICATIONS	10
4. CALIBRATION PROCEDURES AND RESULTS	17
5. DATA PROCESSING	21
6. DELIVERABLE ITEMS	25

APPENDIX A: MAGNETOMETER CALIBRATION DATA

TABLE A1	F.O.M Test Results
FIGURE A1-A36	F.O.M. Analogues
FIGURES A37-A38	Parallax Test Analogues
TABLE A2	Heading Test Results
FIGURE A39-A41	Heading Test Diagrams

APPENDIX B: SPECTROMETER CALIBRATION DATA

TABLE B1	Uranium and Thorium Source Check Data
FIGURES B1-B2	Uranium and Thorium Source Check Spectra
FIGURES B3-B6	Cosmic Background Graphs
FIGURES B7-B10	Height Attenuations Graphs
FIGURES B11,B12	Thorium Peak Resolution Checks

APPENDIX C: MAGNETIC DATA TAPE FORMATS

Field Data Tape Format
Located Data Tape Format
Gridded Data Tape Format

APPENDIX D: RMS THERMAL PAPER STORAGE INSTRUCTIONS

LIST OF TABLES

		PAGE
TABLE 1:	Survey Progress	1
TABLE 2:	Altimeter Calibration Results	20

LIST OF FIGURES

		PAGE
FIGURE 1:	Location Map	7
FIGURE 2:	Location Map	8
FIGURE 3:	Location Map	9
FIGURE 4:	Sample Analogue Record	16

INTRODUCTION

During May, June and July, 1986 Geoterrex Pty Ltd conducted an airborne magnetometer and spectrometer survey over the Coober Pedy Ridge, Mt Eba, Wudinna and Balta Baltana areas in central South Australia for CRA Exploration PTY LTD. This report summarises the logistics, survey parameters, calibration procedures, and processing details of the survey.

1 SURVEY OPERATIONS SUMMARY

Base of Operations:	Kimba, Glendambo and Coober Pedy, South Australia
Airstrip:	Kimba, Glendambo and Coober Pedy
Aircraft:	Rockwell Shrike Commander 500S, (VH-PWO)
Field Personnel:	Pilot/Project Manager; J. Edwards D. Bowen
	Electronics Technicians; P. Waldron H. Gyllero B. Wolfrey
	Data Compilers; A. Cole T. Donnollan
Data Processing Manager:	M. Schneider
Supervising Geophysicist:	G. Nader

TABLE 1: Survey Progress

Mobilisation:	13 May 1986, Kimba S.A.
Flight 1:	16 May 1986, calibrations, overcast with showers.
Flight 2:	17 May 1986, calibrations, overcast with showers.
Flight 3:	17 May 1986, production, overcast with showers.
Flight 4:	19 May 1986, production, overcast, 19C.
Flight 5:	20 May 1986, production, overcast and showers, 18C.
Flight 6:	21 May 1986, production, fine, 23C.
Flight 7:	22 may 1986, production, overcast and showers, 22C.

Flight 8:	23 May 1986, production, overcast and showers, 20C.
Flight 9:	25 May 1986, production, fine, 22C.
Flight 10:	26 May 1986, production, fine and windy, 23C.
Flight 11:	29 May 1986, production, overcast, 18C.
Flight 12:	30 May 1986, production, fine, 19C.
Flight 13:	31 May 1986, production, Mobilisation to Glendambo fine, 14C.
Flight 14:	1 June 1986, calibrations, fine.
Flight 15:	2 June 1986, calibrations, production, fine, 18C.
Flight 16:	3 June 1986, production, fine, 18C.
Flight 17:	4 June 1986, production, fine, 18C.
Flight 18:	5 June 1986, production, fine, 19C.
Flight 19:	6 June 1986, production, fine, 19C.
Flight 20:	7 June 1986, production, fine 21C.
Flight 21:	8 June 1986, mobilisation to Coober Pedy, calibrations, fine.
Flight 22:	10 June 1986, production, fine, 18C.
Flight 23:	11 June 1986, production, fine, 17C.
Flight 24:	12 June 1986, production, fine, 19C.
Flight 25:	13 June 1986, production, fine, 18C.

Flight 26:	14 June 1986, production, fine, 19C.
Flight 27:	16 June 1986, production, fine.
Flight 28:	17 June 1986, production, fine.
Flight 29:	18 June 1986, production, fine.
Flight 30:	19 June 1986, production, fine.
Flight 31:	20 June 1986, production, fine.
Flight 32:	21 June 1986, production, fine.
Flight 33:	22 June 1986, production, fine.
Flight 34:	23 June 1986, production, fine.
Flight 35:	24 June 1986, production, fine.
Flight 36:	25 June 1986, production, fine.
Flight 37:	26 June 1986, production, fine.
Standby Day:	27 June 1986, heavy wind and rain.
Flight 38:	28 June 1986, production, overcast.
Flight 39:	29 June 1986, production, overcast.
Flight 40:	30 June 1986, production, heavy cloud and showers.
Flight 41:	1 July 1986, production, early fog, fine.
Flight 42:	2 July 1986, production, early fog, fine.
Flight 43:	3 July 1986, production, fine.

Flight 44:	4 July 1986, production, windy, fine.
Flight 45:	5 July 1986, production, fine.
Flight 46:	6 July 1986, production, windy, fine.
Flight 47:	7 July 1986, production, overcast, light showers
Demobilistaion:	8 July 1986, overcast.

2 DATA ACQUISITION PARAMETERS

2.1 AREA

The Survey Areas are depicted on the location maps, figures 1-3.

2.2 SURVEY PARAMETERS

Type of survey:	Magnetic and radiometric
Survey size:	37,507 kilometres
Traverse line direction:	North-South
Traverse line spacing:	300 metres 250 metres for lines east of longitude 134 degrees 24 minutes in the Coober-Pedy Ridge area.
Tie Line Direction:	Orthogonal to traverse lines
Tie line spacing:	4.0 kilometres
Average line length:	45 kilometres
Nominal aircraft terrain clearance:	80 metres
Nominal aircraft speed:	65 metres per second
Navigation:	Combined Visual and doppler navigation.

2.3 AERIAL PHOTOGRAPHY

CRA Exploration Pty Ltd supplied the aerial photography, which consisted of:

a) one set of 1986 vintage South Australian Government high level 1:80,000 scale black and white photography and

b) two sets of 1:25,000 scale enlargements.

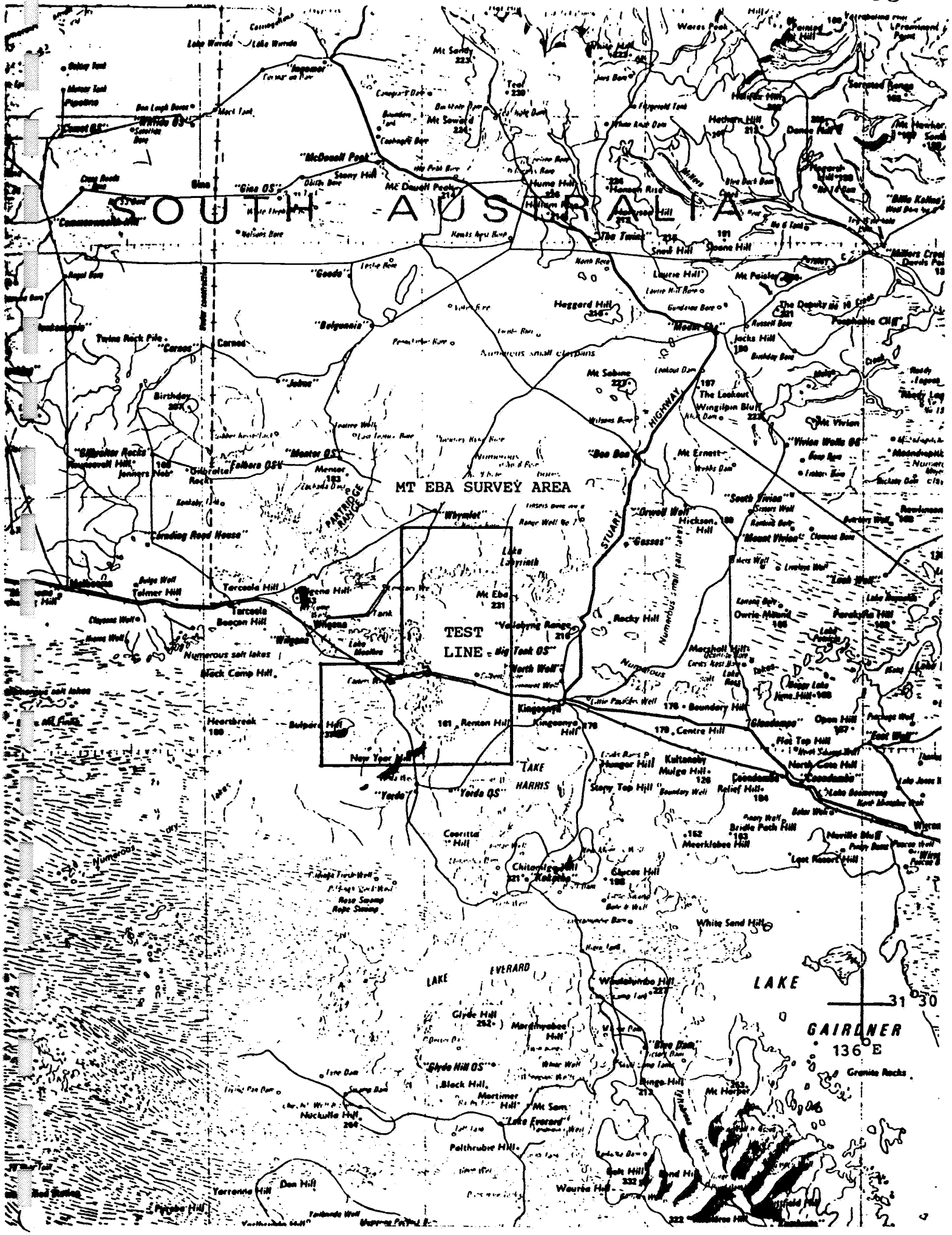
One set of 1:25,000 scale enlargements was marked with control points by the South Australian Government and used for flight path recovery. The other two sets of photography were used for the construction of navigation flight strips.

2.4 FLIGHT PATH RECOVERY

Flight path recovery is the location by image of the aircraft's position on the photography to be used in map compilation. The path recovery was carried out in the field on the controlled photography. Points which can be identified on both the 35mm tracking film and the photography are marked on both, and the fiducial number displayed on the 35mm film is recorded on the recovery photograph. The recovered fiducials joined by straight lines constitute the flight path of the aircraft.

Where possible, points have not been recovered outside a line joining the perimeter of the control points on any one photograph. When a flight line crosses a photograph boundary, the last recovered fiducial on one photograph is transferred as the first recovered fiducial on the next photograph and is referred to as a "transfer point".

Recovered fiducial points were picked only where positive points could be identified. This was done to provide accurate visual control for the doppler navigation data. The average distance between the recovered fiducials is 5.0 kilometres.



1:1,000,000 SCALE MAPSHEETS

TARCOOLA SH 53

FIGURE 2: LOCATION MAP

3 EQUIPMENT AND SPECIFICATIONS

3.1 AIRCRAFT

Model: Rockwell Shrike Commader 500S

Registration: VH-PWO

3.2 MAGNETOMETER

Model: Scintrex cesium vapour optical absorption magnetometer

Mounting: Tail stinger

Sample interval 0.2 seconds

Sensitivity: 0.04 nT

Average noise for the survey data is calculated from the fourth difference monitor using the equation:

Fourth difference noise envelope/16 = Average Data Noise
= 0.25 nT

Figure of Merit = sum of noise envelopes produced by ten degree roll, pitch and yaw manoeuvres heading N,S,E and W.
= 2.00 nT (average of 0.17 nT per manoeuvre), for Wudinna.
= 1.65 nT (average of 0.14 nT per manoeuvre), for Mt. Eba.
= 1.75 nT (average of 0.15 nT per manoeuvre), for Coober Pedy and Balta Baltana.

System Parallax: Less than one sample interval (see Sec.4).

3.3 SPECTROMETER

Model: Nuclear Data ADC/ND-560

Detectors: 8 Harshaw all viewing 4 pi NaI(Tl) crystals, totalling 33.6 litres. Crystals, photomultiplier tubes and preamplifiers are all mounted in temperature controlled, insulated compartments.

Sample interval: 1 second

Number of channels: 256

Synchronisation:	The spectrometer sample is allocated to the time recorded at the end of the sample interval.
Window definitions:	Total Count - Channel 68 to 225
	Potassium - Channel 116 to 133
	Uranium - Channel 141 to 158
	Thorium - Channel 206 to 240
	Cosmic - Channel 0
Nominal Window MeV Ranges:	Total Count - 0.8 to 3.0 MeV
	Potassium - 1.36 to 1.56 MeV (K40, 1.46 MeV)
	Uranium - 1.66 to 1.86 MeV (Bi214, 1.76 MeV)
	Thorium - 2.42 to 2.82 MeV (Tl208, 2.615 MeV)
	Cosmic - above 3.0 MeV

3.4 DATA ACQUISITION SYSTEM

Model: Geoterrex Pty. Ltd. MADACS

Program: AUSMS2A

The MADACS is a computer based software system using an Interdata 6/16 processor with 32K of memory. The processor is linked to a Digi-Data Model 1600 magnetic tape drive. This tape drive has a feature which, allows checking of the recording process as many times as the particular application permits. The checking procedure includes elimination of errors due to bad tape spots. Multiple buffers permit recording, processing, and acquisition of data to be carried out simultaneously with no dead time. The system uses a Cybernex alpha numeric keyboard and VDU for operator-system communication.

The key feature of this system is that all data collection, verification, buffering, and recording is software-controlled. Therefore, the acquisition system may be economically altered to fit almost any requirement. Critical parameters are automatically monitored during flight, with visual and aural alarms provided for the operator.

Survey parameters are displayed during flight in their correct physical units, making operator comparisons simple. The survey program operates on a request-response basis, with the system pre-empting the operator and rejecting all illegal responses.

The MADACS is used to control and command the operations of all the ancillary equipment. This includes the magnetometer, spectrometer, camera, altimeter, tape drive, and analogue chart recorder.

The system is based on a precision clock. Time is digitally recorded as a six-figure number called a "fiducial". A fiducial number equals the real time in tenths of seconds after midnight, for example, 000000 corresponds to midnight and 360000 corresponds to 10:00 am. Fiducials are generated on digital tape, film and analogue charts at ten second intervals. The fiducial numbers do not increment by units, they are calculated from the clock time by the computer. This system does

not require digital recording of line numbers, part numbers and line direction, thus avoiding a source of digital recording errors. These are recorded on the flight log by the operator.

Technical Specifications

Precision clock: The system is controlled by a precision clock which allows data to be collected at any multiple of 0.1 seconds.

Computer: The system is based on an Interdata 6/16 mini-computer with 32 kilobytes of core memory. The computer has the following interfaces:

- **Digital Input/Output Bus**
  This bus is capable of recording from, writing to, testing and controlling 16 external digital devices.

- **Analogue Input Module**
  This module has 16 analogue inputs with 12 bit resolution.

- **Analogue Output Module**
  This module has 12 analogue outputs with 12 bit resolution.

- **Magnetic Tape Controller**
  This interface/controller is capable of handling four 9-track NRZI tape transports. Tapes are written in an IBM compatible binary format with full parity, cyclic redundancy and longitudinal check characteristics.

- **Magnetometer Interface**
  This interface converts the signal from the high sensitivity cesium vapour magnetometer into a format acceptable to the MADACS.

- **Camera Controller**
  This interface allows the MADACS to control and monitor all aspects of the tracking cameras operation.

- **Doppler Interface**
  This is an intelligent interface which reads data from the doppler, reformats it and supplies it to the MADACS. It also controls the doppler tracking indicator and track controller (control terminal).

- **Operators Console**
  This is a Cybernex alpha numeric keyboard and VDU, via which the operator communicates with the system. While on line during survey, all parameters are continuously displayed on the monitor unless the system senses an abnormal condition in which case a diagnostic message and the time sensed are displayed. The message remains until acknowledged by the operator.

Recorded Digital Data

Each second:	Flight number
	Time
	Altitude
	Spectrometer windows
	232 channels of radiometric data
	Cosmic count
	Live time
	Doppler navigation data
Each 0.2 seconds:	Total magnetic field

(See Field Data Tape Format, Appendix C)

3.5 TRACKING CAMERA

Model: Geocam 75 SF

The tracking camera is a 35 mm continuous strip camera equipped with a 17 mm wide-angle lens. The 35 mm film is synchronised with the geophysical record by means of fiducial marks printed every second and fiducial numbers recorded on the film every ten seconds. The ten second fiducial mark is the large dot between the ten thousand and one thousand digits. Times are not recorded from an incrementing counter, they are recorded from the digital information provided by the MADACS system.

3.6 DOPPLER NAVIGATION SYSTEM

Model:	Singer-Kearfott AN/ASN-128 Lightweight Doppler Navigation System
Vertical Gyro:	Sperry VG-14
Compass:	Sperry C-12
Sample interval:	1.0 second

3.7 ALTIMETER

Model:	Sperry Stars AA200 radio altimeter system
Sample interval:	1.0 second
Accuracy:	+/- 1.5% (+/- 1 m at 60 m)

Synchronisation: The average of the output of the altimeter over each second is calculated and assigned to the time recorded at the end of each sample.

3.8 ANALOGUE RECORDER

Model: RMS GR33 Thermal Dot Matrix Printer

Chart Speed: 10 cm/minute; time increases from left to right

Chart width: 12 inches

Event marks: 10 second marks are recorded, on both sides of the chart with the associated fiducial numbers being printed at the base of the chart.

Channels recorded & full-scale values:

Total magnetic field

Flights	Fine scale	Coarse scale
3,15,24	50 nT	500 nT
4	200 nT	2000 nT
5	100 nT	2000 nT
6-13,16-23,25	100 nT	1000 nT
24	500 nT	1000 nT
23-26	200 nT	1000 nT
27-47	200 nT	5000 nT

Magnetic field fourth difference +/-20 nT

	Flts 3-5	Flts 6-47
Terrain clearance	- 200 metres	- 200 metres
Total Count	- 1000 counts/sec	- 2000 counts/sec
Potassium	- 500 counts/sec	- 500 counts/sec
Uranium	- 100 counts/sec	- 200 counts/sec
Thorium	- 100 counts/sec	- 200 counts/sec
Cosmic	- 500 counts/sec	- 500 counts/sec

All fields increase in value towards the top of the chart. A sample analogue record is shown in Figure 4.

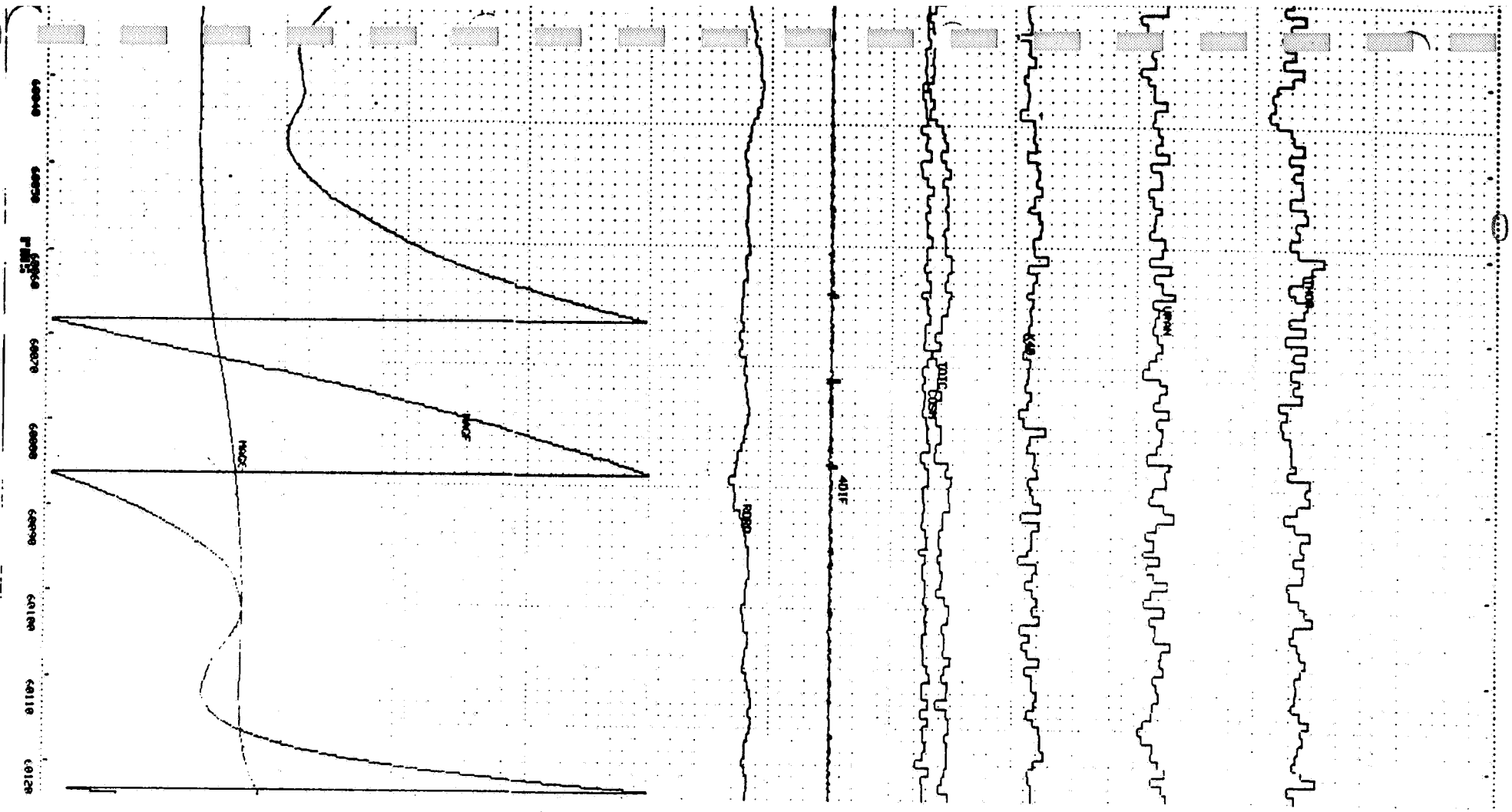
Zero Positions: These zero positions are annotated on the analogue sample. The zero position of each radiometric channel is calibrated automatically at the start of each line. Between lines each trace resides in its mid-range position.

Sychronisation: No lags occur between traces, other than that which occurs between the magnetic field and its fourth difference.

Compton Effect Corrections:	The analogue radiometric channels have been Compton corrected using: Alpha (Thorium into Uranium) - 0.30 Beta (Thorium into Potassium) - 0.35 Gamma (Uranium into Potassium) - 0.70 The radiometric data recorded on the field tapes has not been corrected.
Cosmic Background Correction:	The analogue radiometric channels have been corrected, in real time, for aircraft and cosmic background using the equations set out in Section 4. The erroneous potassium background value of 37 counts is displayed on the analogues, however the correct value of 27 counts is being used to correct the data.

3.9 GROUND MAGNETOMETER BASE STATION

Sensor:	Cesium vapour
Magnetometer:	IFG
Sample interval:	2 seconds
Sensitivity:	0.1 nT
Analogue recording:	Gulton 10 cm Chart paper Time increases left to right 24 cm/hour chart speed 50 nT full scale deflection
Digital Recording:	HP85 computer onto Magnetic Tape
Location:	Kimba, Glendambo and Coober Pedy.



0----------COARSE MAG----------5000

0----------FINE MAG----------0200

0----TOTAL COUNT---2000

0------RADAR------0200

-20 4TH D +20

0-----POTASSIUM----0500

0------URANIUM-----0200

0 COSMIC 0500

0----THORIUM----0200

COMPTON CORRECTIONS (PARTS/1000):ALPHA= 300 BETA= 350 GAMMA= 700
COSMIC CORRECTIONS (PARTS/1000):TC= 456 THOR= 050 URA= 040 K40= 049
HEIGHT CORRECTIONS (PPM) TC= 5940 THOR= 6490 URA= 7300 K40 7810
BACKGROUNDS (COUNTS) TC= 110 THOR= 004 URA= 014 K40= 037

DATE 28/06/86 FLIGHT NO. 0038

JOB NO. 1-329 LINE NO. 851.1.N

AREA Coober Pedy Ridge

GEOTERREX PTY. LTD.

FIGURE 4

4 CALIBRATION PROCEDURES AND RESULTS

4.1 MAGNETOMETER

The following calibration tests were carried out on the magnetometer.

Manoeuvre test to determine Figure of Merit (F.O.M.)

This test was Carried out on 17 May 1986, 1 June 1986, 8 June 1986 and in South Australia and is considered the most important of the magnetometer tests. The settings of the compensation coils determined from these tests remain fixed during the heading effect test and during the survey. The Figure of Merit for these tests were: F.O.M. = 2.00 nT, 1.65 nT and 1.75 nT respectively. The figure of Merit test analogues (Figures A1-A36) and Table of Results (Table A1) can be found in Appendix A.

Parallax

This test was carried out on 15 May 1986 in South Australia. The aircraft was flown in opposite directions over a sharp magnetic anomaly with the tracking camera and magnetometer operating. The time lag between the magnetic source being recorded on the tracking film and its anomaly being recorded is determined as below:

	NORTH HEADING FIDUCIAL	SOUTH HEADING FIDUCIAL
Magnetic High Camera	61557.2 - 61557.0	61432.0 - 61432.2
Difference	E1 = +0.2	W1 = -0.2
Magnetic Low Camera	61555.2 - 61557.0	61433.6 - 61432.2
Difference	E2 = -1.8	W2 = +1.4

$$\text{Average Lag} = \frac{E1 + E2 + W1 + W2}{4}$$

$$= 0.1 \text{ seconds}$$

Copies of the parallax test analogues can be found in Appendix A, Figures A37-A38.

Heading Effect Test

This test was conducted on 17 May 1986, 2 June 1986, 8 June 1986 and in South Australia with the compensation coil settings remaining as set in the F.O.M. test. Test lines were flown, in the North, East, South, West directions over a common point. These lines were flown, in a low gradient area, while the ground station was running and synchronised. It is necessary to use a low gradient area so that

slight deviations in the test line navigation do not significantly effect the results of this test. The results of this heading test can be found in Appendix A (Table A2 and Figures A39-A41).

4.2 SPECTROMETER

The following checks and determinations were carried out for the radiometric data.

Pre and Post-flight Source Check Procedures

- Pre and post-flight U and Th source checks with samples in a standard position relative to the crystals and the aircraft in a standard parking position - recorded for 100 seconds.

- Pre and post-flight test line recorded at survey altitude.

The results of the pre and post-flight uranium and thorium source checks can be found in Appendix B, Table B1. An annotated sample of the spectra plotted with each uranium and thorium source check is presented in Appendix B, Figures B1 and B2. The two figures combined form the output of one source check.

The position of the test line is marked on the Location Map (Figures 1-3).

Compton Stripping Coefficients

These coefficients have been most recently determined from 34 source checks conducted during April 1984. They are:-

Alpha - 0.290 +/- 0.013
Beta - 0.373 +/- 0.017
Gamma - 0.723 +/- 0.016
Delta - 0.038 +/- 0.008

Background Determination

This test was carried out in July 1985 to determine the relationship between cosmic events (energies greater than 3.0 MeV) and counts recorded in other channels. The test was flown overland with the spectrometer system correctly calibrated as for survey work. Data was recorded at nine high altitudes; 5000 feet, 6000 ft, 7000 ft, 8000 ft, 9000 ft, 10000 ft, 11000 ft, 12000 ft, and 13000 feet A.S.L. As anticipated, the results display spurious effects at "low" altitudes. The "low" altitude data probably being affected by radon.

The best fit linear equations for these tests are:-

Th background = 0.050 x Cosmic + 4
U background = 0.040 x Cosmic + 14
K background = 0.049 x Cosmic + 27
TC background = 0.456 x Cosmic + 110

where

cosmic = counts of energies greater than 3.0 MeV stored in channel 0.
x background = counts to be subtracted from window x.

Graphs of these equations are presented in Appendix B (Figures B3-B6).

Height Attentuation Coefficients

In July 1985 linear height attenuation coefficients were determined using the procedure outlined below:

a) An area with "homogeneous" radioactivity, high count rates and relative flat terrain was selected.

b) An easily repeatable line was flown over this area at eight different altitudes.
200 feet, 250 ft, 300 ft, 400 ft, 500 ft, 600 ft, 700 ft, 800 feet. The spectrometer was correctly calibrated for this test flight.

c) Sections of each line sharing the most constant terrain clearance and count rate were selected for data processing.

d) The altitude data for each line section was corrected using the altitude calibrations recorded on the same flight, and averaged.

e) The radiometric data for each line section was background corrected using a height correction for alpha. The resultant data was averaged.

f) The resulting count rates in each channel were plotted and attenuation coefficients suitable for an air temperature of 18C were determined.

Graphs of the results can be found in Appendix B, (Figures B7-B10).

The coefficients are:

Total count	0.00574 per metre
Potassium count	0.00713 per metre
Uranium count	0.00608 per metre
Thorium count	0.00581 per metre

Note: The value calculated for the Uranium window was affected by excessive scatter in the data caused by low count rates. It is suggested that a value of 0.0073 per metre be used. This value was calculated by interpolation from a suite of previous calibration data and the data from this calibration.

During all spectrometer tests the data used is the window data recorded on field tapes. The widths of these windows are specified in Section 3.

Resolution

The resolution of the spectrometer is defined as the full width of the Thorium peak at its half peak height position, expressed as a percentage of the peak MeV value.

The spectrometer resolution was checked before and during the survey and it was found to be 4.9% (see Figures B11 and B12, Appendix B).

4.3 ALTIMETER

The Sperry radio altimeter is a high quality instrument whose output is factory calibrated. It is fitted with a test function which checks the calibration of a terrain clearance of 100 feet and higher altitudes of 50 feet intervals. Calibration of the recorded terrain clearance, both analogue and digital, with respect to the altimeter reading is carried out using a potentiometer to vary the reading while recording the altimeters output. The results of a recent altimeter calibration carried out in July 1986 are presented in Table 2.

TABLE 2: ALTIMETER CALIBRATION RESULTS

INDICATED ALT.(feet)	RECORDED ALT.(metres)
100	30
150	46
200	62
250	75
300	91
350	106
400	121
450	135
500	150

5 DATA PROCESSING

On receipt of all the data in Sydney, path recovery, analogue records and flight logs were checked for consistency of line numbering.

5.1 FIELD TAPES

These are recorded in binary format, (see Appendix C for detailed description) and are compacted and reformatted in ASCII code. The following information is retained on file as the Compacted Field Tape (C.F.T.).

- flight number
- magnetic reading (0.1 nT)
- thorium count
- uranium count
- potassium count
- total count
- altimeter (feet)
- fiducial (time in tenth seconds after midnight)
- spectrometer live time (milliseconds)
- cosmic count
- doppler navigation data

The 256 channels of radiometric data are not selected from the field tape unless there is some indication in the thorium and cesium peak positions that the radiometric channels have drifted away from the normal window settings. If it is necessary to re-construct radiometric data due to channel drift, summed spectral plots are produced for each survey line. These are examined to determine at what stage the drift began and which new channel positions define the principle radiometric windows.

Due to the difference in the sample interval between the magnetic and the radiometric data, the radiometric values are repeated for each 0.2 second reading between the 1.0 second readings. This gives both magnetic and radiometric readings for each 0.2 second interval. All channels are checked and edited for single reading spikes and recording gaps; any single reading spikes are removed manually.

5.2 FLIGHT PATH DIGITISATION

The recovered flight path was digitised from the individual 1:25,000 scale photographs relative to a set of control points. The co-ordinates of the control points in the Australian Map Grid System, were determined photogrammetrically by The South Australian Government from standard National Mapping control.

The AMG co-ordinates of each digitised recovered fiducial are determined by fitting a low order polynomial trend surface to the control point network to remove distortion. The position of each point is then calculated relative to the control surface. Erroneous points are checked by comparing the average aircraft speed between adjacent recovered fiducials (fiducial numbers being real time values in seconds) and the average speed for the whole line. Significant speed changes over short intervals (5 or 6 kilometres) were noted and the surrounding recovery was checked for errors and corrected where necessary.

The differences in the computer co-ordinates of the transfer points are used to estimate the accuracy of the AMG co-ordinate transformation.

5.3 DOPPLER FLIGHT PATH

The AMG co-ordinates recorded by the doppler navigation system were merged with the digitised recovery co-ordinates by making the doppler values at recovered fiducials equal to the digitised AMG co-ordinates. Doppler co-ordinates between recovered fiducials were adjusted by linear interpolation of the differences applied at the recovery points. A speed report was produced which compares the speed between digitised co-ordinates and doppler co-ordinates to ensure the doppler flight path was not adjusted by erroneous recovered fiducials.

5.4 MAGNETICS

Levelling

The aeromagnetic data was levelled by first removing the heading effect calculated from the tests documented in Table A2 and figures A39-A41, and then removing the diurnal magnetic field measured at the base station. For traverse lines, the heading effect was calculated by subtracting the magnetic value obtained by flying south from the north value and then adding the result to all lines flown south. For tie lines, the result of east minus west was added to the lines flown east.

The digitally recorded base station magnetic data was checked for gaps, single reading spikes and completeness. Any single reading spikes were manually removed and small gaps interpolated. Any loss of digital recording resulting in a base station record of lesser duration than the aeromagnetic flight was replaced by digitisation of the relevant sections of analogue record. The base station magnetic data was filtered using a triangular filter with 13 terms to ensure that the low noise level of the airborne data was not increased due to base station magnetometer scatter. Finally, the base station data was interpolated from the original 2 second sample interval to 0.2 seconds and then subtracted from each airborne sample on every survey line.

Parallax

The results from continuous testing indicate that the parallax error affecting the position of aeromagnetic data is less than one sample interval (0.2 seconds). Therefore no parallax correction is applied to the data.

International Geomagnetic Reference Field

The International Geomagnetic Reference Field known as IGRF (1980) is subtracted from the data and a datum of 5000 nanoteslas is then added to ensure that there are no negative magnetic values before contouring.

Gridding and Contouring

Wudinna and Mt Eba

Grid mesh size:	60 x 60 metres
Grid filter:	Polynomial, radius 90 metres
Residual magnetic contour maps:	Horizontal scale - 1:25,000 Contour interval - 10, 50, 500 nT

Balta Baltana

Grid mesh size:	60 x 60 metres
Grid filter:	Polynomial, radius 90 metres
Two residual magnetic contour maps:	Horizontal scale - 1:25,000 Contour interval - 10, 100, 1000 nT Contour interval - 20, 100, 1000 nT

Coober Pedy Ridge

Grid mesh size:	60 x 60 metres
Grid filter:	Polynomial, radius 90 metres
Residual magnetic contour maps:	Horizontal scale - 1:25,000 Contour interval - 20, 100, 1000 nT

5.5 RADIOMETRICS

Corrections
The radiometric data for all four areas was corrected for:

- Spectrometer dead time
  "Dead time" is the fraction of 1 second when the spectrometer is actually counting the energy levels and not registering the incoming counts. A typical "dead time" is 15 milliseconds in a 1 second sample period.

- Cosmic effect and aircraft background
  Through test flying outlined in Section 4, Geoterrex Pty Ltd has established the coefficients for the linear relationship between the incoming cosmic counts (energies greater than 3 MeV) and their contribution to the background in each window.

- Changes in ambient air temperature
  The effects of changing air temperature are incorporated in the notion of a temperature corrected altitude that will be used in other calculations. The field operator records the outside temperature at regular intervals throughout each flight while at survey altitudes.

- Compton scattering
  These coefficients were determined from the calibration procedures outlined in Section 4. It should be noted that the alpha coefficient is height dependent under the linear relation:

$$\text{true alpha} = \text{ground} + 0.02 + 0.00025 \times \text{height}$$

- Height attenuation
  The survey data was exponentially height attenuated to a common datum of 80 metres, which was the nominal survey altitude, using the coefficients determined in Section 4.

5.6 DATA TAPES

Located Data Tape

A levelled located data tape, containing all traverse line, tie line and calibration line data was recorded in 9-track ASCII code at a density of 1600 bpi in a format described in Appendix C. This format is the South Australian Department of Minerals and Energy standard format for airborne geophysical survey data.

Gridded Data Tape

A gridded data tape of the residual magnetics grid for all four areas was produced. These tapes were recorded in 9-track ASCII code at a density of 1600 bpi in a format described in Appendix C.

6 DELIVERABLE ITEMS

21 Final Residual Magnetic Contour Maps, Wudinna area, at 1:25,000 scale (ink on plastic)
18 Final Residual Magnetic Contour Maps, Mt Eba area, at 1:25,000 scale (ink on plastic)
2 Final Residual Magnetic Contour Maps, Balta Baltana area, at 1:25,00 scale (ink on plastic)
34 Final Residual Magnetic Contour Maps, Coober Pedy Ridge area, at 1:25,000 scale (ink on plastic)
21 Final Flight Path Maps, Wudinna area, at 1:25,000 scale (ink on plastic)
18 Final Flight Path Maps, Mt Eba area, at 1:25,000 scale (ink on plastic)
1 Final Flight Path Map, Balta Baltana area, at 1:25,000 scale (ink on plastic)
34 Final Flight Path Maps, Coober Pedy Ridge area, at 1:25,000 scale (ink on plastic)
2 Final Flight Path Maps, Wudinna area, at 1:100,000 scale (ink on plastic)
1 Final Flight Path Map, Mt Eba area, at 1:100,000 scale (ink on plastic)
3 Final Flight Path Maps, Balta Baltana and Coober Pedy Ridge areas, at 1:100,000 scale (ink on plastic)
4 Located data tapes
4 Located data tape summaries
4 Located data tape sample dumps
4 Gridded data tapes
4 Final speed reports (computer printout)
4 Recovered Line listings
4 Mileage lists
Flight logs (for flights 1-47)
All recovery photography
All spare photography
Negative tracking film
Flight strips
26 Folders of radiometric and magnetic analogue records
1 Logistics report

3 October 1986

APPENDIX A: MAGNETOMETER CALIBRATION DATA

3 October 1986

TABLE A1: FIGURE OF MERIT TEST RESULTS

17 May 1986

HEADING	ROLLS	PITCHES	YAWS	TOTAL
North	0.20 nT	0.40 nT	0.10 nT	0.70 nT
South	0.10 nT	0.30 nT	0.05 nT	0.45 nT
East	0.20 nT	0.20 nT	0.10 nT	0.50 nT
West	0.15 nT	0.10 nT	0.10 nT	0.35 nT
			F.O.M.	2.00 nT

1 June 1986

North	0.10 nT	0.40 nT	0.0 nT	0.50 nT
South	0.15 nT	0.50 nT	0.0 nT	0.65 nT
East	0.20 nT	0.0 nT	0.0 nT	0.20 nT
West	0.10 nT	0.10 nT	0.10 nT	0.30 nT
			F.O.M.	1.65 nT

8 June 1986

North	0.10 nT	0.40 nT	0.10 nT	0.60 nT
South	0.10 nT	0.30 nT	0.0 nT	0.40 nT
East	0.20 nT	0.15 nT	0.10 nT	0.45 nT
West	0.15 nT	0.10 nT	0.05 nT	0.30 nT
			F.O.M.	1.75 nT

GEOTERREX PTY. LIMITED

JOB No: 1-329 FLT No: 14

AREA: MT. EBA

LINE No: NORTH ROLL DATE: 1·6·86

MAGNETOMETER FS: 10 NT/500 NT

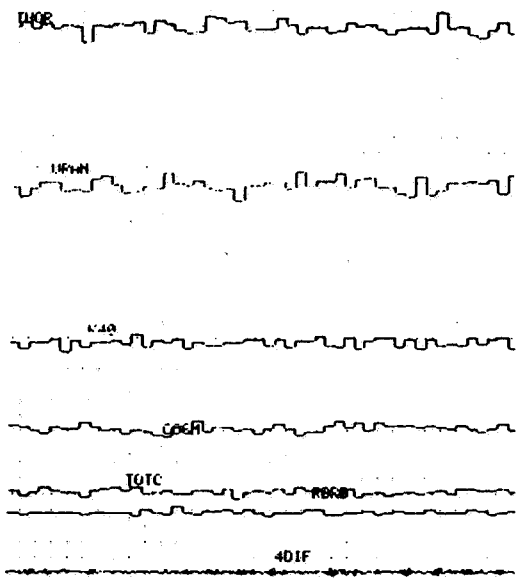


FIGURE A13

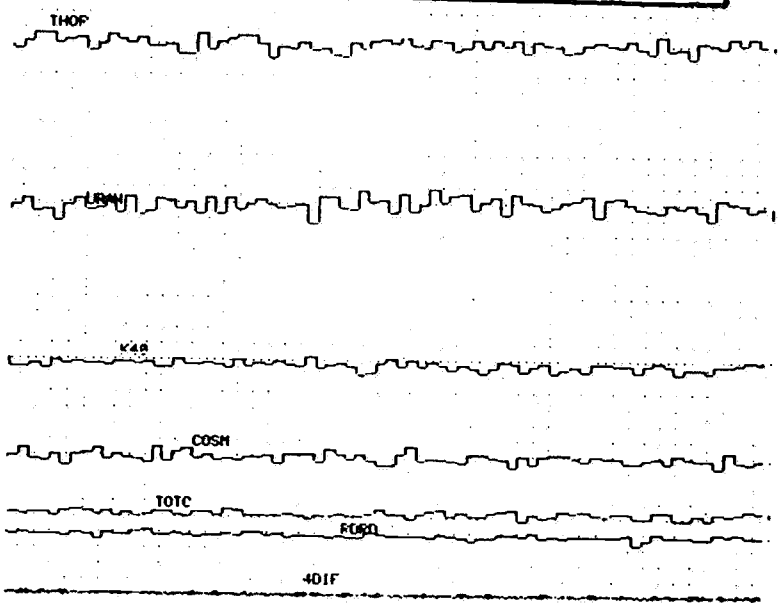
GEOTERREX PTY. LIMITED

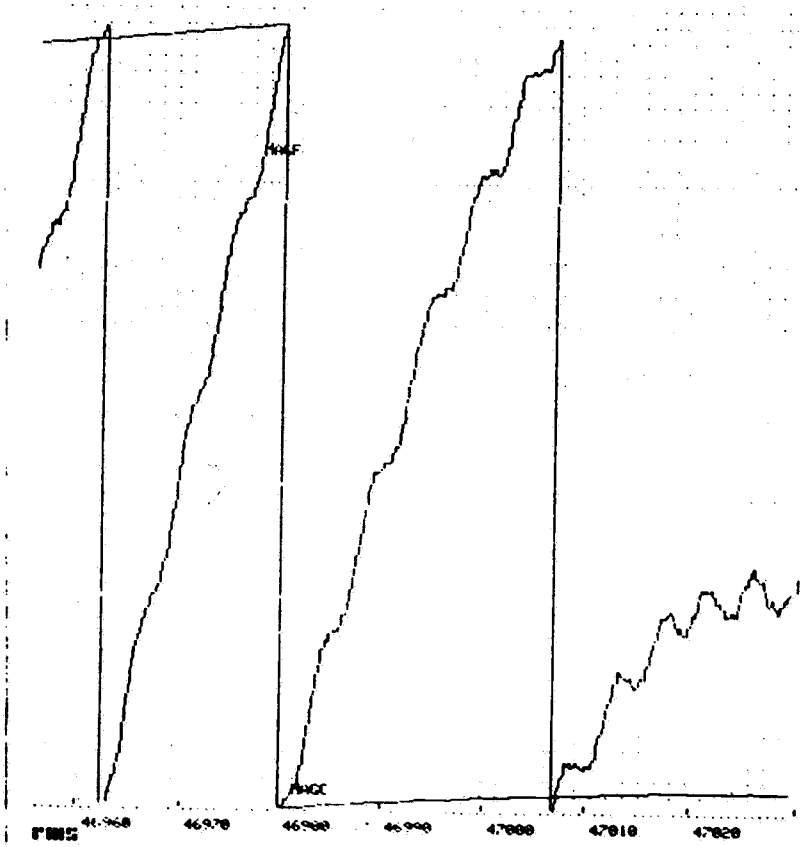
JOB No: 1-329 FLT No: 14

AREA: MT. EBA

LINE No: NORTH PITCH DATE: 1-6-86

MAGNETOMETER FS: 10 NT/ 500 NT





FIGURE

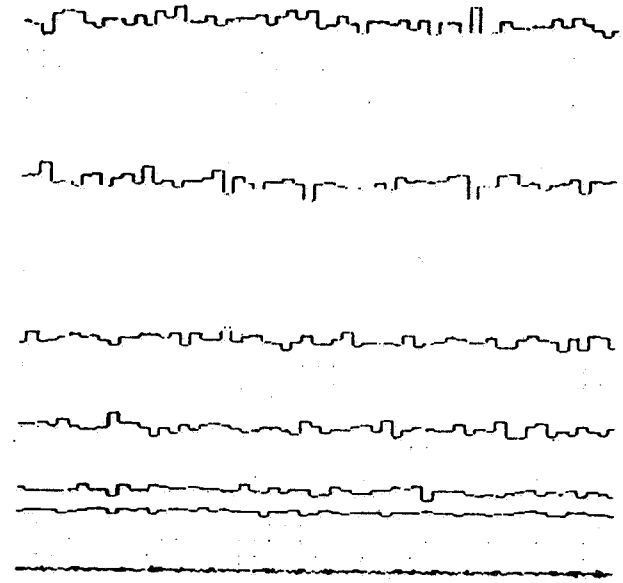
GEOTERREX PTY. LIMITED

JOB No: 1-329 FLT No: 14

AREA: MT. EBA

LINE No: NORTH YAW DATE: 1·6·86

MAGNETOMETER FS: 10 NT/ 500 NT



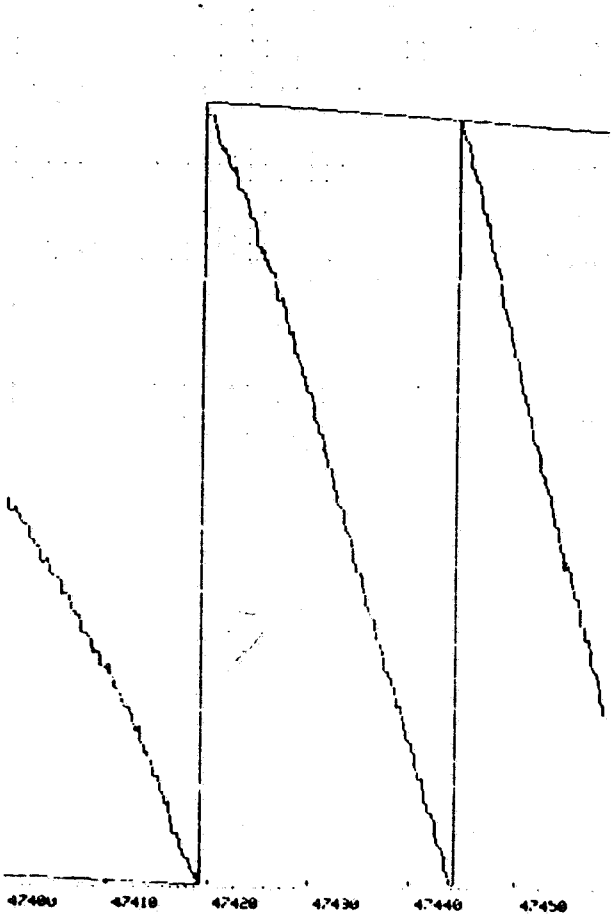


FIGURE A15

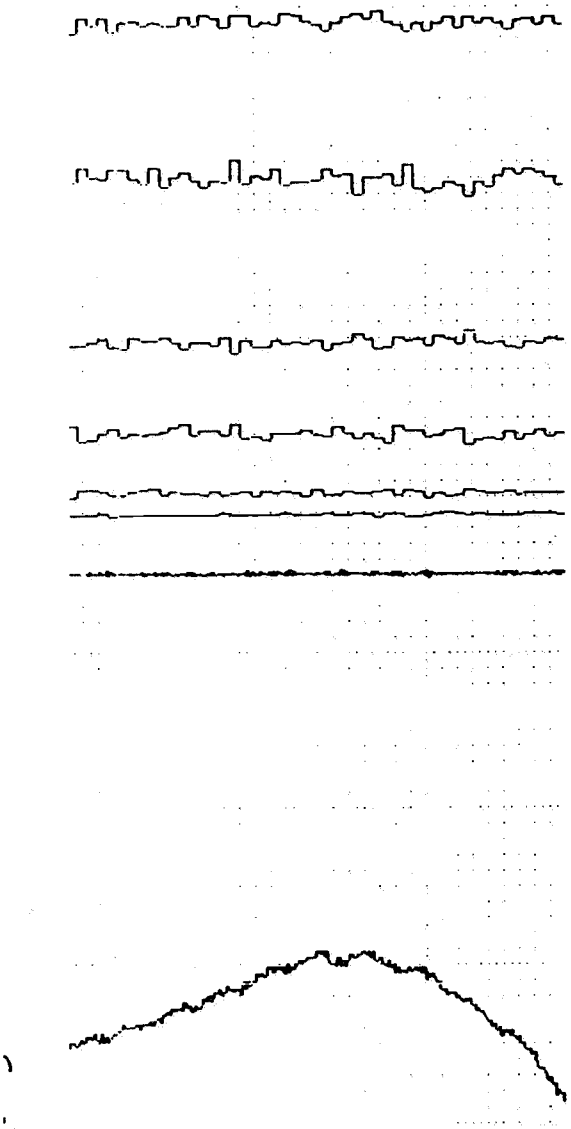
GEOTERREX PTY. LIMITED

JOB No: 1:329 FLT No: 14

AREA: MT. FBA

LINE No: SOUTH ROLL DATE: 1·6·86

MAGNETOMETER FS: 10 NT/ 500 NT



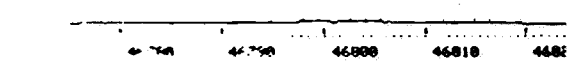


FIGURE A16

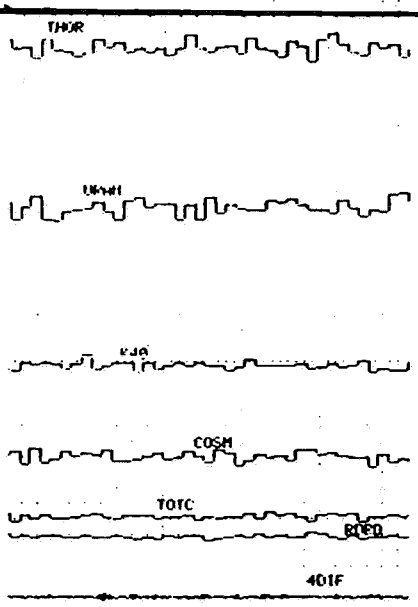
GEOTERREX PTY. LIMITED

JOB No: 1-329 FLT No: 14

AREA: MT. EBA

LINE No: SOUTH PITCH DATE: 1·6·86

MAGNETOMETER FS: 10 NT/500 NT



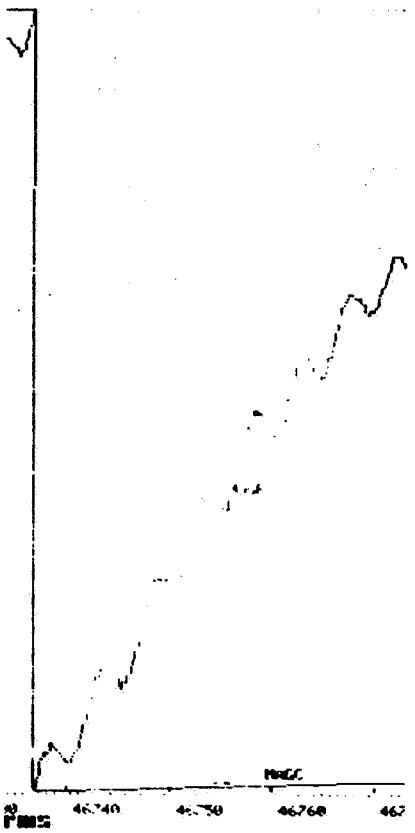


FIGURE 3.1.2

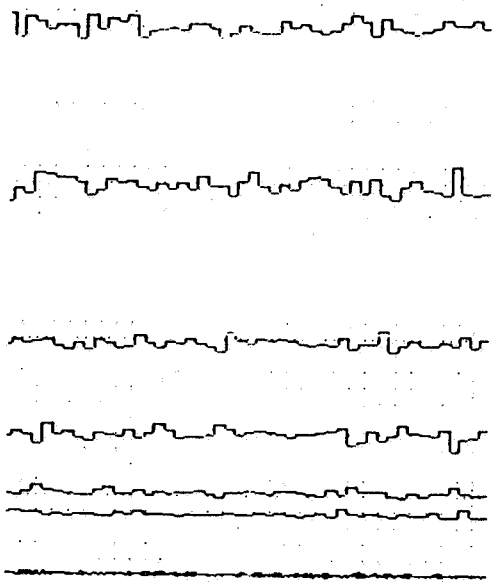
GEOTERREX PTY. LIMITED

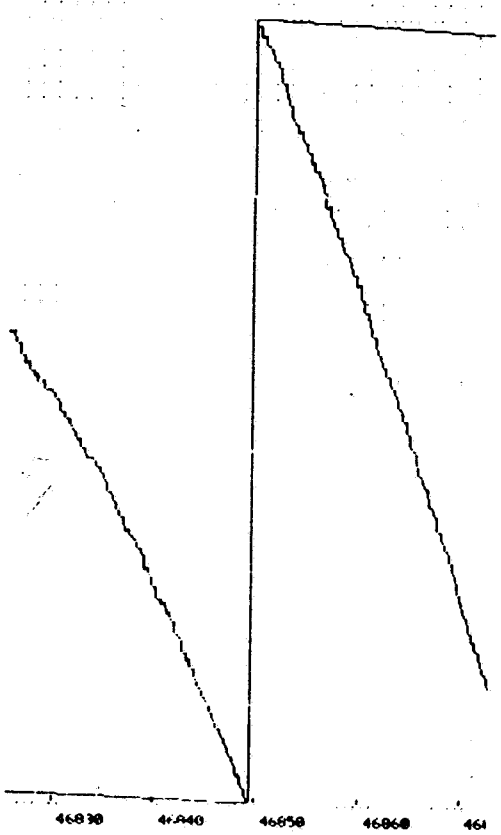
JOB No.: 1-329 FLT No.: 14

AREA: MT. EBA

LINE No.: SOUTH YAW DATE: 1·6·86

MAGNETOMETER FS: 10 NT/ 500 NT





GEOTERREX PTY. LIMITED

JOB No: 1-329 FLT No: 14

AREA: MT. EBA

LINE No: EAST ROLL DATE: 1·6·86

MAGNETOMETER FS: 10 NT/ 500 NT

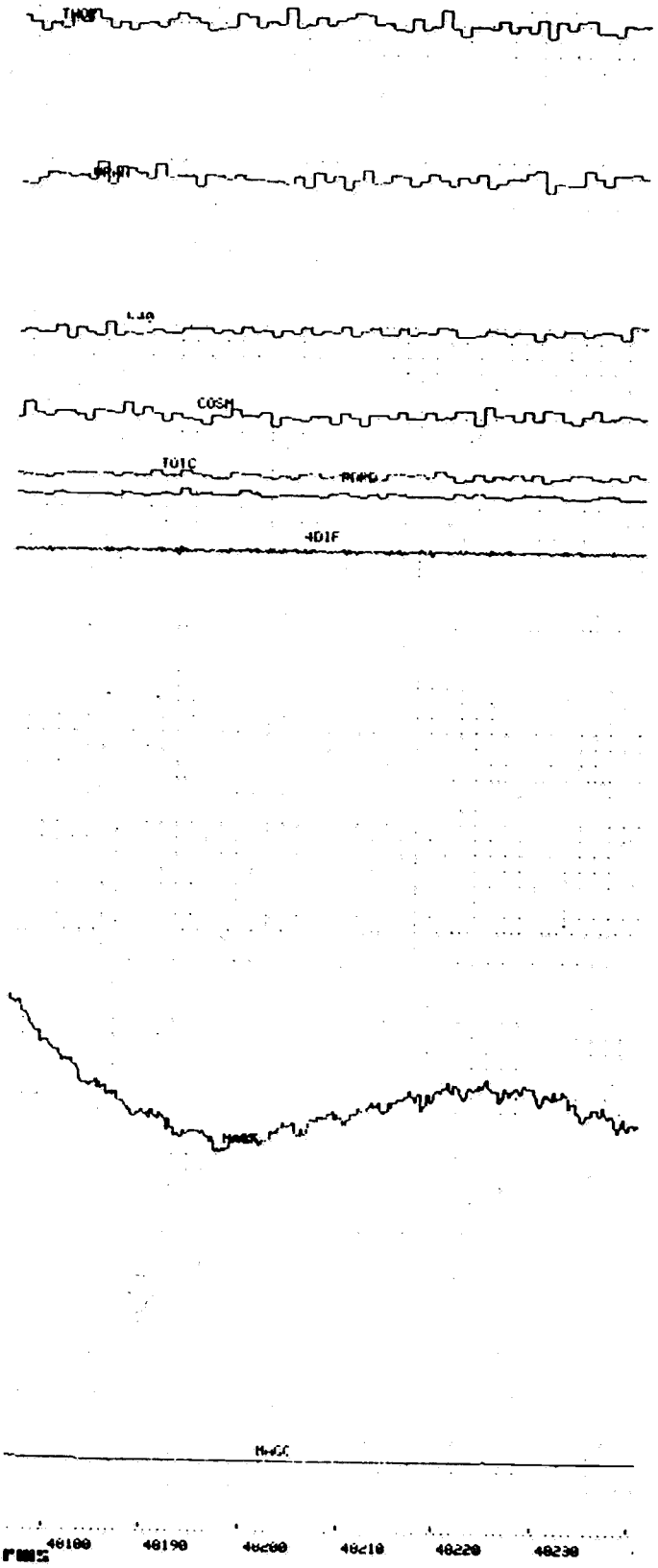


FIGURE A19

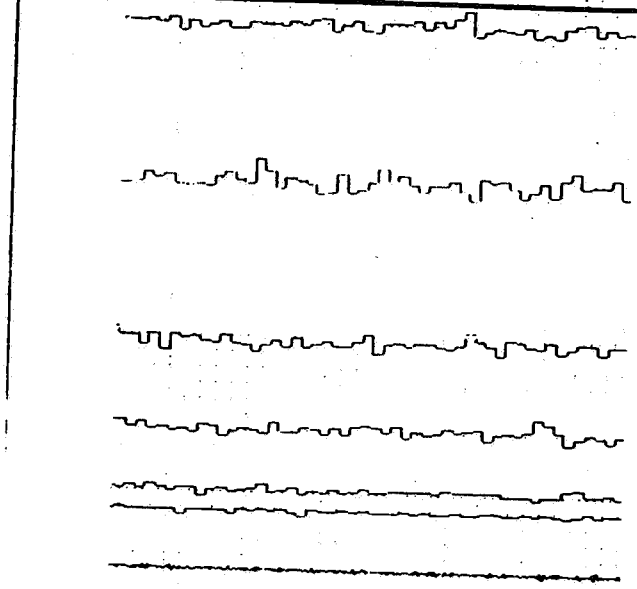
GEOTERREX PTY. LIMITED

JOB No: 1·329 FLT No: 14

AREA: MT. EBA

LINE No: EAST PITCH DATE: 1·6·86

MAGNETOMETER FS: 10 NT/ 500 NT



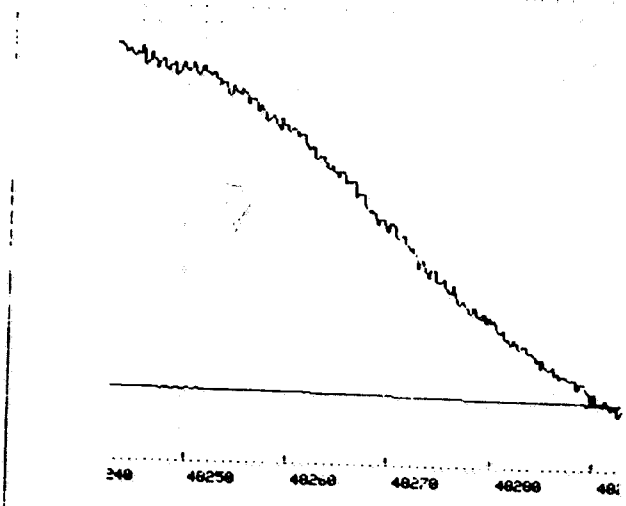


FIGURE A20

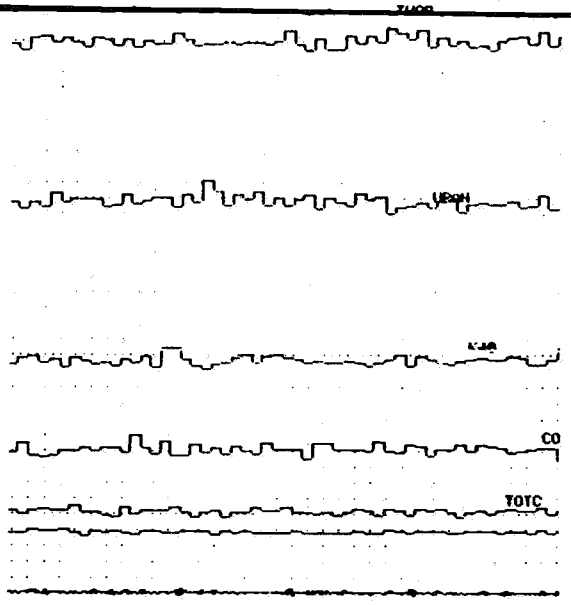
GEOTERREX PTY. LIMITED

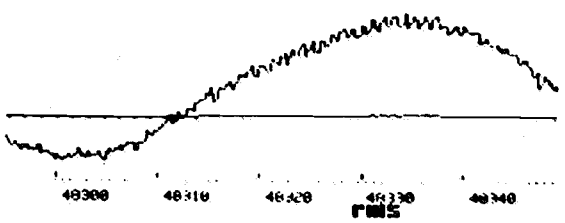
JOB No: 1-329 FLT No: 14

AREA: MT. EBA

LINE No: EAST YAW DATE: 1.6.86

MAGNETOMETER FS: 10 NT/ 500 NT





FIGURE

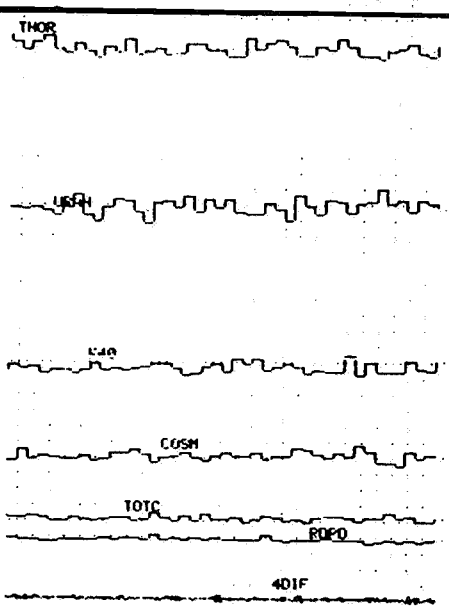
GEOTERREX PTY. LIMITED

JOB No: 1-329 FLT No: 14

AREA: MT. EBA

LINE No: WEST ROLL DATE: 1·6·86

MAGNETOMETER FS: 10 NT/ 500 NT



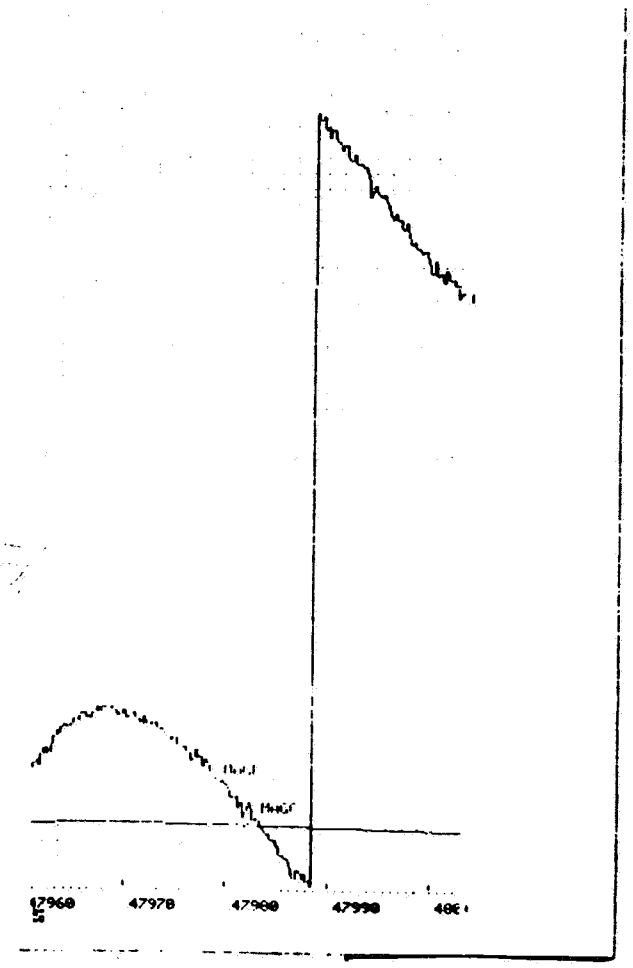


FIGURE A22

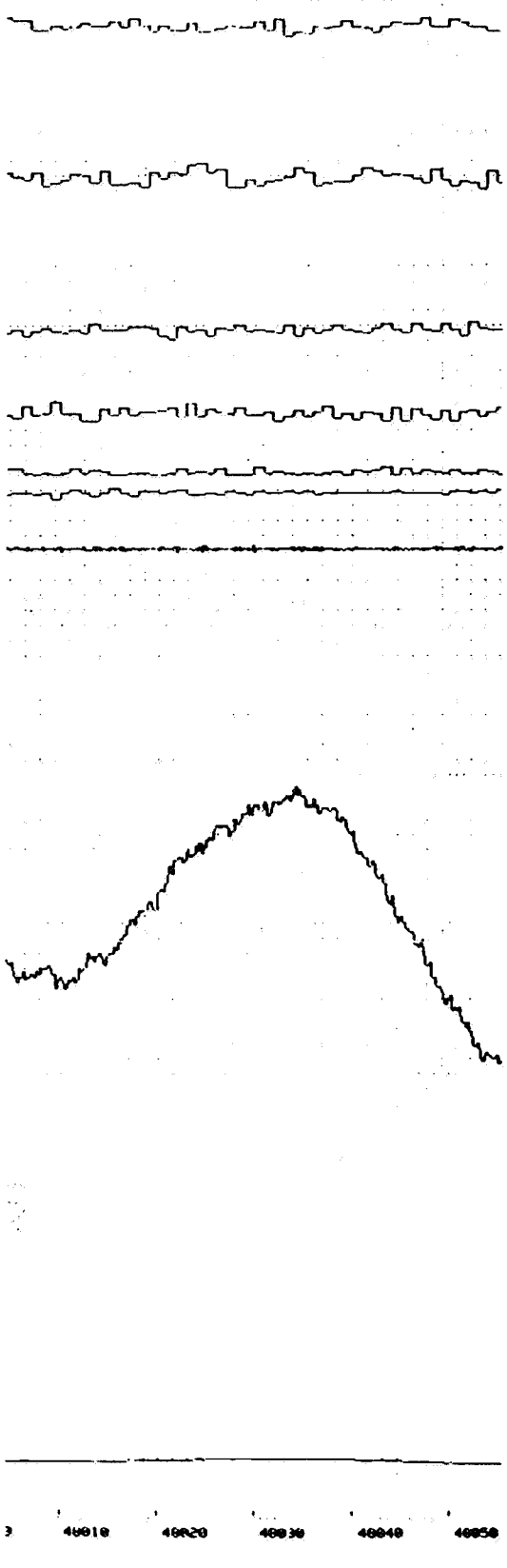
GEOTERREX PTY. LIMITED

JOB No: 1-329 FLT No: 14

AREA: MT. EBA

LINE No: WEST PITCH DATE: 1·6·86

MAGNETOMETER FS: 10 NT/ 500 NT



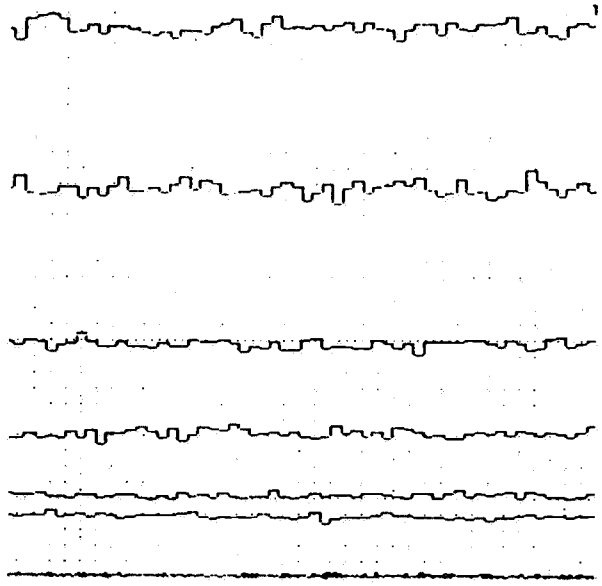
GEOTERREX PTY. LIMITED

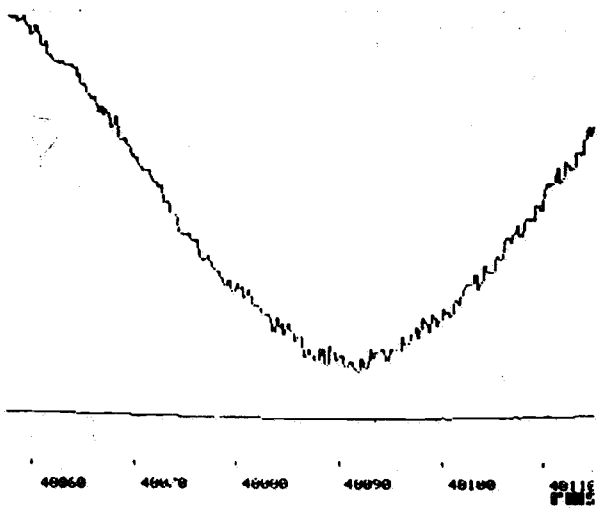
JOB No: 1-329 FLT No: 14

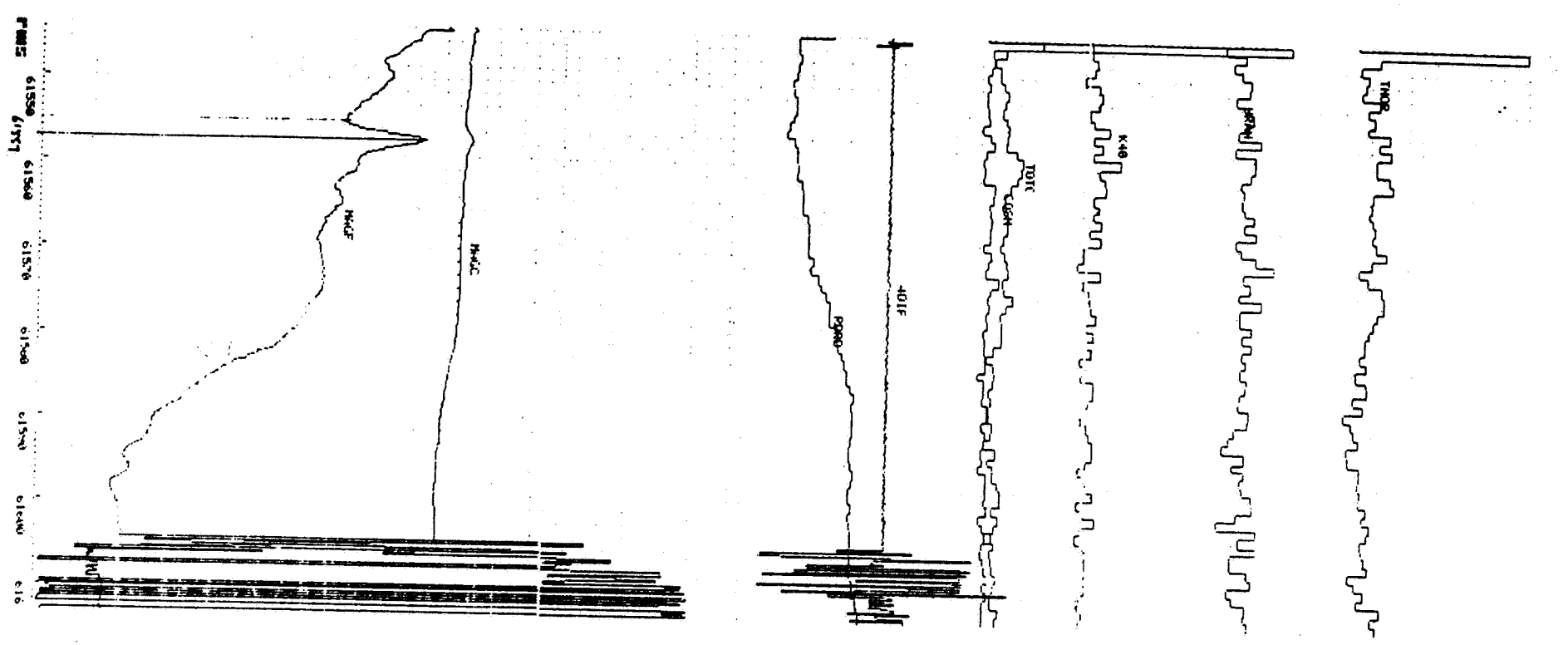
AREA: MT. EBA

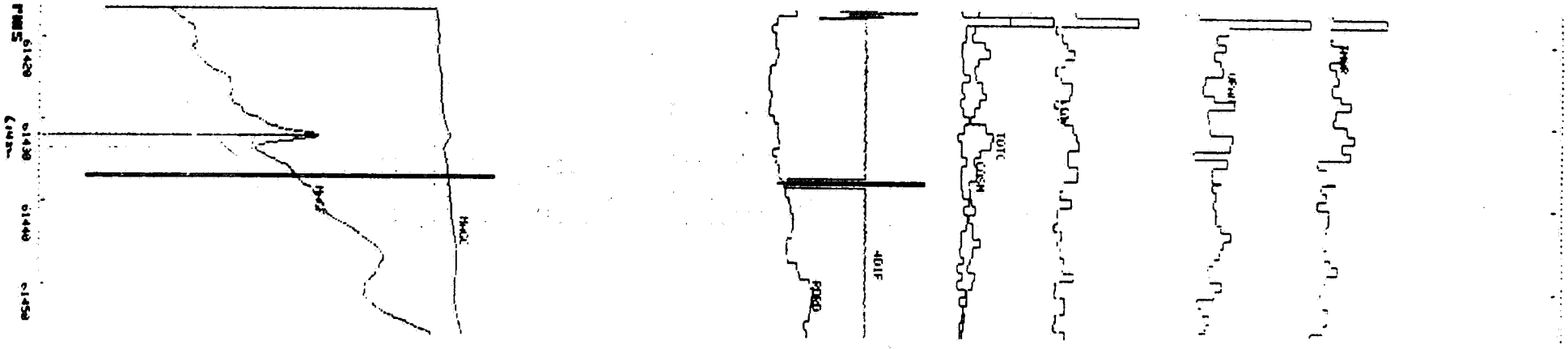
LINE No: WEST YAW DATE: 1·6·86

MAGNETOMETER FS: 10 NT/ 500 NT






FIDS
61550
61560
61570
61580
61590
61600
61610
61620
61630
61640
61650
61660
61670
61680
61690
61700
61710
61720
61730
61740
61750
61760
61770
61780
61790
61800
61810
61820
61830
61840
61850
61860
61870
61880
61890
61900
61910
61920
61930
61940



0----------COARSE MAG----------0500 0----TOTAL COUNT---2000

0-------RADAR------0200 0-----POTASSIUM----0500

-20 4TH D +20 0------URANIUM-----0200

0----------FINE MAG----------0050 0 COSMIC 0500 0----THORIUM----0200

COMPTON CORRECTIONS (PARTS 1000):ALPHA= 300 BETA= 350 GAMMA= 700
COSMIC CORRECTIONS (PARTS 1000):TC= 456 THOR= 050 URA= 040 K40= 049
HEIGHT CORRECTIONS (PPM) TC= 5940 THOR= 6490 URA= 7300 K40 7810
BACKGROUNDS (COUNTS) TC= 110 THOR= 004 URA= 014 K40= 037

DATE 15/05-86 FLIGHT NO. 0000

JOB NO. 87-329 LINE NO. WEST.....

AREA LAS. TEST...

GEOTERREX PTY. LTD.

FIGURE A38

3 October 1986

TABLE A2: CLOVERLEAF/HEADING TEST

17 May 1986

HEADING	FIDUCIAL	MAGNETIC (VALUE nT)	DIURNAL CORRECTION(nT)	CORRECTED MAG VALUE(nT)
North	43999.2	11.1	+ 0.2	11.3
South	43891.3	9.9	+ 0.1	10.0
East	44214.2	9.3	+ 0.3	9.6
West	44119.8	8.9	+ 0.3	9.2
2 June 1986				
North	35612.4	3.4	0.0	3.4
South	35739.0	1.2	+ 0.2	1.4
East	35973.4	1.7	+ 0.4	2.1
West	35855.0	0.7	+ 0.4	1.1
8 June 1986				
North	39106.6	9.1	+ 1.4	10.5
South	38973.1	8.75	+ 0.8	9.55
East	39356.3	9.2	+ 0.8	10.0
West	39255.8	7.9	+ 1.3	9.2

HEADING TEST

AIRCRAFT :- VH - PWO
DATE :- 2 JUNE 1986
AREA :- MT EBA
MAGNETOMETER :- Optically pumped cesium vapour magnetometer
SENSITIVITY :- 0·04 nT
SAMPLING INTERVAL :- 0·2 seconds

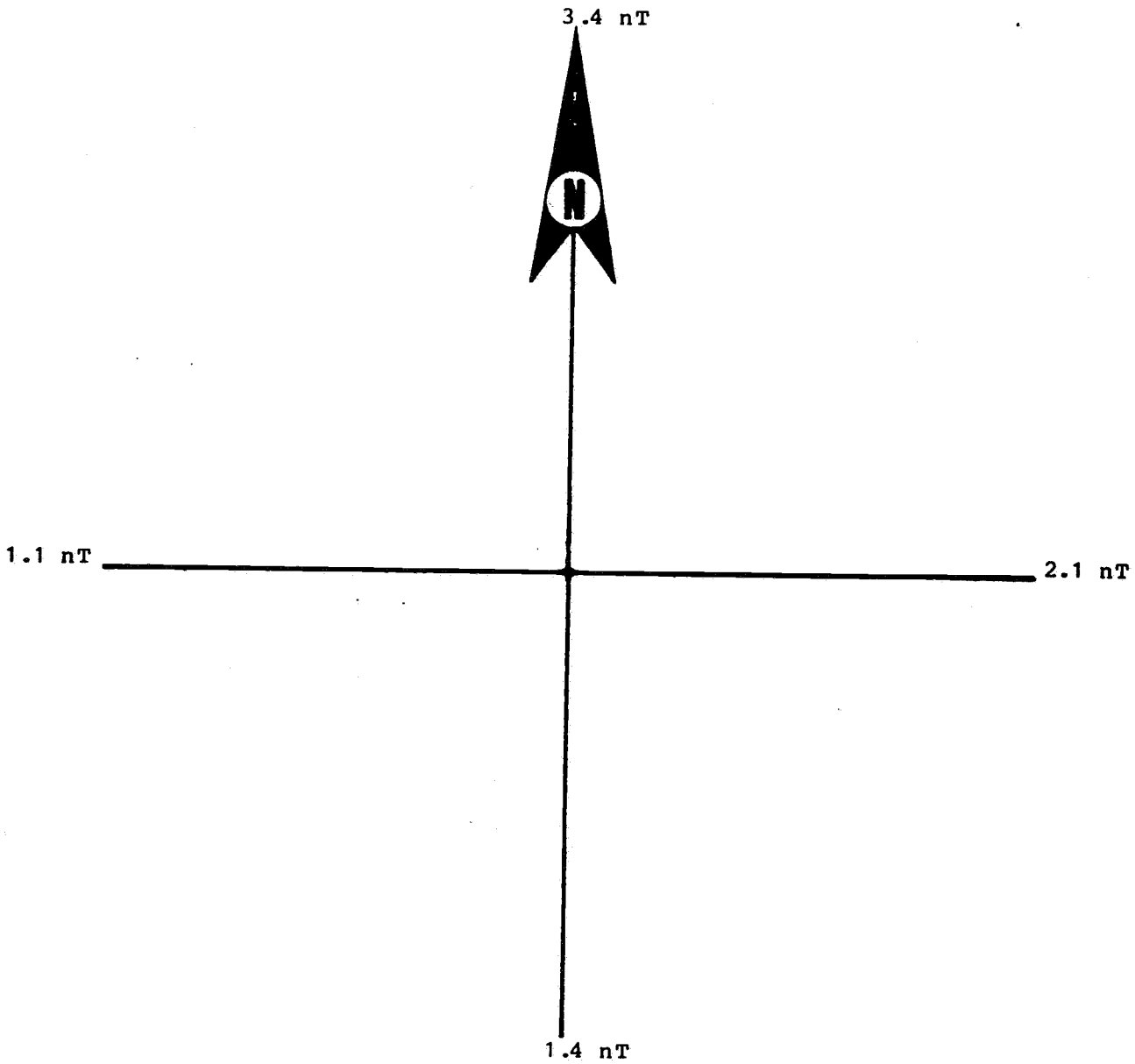


FIGURE A40

(MAGNETIC READINGS HAVE BEEN CORRECTED FOR DIURNAL VARIATION)

3 October 1986

APPENDIX B: SPECTROMETER CALIBRATION DATA

3 October 1986

TABLE B1: URANIUM AND THORIUM SOURCE CHECK DATA
(UNITS - COUNTS)
(SAMPLE PERIOD - 100 SECONDS)

FLIGHT	CHANNEL	PRE-FLIGHT		POST-FLIGHT	
		U Source	Th Source	U Source	Th Source
3	Th	1314	22283	1205	22182
	U	27337	6695	26829	6910
	K	19253	8212	19517	7767
	TC	150610	136044	151098	137335
4	Th	1171	21492	1349	21970
	U	26408	6771	26519	6936
	K	19340	7984	19280	7388
	TC	151670	135120	152121	136273
5	Th		21232	1240	21824
	U	25656		26972	7116
	K			19850	7650
	TC	149470	134051	152531	135414
6					
	Th	975	21469	1496	21543
	U	26230	6529	26282	6959
	K	19549	7953	20037	8021
	TC	151250	135045	154693	136922
7	Th	1292	21648	1350	21557
	U	27289	6691	26613	6764
	K	19189	7750	19974	7720
	TC	150405	133936	152217	133814
8	Th	1257	21872	1199	22128
	U	26916	6452	27091	6738
	K	19718	8331	18894	7453
	TC	151273	136306	150965	135968
9	Th	1051	21684	1016	21513
	U	26736	6555	27126	6733
	K	19886	8394	19619	7885
	TC	151570	135280	151356	135896
10	Th	1290	21647	1307	21791
	U	27004	6475	27055	6760
	K	19232	7837	19742	7632
	TC	149179	133532	150020	133793

3 October 1986

11	Th	1251	21915	1113	21642
	U	27232	6834	26780	6516
	K	19996	7385	19673	7648
	TC	151124	134527	150681	134269
12	Th	1184	22154	1252	21917
	U	26962	6524	27392	7194
	K	19524	7787	19735	7849
	TC	148857	133795	150633	136282
13	Th	1108	21663	1166	21964
	U	26990	6595	26728	6730
	K	19441	7522	19135	7003
	TC	149203	134843	148322	134719
15	Th	1374	22079	1014	22050
	U	26788	6955	27382	6591
	K	20348	7852	19977	7817
	TC	152189	137536	152298	135854
16	Th	1366	22128	1454	21912
	U	27172	6790	27144	6570
	K	20111	7680	19981	7485
	TC	152599	136407	151776	135284
17	Th	1348	21696	1444	22174
	U	27379	6555	27002	6677
	K	19804	8365	19763	7472
	TC	150731	135382	151392	135223
18	Th	1309	21800	1327	21831
	U	27324	6564	26897	6463
	K	19499	7985	20130	7904
	TC	150769	135109	150579	135676
19	Th	1267	21532	1421	21859
	U	27019	6580	27199	6590
	K	19821	7693	20328	7764
	TC	151200	134513	153701	136508
20	Th	1505	21586	1196	22017
	U	27156	6732	27245	6723
	K	19716	8164	20082	7738
	TC	151752	135837	153063	135111

3 October 1986

22	Th	1218	21751	1133	21303
	U	26619	6733	26516	6865
	K	18643	7038	18727	7247
	TC	149041	134535	147192	134220
23	Th	1064	21241	1467	22046
	U	26331	6510	26673	6807
	K	18948	7578	18498	6758
	TC	147875	133698	149291	135097
24	Th	1123	21382	1009	21794
	U	26542	6482	27132	6985
	K	18662	6722	18965	6933
	TC	145860	131439	149325	132940
25	Th	1084	21438	1464	21568
	U	26779	6434	26536	6860
	K	18570	6938	19227	7293
	TC	147398	131072	149058	133387
26	Th	986	21116	1367	21542
	U	26815	6721	26616	6735
	K	18289	6777	19092	7034
	TC	146254	131103	149064	132460
27	Th	1043	21598	906	21414
	U	27147	6749	26793	6761
	K	18106	7588	19020	7688
	TC	146541	132352	149016	133647
28	Th	1071	21565	1071	21498
	U	26510	6579	26467	6403
	K	18613	7065	18050	7196
	TC	147816	133425	146621	131820
29	Th	1134	21495	1179	21668
	U	26781	6363	26545	6564
	K	18203	7216	18608	7385
	TC	148149	132710	148766	133731
30	Th	1361	21779	989	21642
	U	26816	6634	25955	6614
	K	18679	6929	18935	7061
	TC	147097	132952	148107	133318
31	Th	1098	21757	990	21302
	U	26406	6378	26666	6504
	K	18450	6983	18527	7611
	TC	147693	132137	147457	132074

3 October 1986

32	Th	1110	21225	935	21408
	U	26586	6420	26711	6533
	K	18573	7441	18369	7451
	TC	147704	131888	146883	131632
33	Th	1174	21198	1307	21250
	U	26911	6276	26291	6416
	K	18280	6443	18117	7131
	TC	146897	130476	146289	132399
34	Th	992	21453	956	21773
	U	26721	6544	26994	6469
	K	18627	7608	18130	7135
	TC	147269	133399	147276	132017
35	Th	1164	21236	1174	21325
	U	26698	6243	26594	6771
	K	18505	7401	18152	7170
	TC	146278	129291	147482	133233
36	Th	1148	21716	1344	21630
	U	26500	6273	26560	6581
	K	18158	6950	18580	7436
	TC	146994	131910	148233	134268
37	Th	993	21159	1251	20562
	U	26679	6489	26557	6701
	K	18665	7187	18825	7391
	TC	147191	132009	148337	125962
38	Th	1162	21496	919	21786
	U	26731	6325	26704	6567
	K	19051	7770	18757	7695
	TC	148262	133279	149965	134673
39	Th	1002	21274	1199	21412
	U	26693	6307	26259	6438
	K	18243	6867	18202	7136
	TC	146133	130989	149036	131503
40	Th	1118	21681	839	21518
	U	26481	6145	26833	6383
	K	19053	7218	18414	7318
	TC	149402	132314	147650	132155
41	Th	1146	21393	1319	22094
	U	27048	6778	26782	6702
	K	18726	7720	18580	7147
	TC	148431	134575	148972	135332

3 October 1986

42	Th	938	21273	1211	21306
	U	26632	6399	26890	6693
	K	18147	7700	19230	7678
	TC	146468	131453	148781	133353
43	Th	1227	21852		21510
	U	26802	6298	26733	
	K	18799	7728		
	TC	148238	133525	146651	132240
44	Th	942	21288	1120	21313
	U	26393	6539	26842	6773
	K	18070	7135	18629	7362
	TC	145861	132008	148133	133030
45	Th	964	21375	1282	21633
	U	26209	6356	26950	6273
	K	18770	7584	18264	7466
	TC	146107	131338	148007	133021
46	Th	1168	21774	1053	21479
	U	26279	6680	26507	6305
	K	18303	7439	18417	7405
	TC	146517	133790	147132	133223
47	Th	1217	21642	1187	21796
	U	26709	6540	26973	6880
	K	18033	7575	18712	7666
	TC	144774	132377	147587	134280

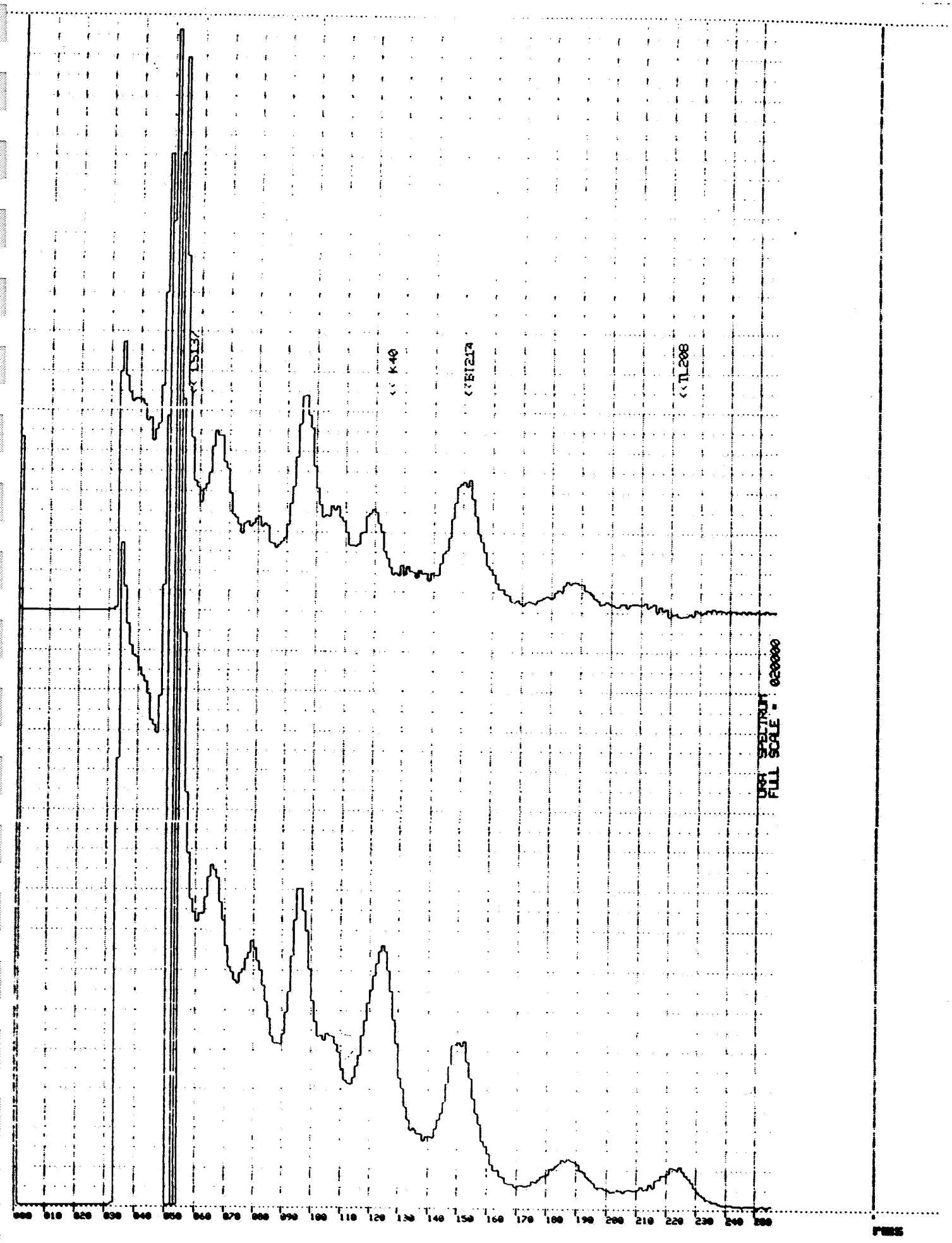

Cs137
K40
Bi214
Tl208
URA SPECTRUM
FULL SCALE = 0200000
000 010 020 030 040 050 060 070 080 090 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250
PMBS

FIGURE B1

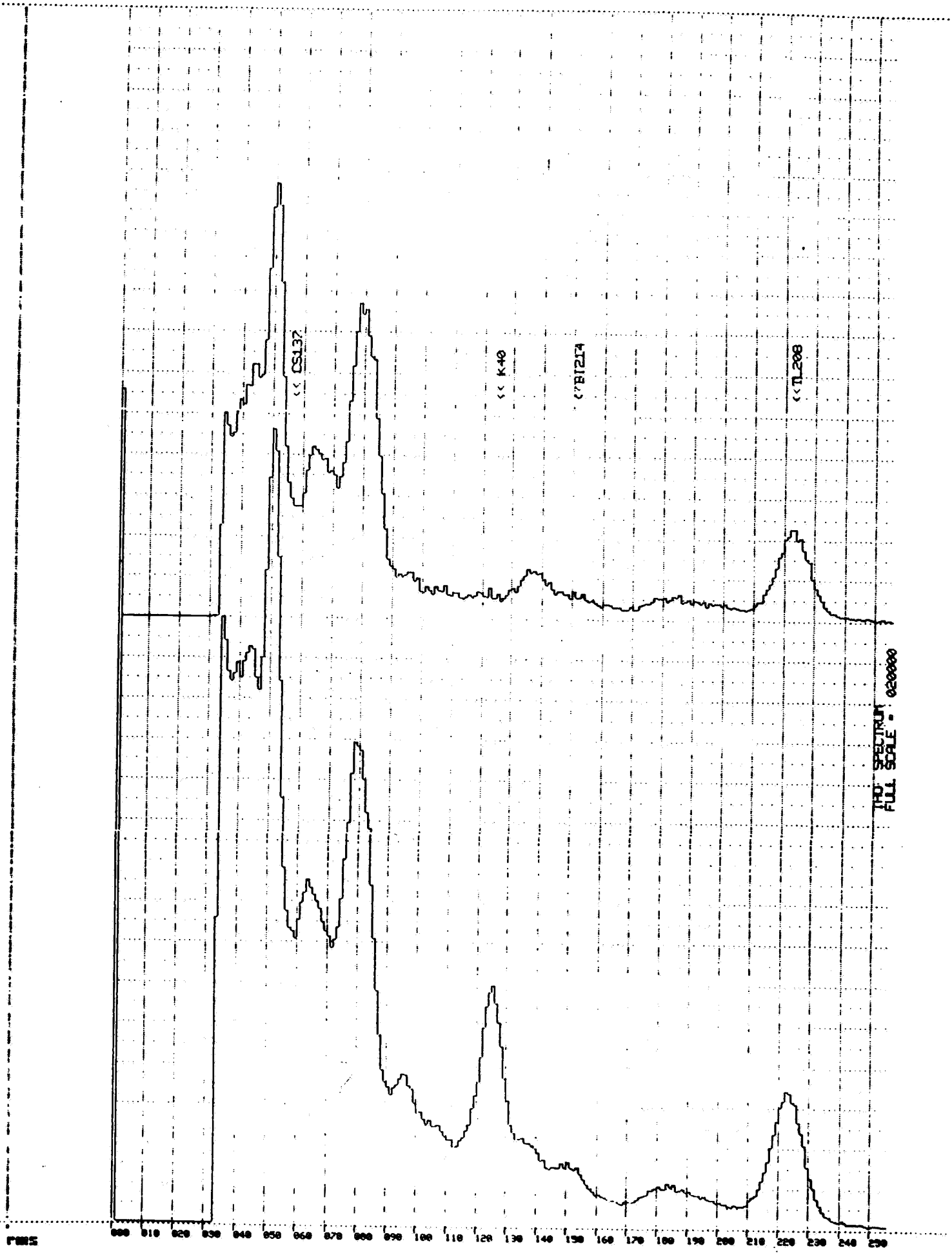
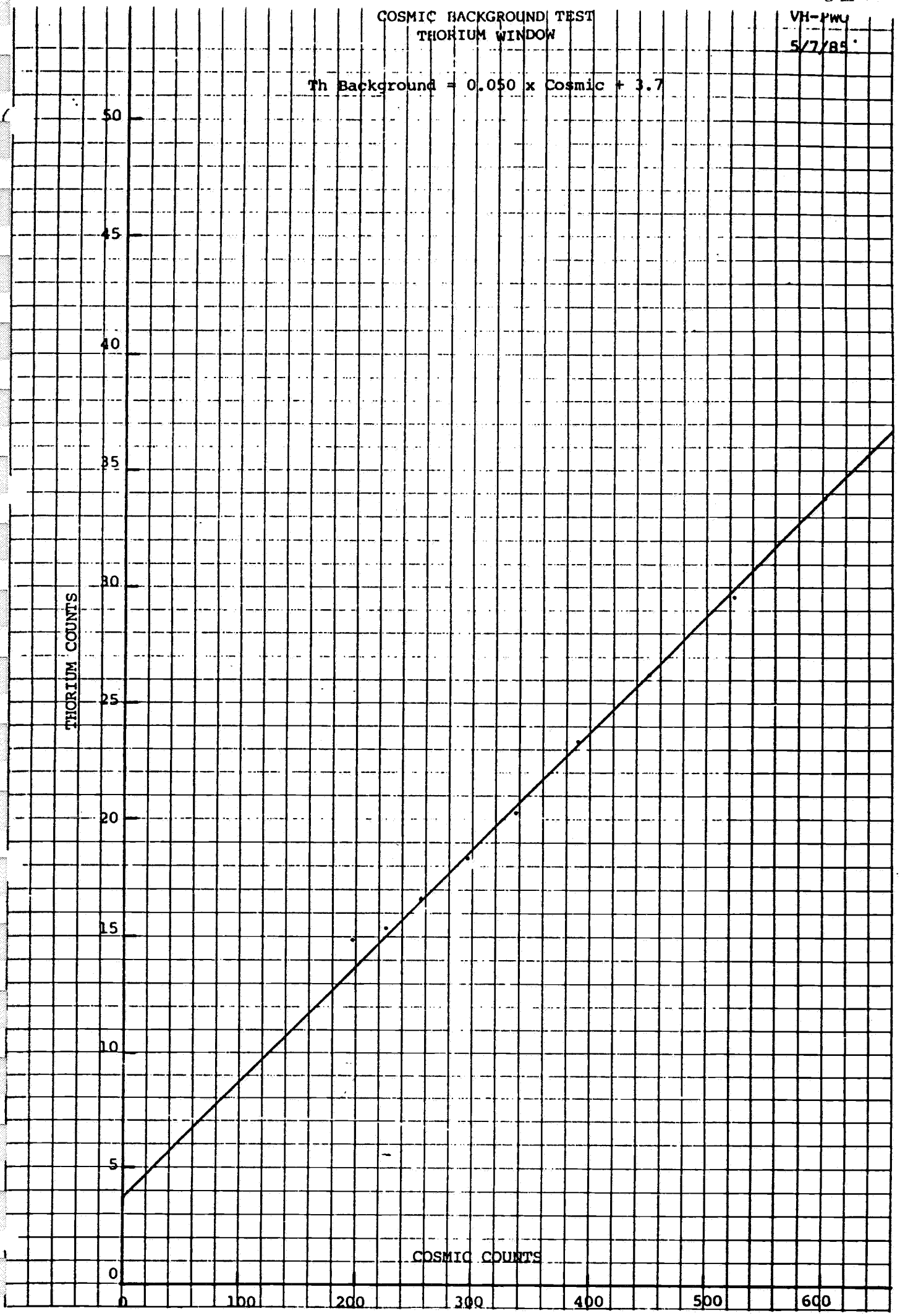


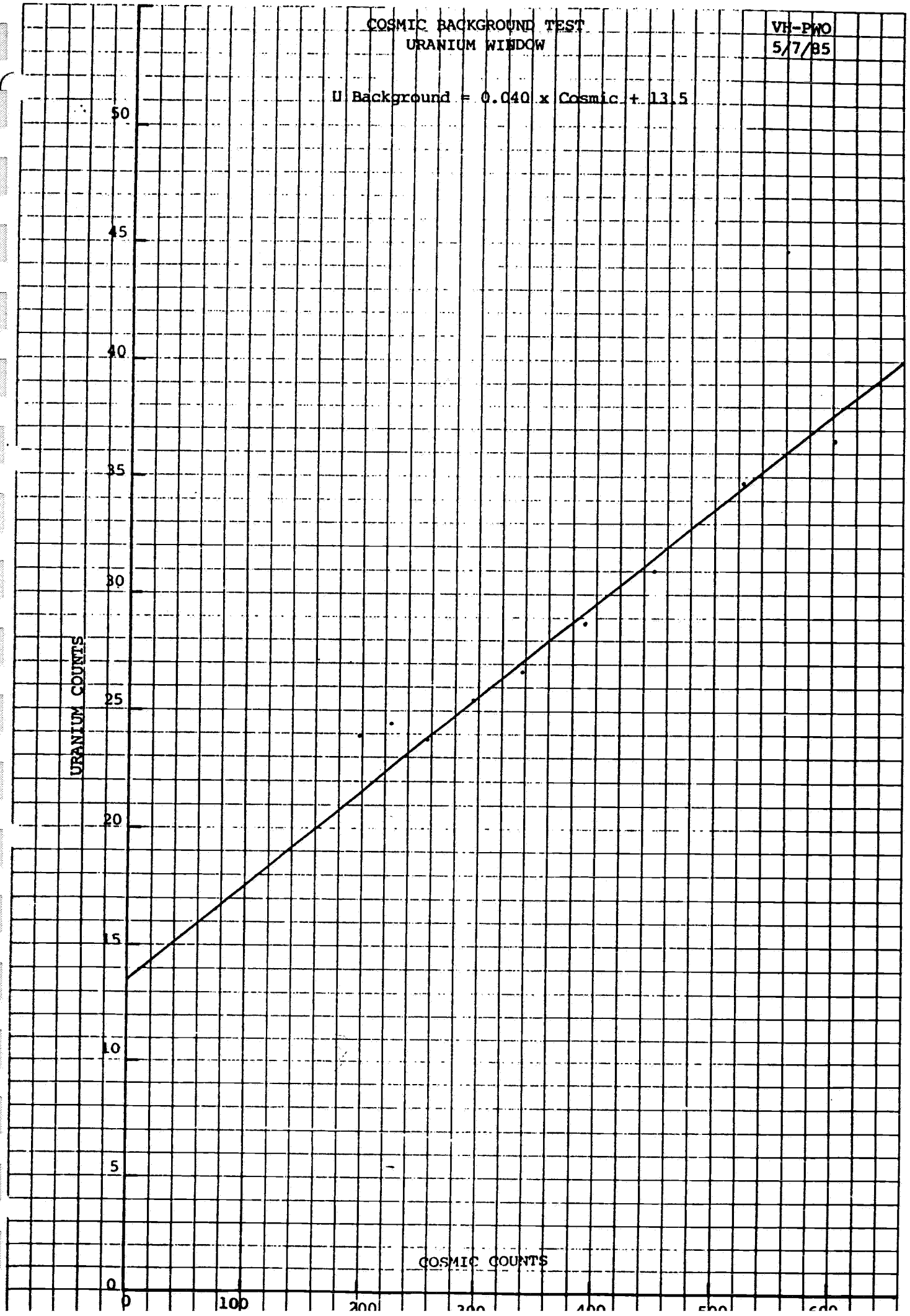
FIGURE B2

COSMIC BACKGROUND TEST
THORIUM WINDOW

VH-PWC
5/7/85

Th Background = 0.050 x Cosmic + 3.7

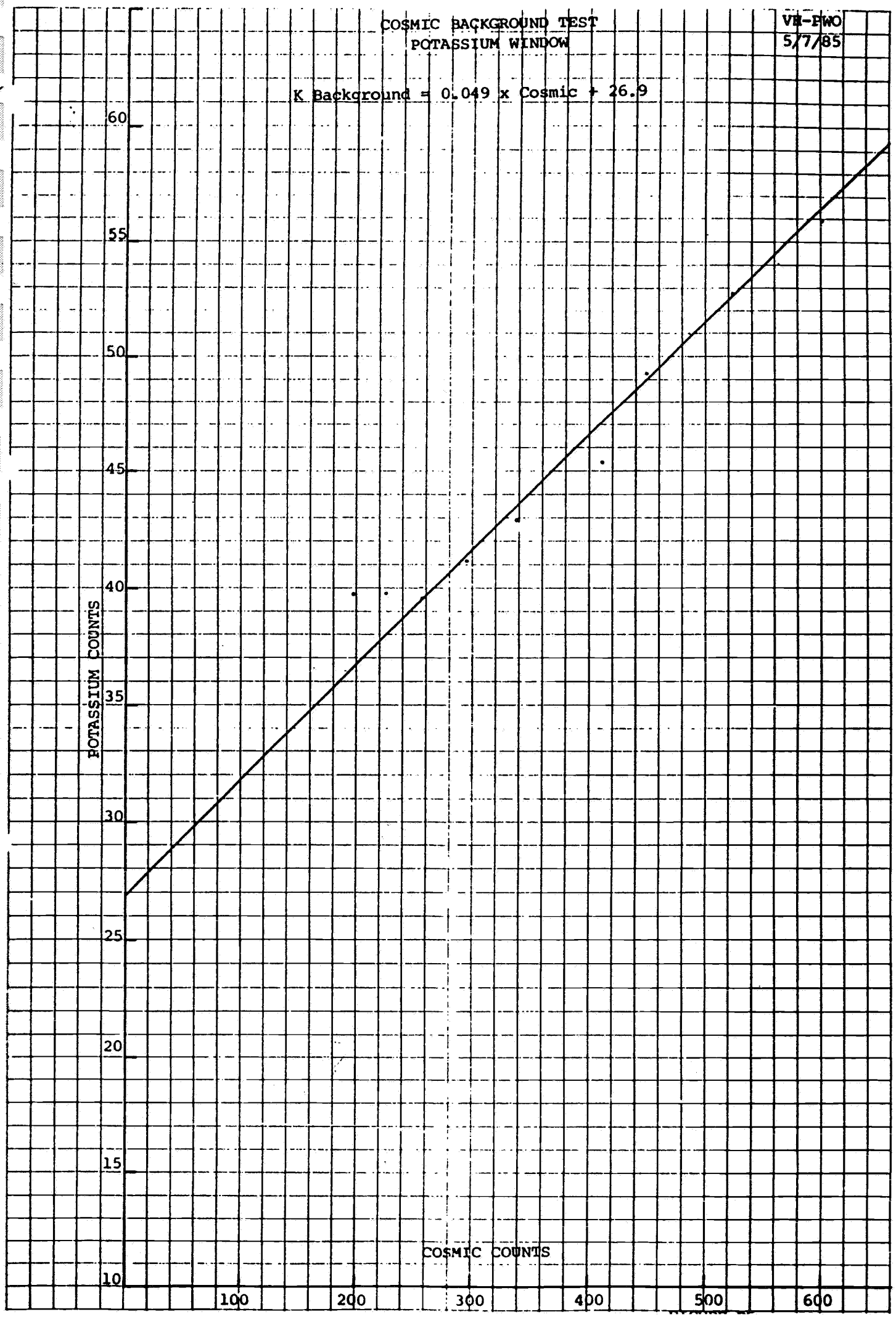



COSMIC BACKGROUND TEST
URANIUM WINDOW
VH-PWO
5/7/85
U Background = 0.040 x Cosmic + 13.5
URANIUM COUNTS
COSMIC COUNTS
0
5
10
15
20
25
30
35
40
45
50
0
100
200
300
400
500
600

COSMIC BACKGROUND TEST
POTASSIUM WINDOW

VB-PWO
5/7/85

K Background = 0.049 x Cosmic + 26.9



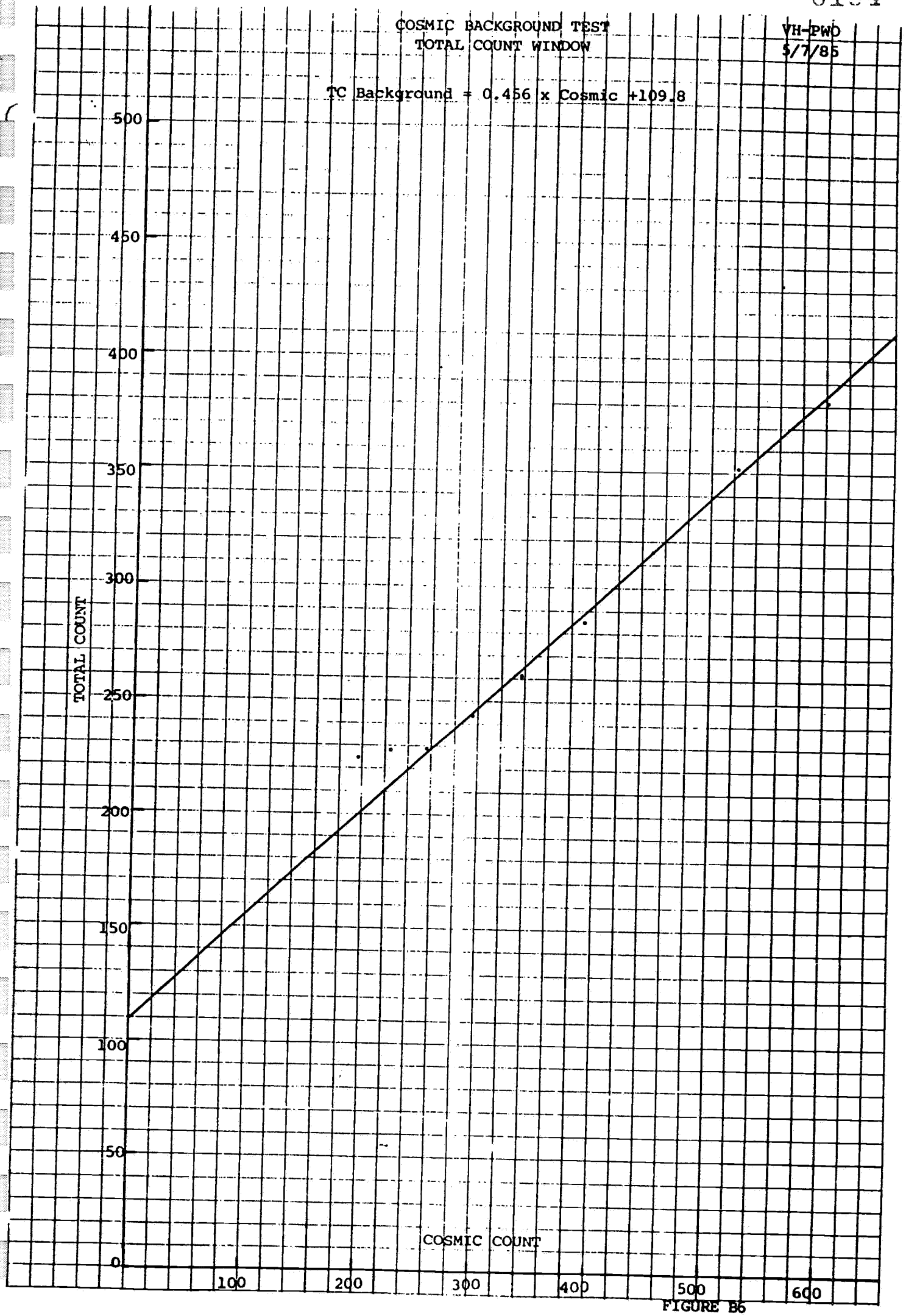

COSMIC BACKGROUND TEST
TOTAL COUNT WINDOW
VH-PWD
5/7/85
TC Background = 0.456 x Cosmic +109.8
TOTAL COUNT
COSMIC COUNT
0
50
100
150
200
250
300
350
400
450
500
100
200
300
400
500
600

FIGURE B6

HEIGHT ATTENUATION TEST

TOTAL COUNT WINDOW

VH-PWO

12/7/85

Total Count = 0.00574 per metre

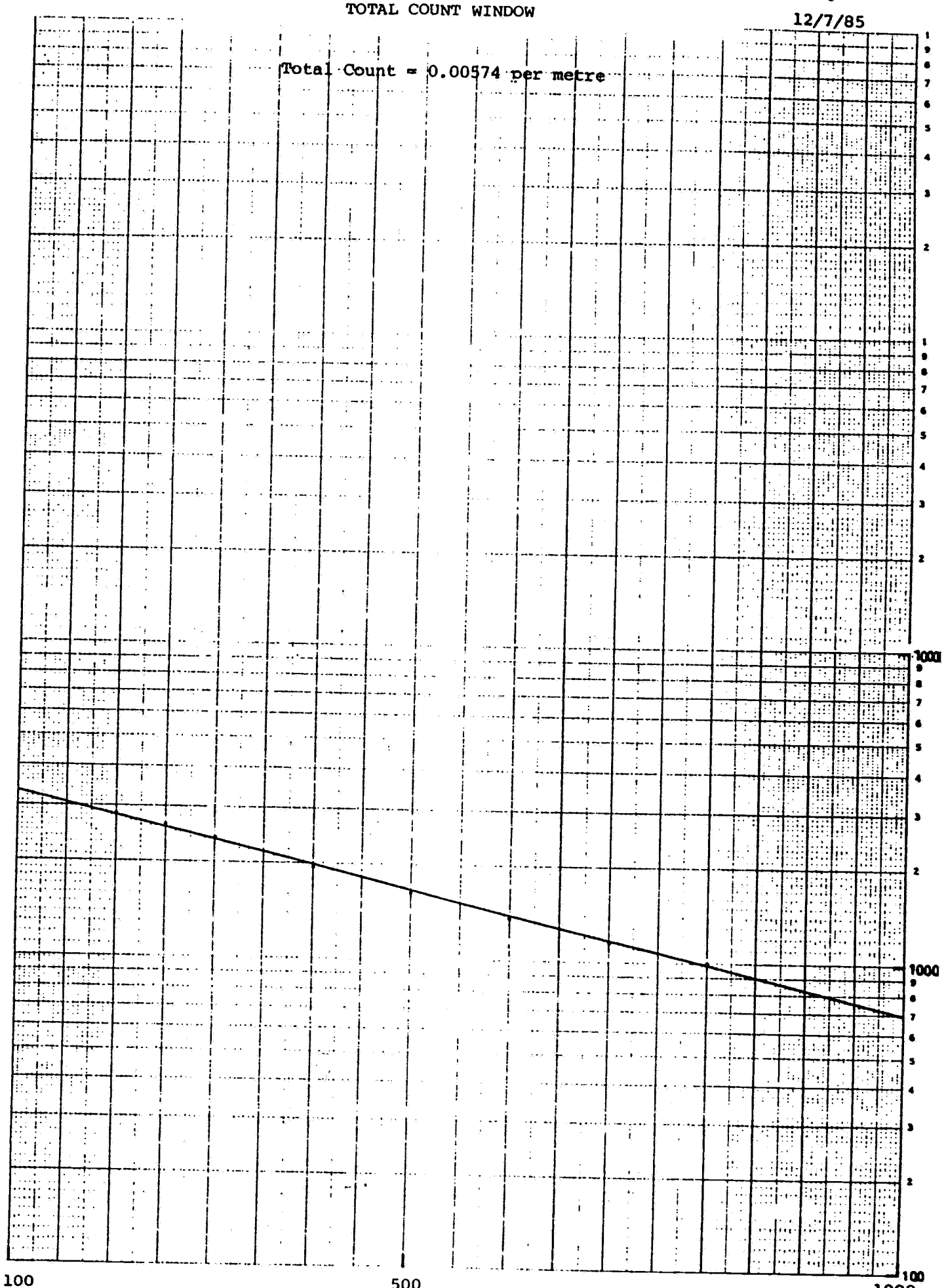


FIGURE B7

HEIGHT ATTENUATION TEST

VH-PWO

POTASSIUM WINDOW

12/7/85

Potassium = 0.00713 per metre

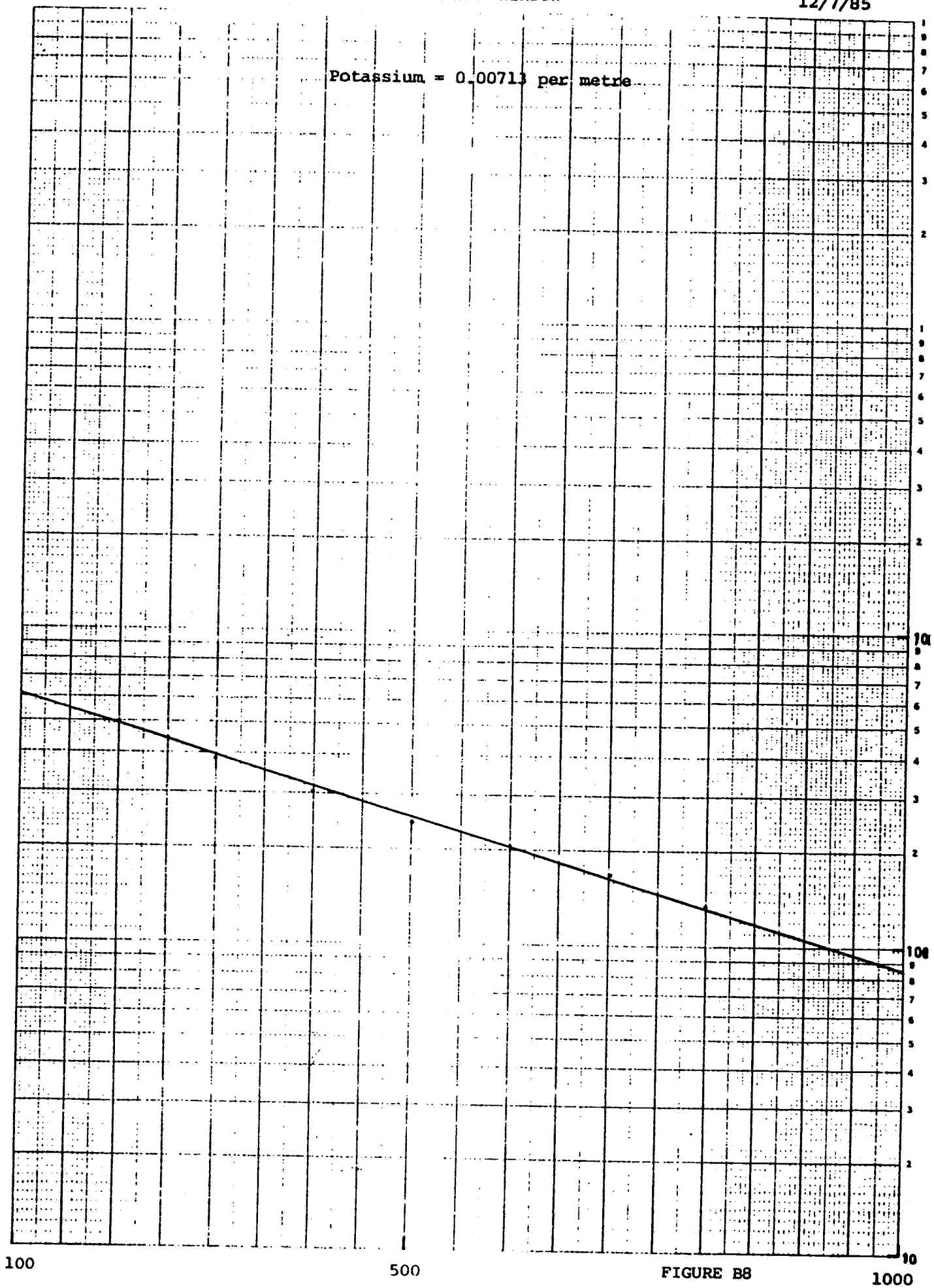


FIGURE B8

HEIGHT ATTENUATION TEST

VH-PWO

URANIUM WINDOW

12/7/85

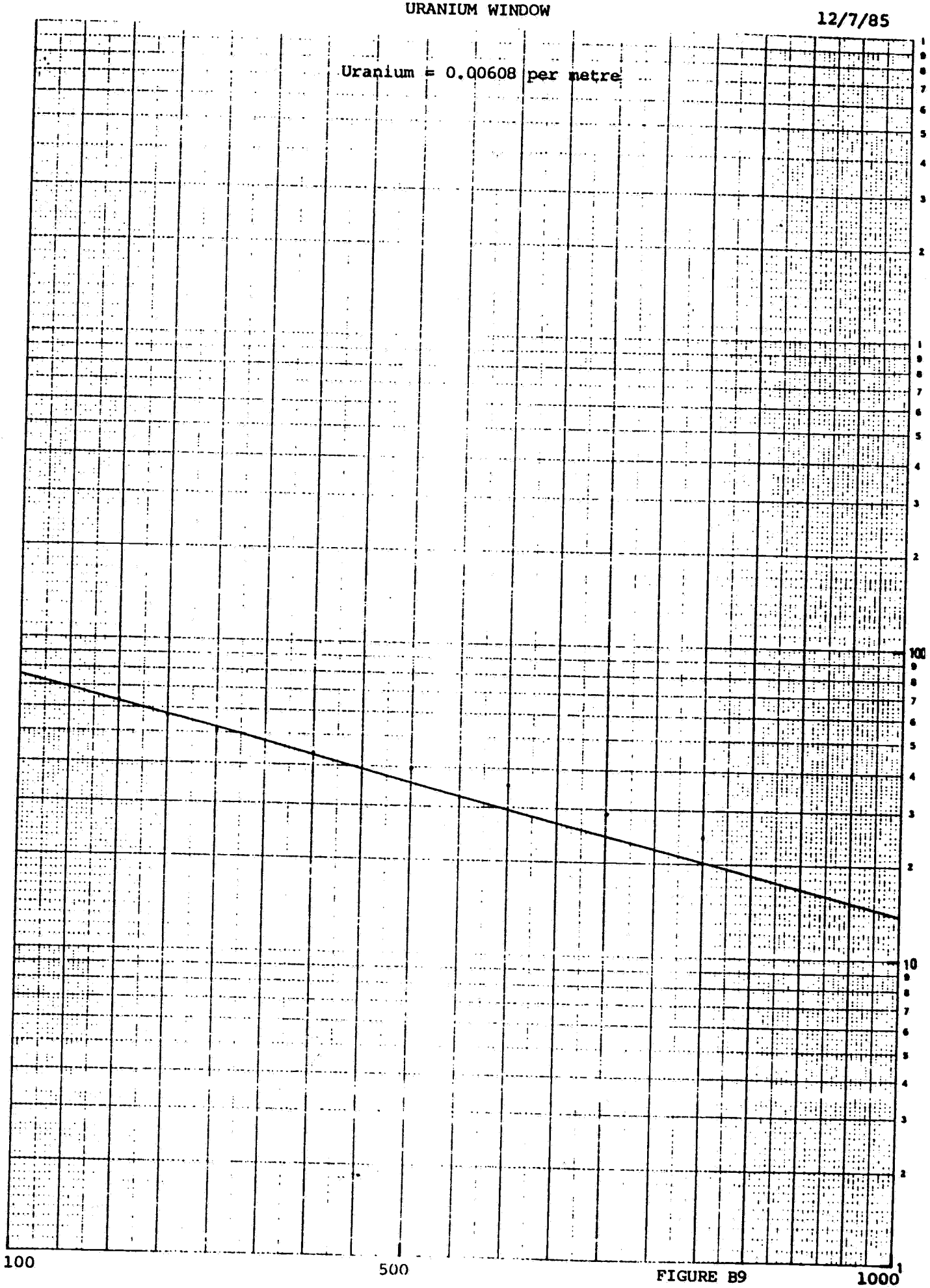


FIGURE B9

HEIGHT ATTENUATION TEST

VH-PWO

THORIUM WINDOW

12/7/85

Thorium = 0.00581 per metre

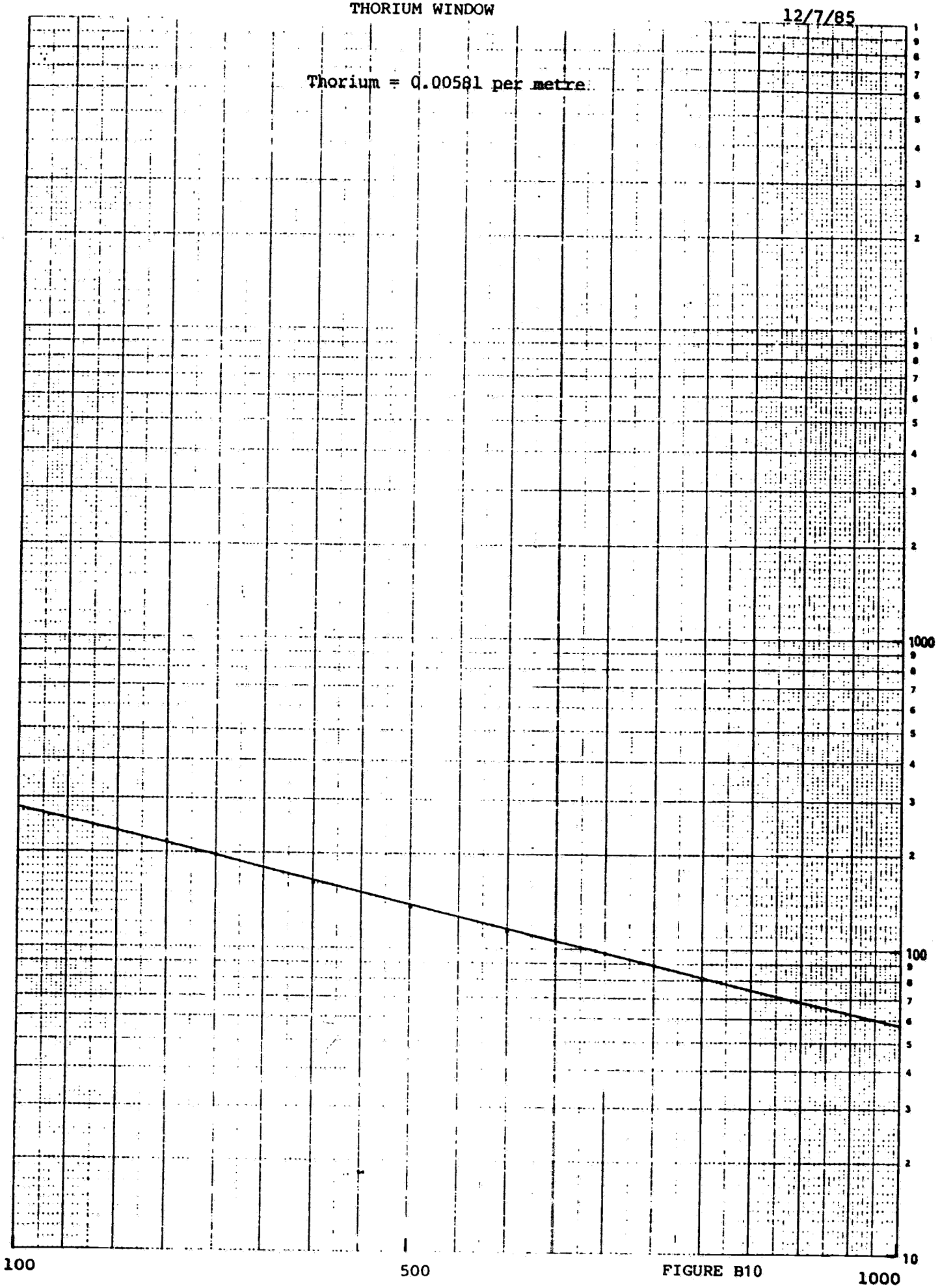
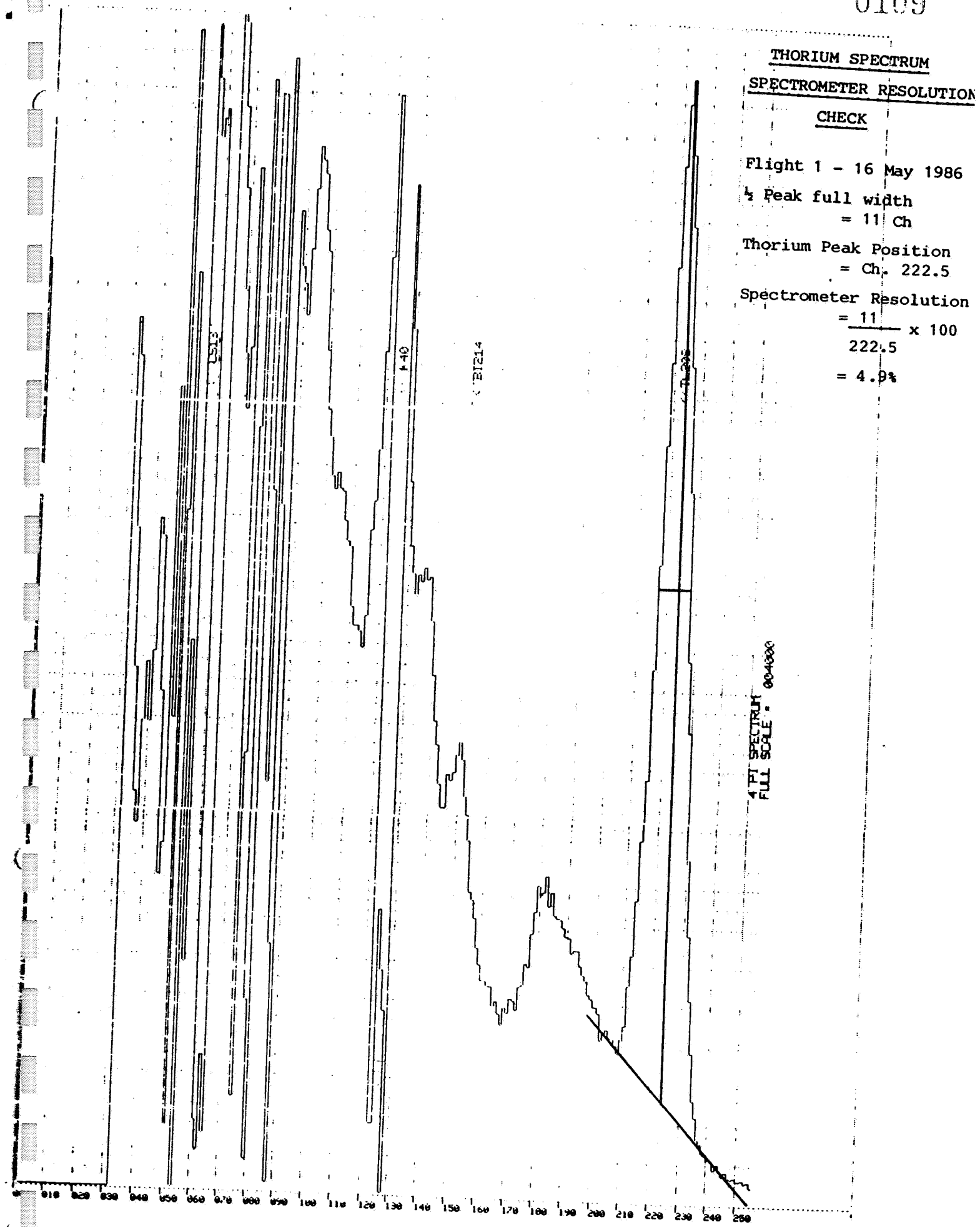


FIGURE B10



THORIUM SPECTRUM

SPECTROMETER RESOLUTION CHECK

Flight 1 - 16 May 1986

½ Peak full width
= 11 Ch

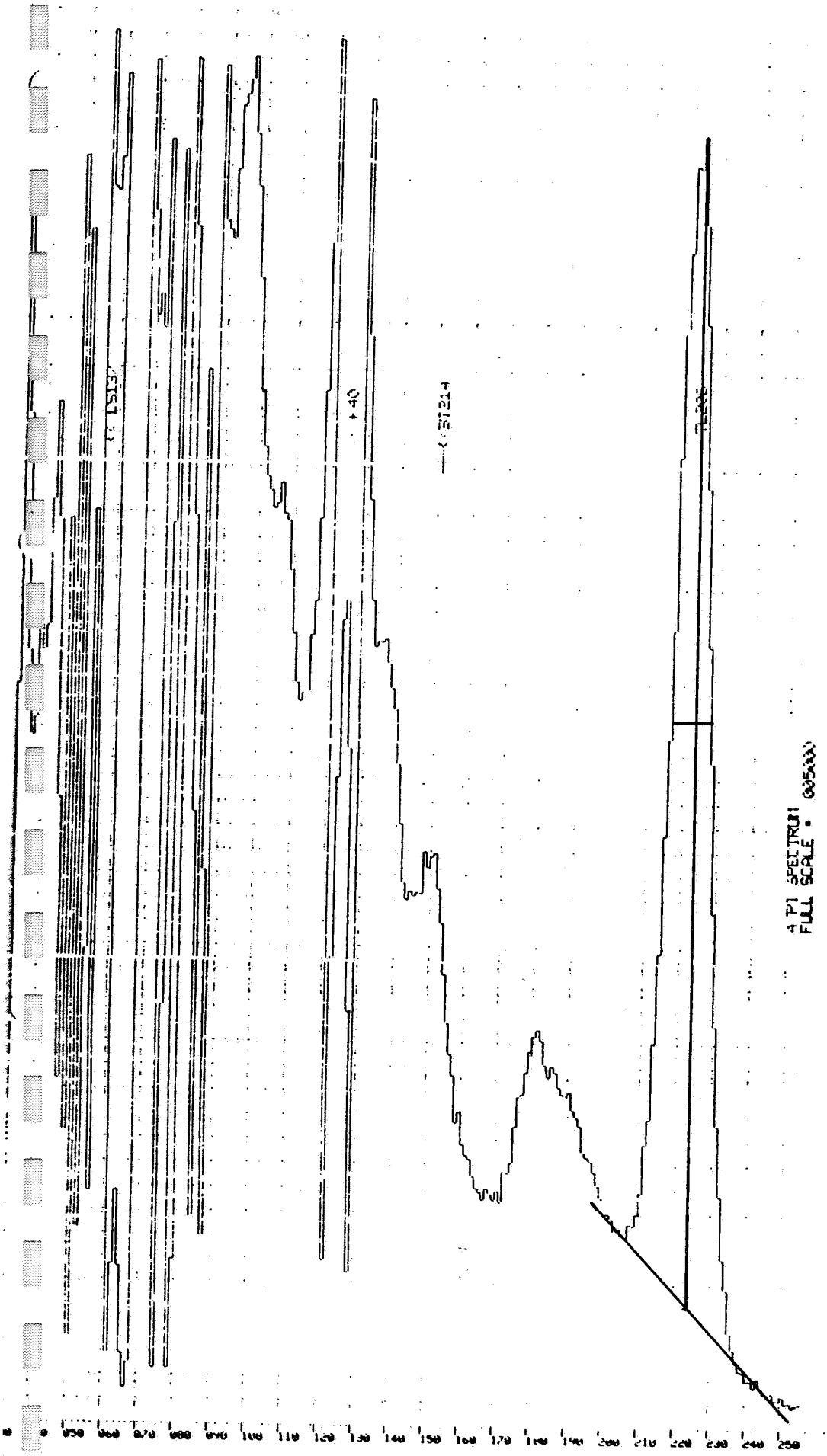
Thorium Peak Position
= Ch. 222.5

Spectrometer Resolution

$$= \frac{11}{222.5} \times 100$$

= 4.9%

FIGURE B11



THORIUM SPECTRUM

SPECTROMETER RESOLUTIO
CHECK

Flight 22 - 10 June 19

½ Peak full width
= 11 Ch

Thorium Peak Position
= 223.3

Spectrometer Resolution

$$= \frac{11}{223.3} \times 100$$

= 4.9%

FIGURE B12

3 October 1986

APPENDIX C: MAGNETIC DATA TAPE FORMATS

3 October 1986

FIELD DATA TAPE FORMAT

Geoterrex 9-track field tapes are recorded in binary code at 800 bpi. The format for each one second record is:-

Byte Position	Number of Bytes	Description
1 - 2	2	Flight Number
3 - 6	4	Fiducial Number
7 - 10	4	Magnetometer @ T-0.0 seconds
11 - 14	4	Magnetometer @ T-0.1 seconds
15 - 18	4	Magnetometer @ T-0.2 seconds
19 - 22	4	Magnetometer @ T-0.3 seconds
23 - 26	4	Magnetometer @ T-0.4 seconds
27 - 30	4	Magnetometer @ T-0.5 seconds
31 - 34	4	Magnetometer @ T-0.6 seconds
35 - 38	4	Magnetometer @ T-0.7 seconds
39 - 42	4	Magnetometer @ T-0.8 seconds
43 - 46	4	Magnetometer @ T-0.9 seconds
47 - 48	2	Radar Altimeter
49 - 50	2	Barometric Alt. or Pressure
51 - 52	2	Temperature
53 - 54	2	Relative Humidity
55 - 56	2	For Spare Analogue Input
57 - 58	2	For 2nd Spare Analogue Input
59 - 61	3	Doppler Northing
62 - 64	3	Doppler Easting
65 - 67	3	UTM Zone Number
68 - 70	3	UTM 100 Km Sqaure Number
71 - 73	3	Doppler Ground Speed
74	1	Blank - Not used
75 - 86	12	Syledis Navigation Data
87 - 88	2	Thorium Count
89 - 90	2	Uranium Count
91 - 92	2	Potassium Count
93 - 94	2	Total Count
95 - 96	2	Cosmic Count
97 - 98	2	Live Time (milliseconds)
99 - 330	232	Radiometric Channels 24-255 (1 byte each)

RECORD SIZE - 330 Bytes
BLOCK SIZE - 3300 Bytes
RECORDING MODE - binary (IBM compatible)
PROGRAM - AUSMS2A

3 October 1986

CRA EXPLORATION PTY LIMITED
WUDINNA, MT. EBA, BALTA BALTANA AND COOBER PEDY RIDGE
AEROMAGNETIC/RADIOMETRIC SURVEY
LOCATED DATA TAPE FORMAT

COLUMN	DESCRIPTION
1 - 6	DATE IN ddmmyy
7 - 10	FLIGHT number
11 - 16	TIME in seconds
17	BLANK
18 - 23	LINE number
24 - 29	FIDUCIAL
30	ASTERISK (*) if recovery point
34 - 42	AMG EASTING co-ordinate in Metres
43 - 45	BLANK
46 - 55	AMG NORTHING co-ordinate in Metres
56 - 64	RAW MAGNETIC VALUE
65 - 72	RESIDUAL MAGNETIC VALUE
73 - 78	DOPPLER X COORDINATE
79 - 85	DOPPLER Y COORDINATE
86 - 90	ALTIMETER
91 - 95	COSMIC COUNTS
96 -100	LIVE TIME
101-105	CORRECTED TOTAL FIELD COUNTS
106-110	CORRECTED POTASSIUM COUNTS
111-115	CORRECTED URANIUM COUNTS
116-120	CORRECTED THORIUM COUNTS
121-125	RAW TOTAL FIELD
126-130	RAW POTASSIUM VALUE
131-135	RAW URANIUM VALUE
136-140	RAW THORIUM VALUE

RECORD SIZE = 140 bytes
BLOCK SIZE = 5040 bytes

August 9, 1982

GENERAL PURPOSE GRAPHICS & CONTOURING SYSTEM

GRID TAPE FORMAT

GRID FILES

1. GRID LAYOUT

Fundamental to design of ECS grid files is grid block. A grid block contains 256 values on a 16 X 16 grid pattern. Grid blocks which contain no data are not stored. Values in a grid block which are undefined are set to UN-VALUE (an undefined value).

Grid blocks are stored in relation to a set of grid coordinates which are in turn related to the user coordinate system. (see Figure 1 which sets out this relationship).

The origin O (Xu, Yu) where $X_g = Y_g = 0$. The angle A is the rotation (anti-clockwise +ve) of the grid coordinate with respect to the user coordinates.

Grid blocks are labelled (IX, IY) where IX = 1 to Nx and IY = 1 to Ny.

Data in a grid block may be considered as stored in an array GBLOCK (iy,ix) where ix = 1 to 16 and, iy= 1 to 16.

The layout of data points is described in Figure 2.

2. GRDFILE - Grid Storage File

The file GRDFILE is generated by the gridding programs and is the primary file of the GPC Subsystem. GRDFILE may contour up to 63 grids, each grid having an 8 character identifier.

The file is a direct access file containing 256 real word records. Within each file one record is reserved for a file header record, the remainder of the file is allocated on grid images. Each grid contains three records of header data followed by one record for each grid block.

The GRDFILE may by logically considered to contain the following structure:-

1. File header record.
2. First grid
   a) Three grid header record
   b) Grid data record.
3. Second grid

2.1 File Header Record

The header record has the following format:-

WORD NO.	MODE	CONTENTS
1	REAL	constant 9999.0
2	REAL	No. grids on the file (real)
3	REAL	Unused.
4	REAL	Unuses.
5	CHAR (8)	(Name of first character format) ((Grid on file
etc		etc.
131	REAL	No. logical records on file before 1st grid
132	REAL	No. logical records on file before 2nd grid
etc		etc.
194	REAL	No. of grid blocks on 1st grid.
195	REAL	No. of grid blocks on 2nd grid.
etc		etc.

2.2. Grid Header Recorder Contents Table

FIELD NO	MODE	DESCRIPTION
1	REAL * 8	Grid origin in X in user units
2	REAL * 8	Grid origin in Y in user units.
3	REAL * 8	Cosine of the clockwise grid rotation
4	REAL * 8	Sine of the clockwise grid rotation
5	REAL * 8	Extent of grid in X direction of grid coordinate system
6	REAL * 8	Extent of grid in Y direction of grid coordinate system
7	REAL	X size of users grid block.
8	REAL	Y size of users grid block
9	INTEGER	The number of grid blocks required in the local X direction.

10	INTEGER	The number of grid blocks required in the local Y direction
11	REAL	The distance between mesh points in the local X direction
12	REAL	The distance between mesh points in the local Y direction
13	INTEGER	Constant 16.
14	INTEGER	Constant 16.
15	REAL (64)	Reserved
16	REAL	Value which is assigned to each unknown Z value within a grid block
17	INTEGER	Number of grid blocks within this grid "Empty" grid blocks are not stored.

2.3 Grid Header Record 2 and 3

Header records two and three together contain a string of 1024 half words arranged in groups of two bytes, each group is numbered from 1 to 1024 . This data is used to locate grid data blocks within the grid file.

Each group is arranged so that:-

1. Byte one is the realted address of the grid block in the xg local coordinate system.
2. Byte two is the relative address of the grid block in the yg local coordinate system. Grid blocks are addressed from (1,1) to (m,n).
3. The group number is the relative number of the grid block within the file following the grid header blocks.

2.4 Grid Record Contents

Each grid record contains 256 grid Z values, or mesh point values. The mesh points are separated by fixed X and Y distances, referred to asthe "mesh size". To ensure uniformity from block to block the outermost points of each block are separated from the block boundary by one half of the mesh size.

Mesh points for which no Z value is known contain the value of field 18 of grid header block 1. Grid blocks within which all Z values are unknown are not stored.

Mesh points are stored in the following order:-

$$Z(Y_1,X_1),\ Z(Y_2,X_1)\ldots\ X(Y_{256},\ X_{256})$$

3. GRDDUMP - ASCII Grid File

GRDDUMP format is utilised for distribution of grid files to customers or transmission between different computer systems.

The file is generated in character format as 80 character records. The file consist of:-

1. 3 header records, and
2. data records.

Records 1 & 2

Format (A8,4E16.9,8X/8X,2E16.9,40X)

SEVEN (7) VARIABLES IN ORDER:-

1. Grid name
2. Grid origin X units
3. Grid origin Y units
4. Cosine of the clockwise grid rotation
5. Sine of the clockwise grid rotation
6. Grid size X units
7. Grid size Y units

Record 3

Format (2I8,2F8.2,2I8,F8.2,I8,16X)

EIGHT (8) VARIABLES IN ORDER:-

1. Number of blocks in X direction
2. Number of blocks in Y direction
3. Mesh size of grid X units
4. Mesh size of grid Y units
5. Number of points X in a grid block
6. Number of points Y in a grid block
7. Value to any zero values
8. Number of grid blocks within this grid

Empty grid blocks are not written.

Data Records

One block has a demension 16 X 16 or 256 mesh points, and generates 32 records. The format of each record is:-

Format (1I4,8F8.2,8X)

TEN (10) VARIABLES:-

1. Number of block in X direction.
2. Number of block in Y direction.

3-10. Z values of mesh points.

Blocks are written out in the following order:-

(1,1),(1,2),...(1,n),(2,1),(2,2),...(2,n),(3,1),(3,2),...(3,n) etc..

Mesh points are written out in the following order:-

$Z(Y_1,X_1),Z(Y_2,X_1),Z(Y_3,X_1)$ ... $Z(Y_{256},X_{256})$

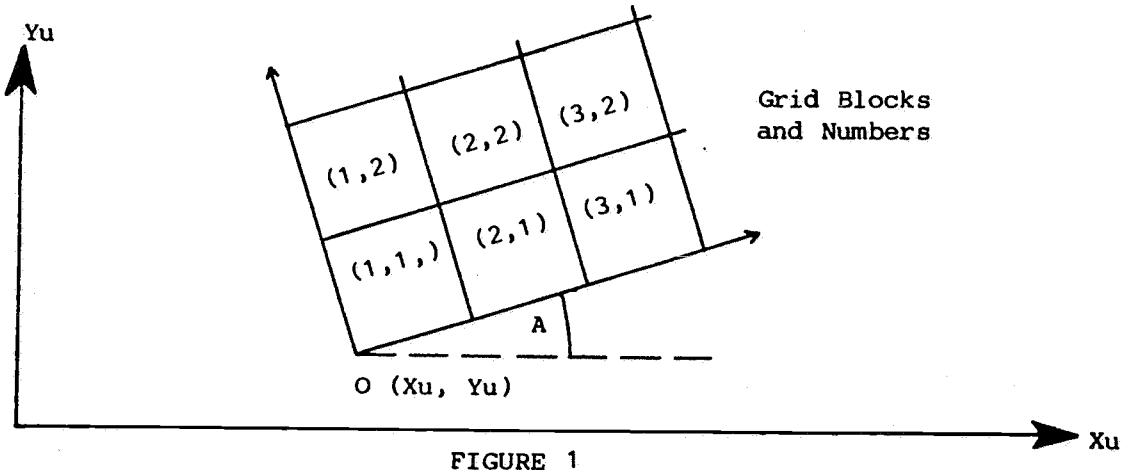


FIGURE 1

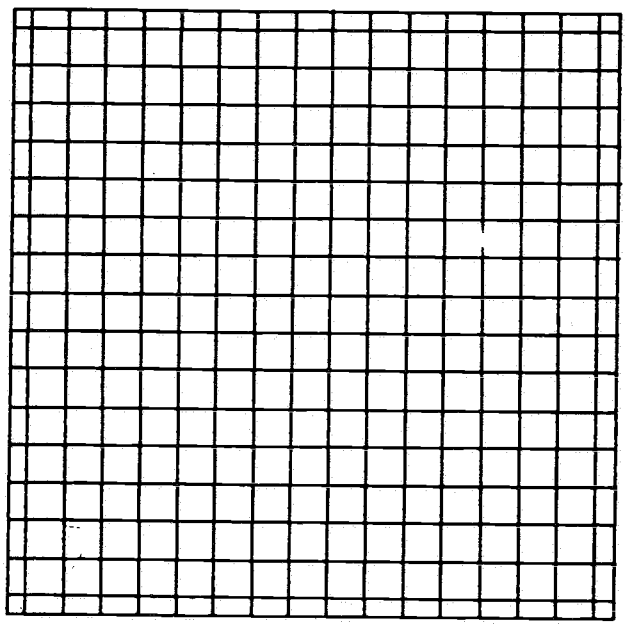


FIGURE 2 Layout of Grid Mesh with Respect to Grid Block Boundaries.

3 October 1986

APPENDIX D: RMS THERMAL PAPER STORAGE INSTRUCTIONS

2.5 PAPER STORAGE AND HANDLING, RMS2030 THERMAL PAPER

STORAGE:

Ambient Temperature:	Less than 25°C	Under these conditions, the paper should retain its characteristics and the printed images will remain legible for at least five years, although in the case of blue image paper, there may be some slight fading.
Relative Humidity:	Less than 65%	
Storage Location:	In darkness, before and after exposure.	

TO ELIMINATE PREMATURE PAPER DEVELOPMENT:

- Careful attention must be paid to ambient temperature and relative humidity for long term storage of RMS2030 Thermal Paper. Colour development begins at temperatures between 70 to 100°C, and reaches saturation density between 80 to 120°C. Premature development of the paper may occur at lower temperatures, and particularly if the humidity is greater than 65%:

  e.g. Ambient Temperature - if the paper is stored for 24 hours at a temperature of 60°C, some development may occur

  Ambient Temperature and Relative Humidity - if the paper is stored for 24 hours at a temperature of 45°C when the relative humidity is 90%, development may also occur.

- Avoid use of solvent-type adhesives. Adhesives containing volatile organic solvents such as alcohol, ester, ketone, etc. causes colour formation and therefore rubber-type adhesives etc. should not be used. Starch, PVA and CMC type adhesives are recommended.

- Frictional heat generated by rubbing a finger nail or sharp object over the surface will cause images to develop.

- Thermal paper will develop colour if brought into contact with freshly processed Diazo copying paper.

TO ELIMINATE PAPER FADING:

- File exposed paper in the dark immediately after exposure. Thermal paper will turn yellow, and blue printed images will tend to fade if exposed to direct sunlight or to fluorescent lighting for long periods. Do not store paper near windows.

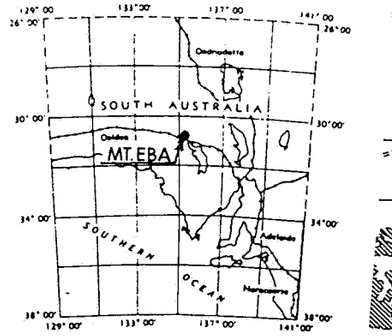
- Prolonged contact with PVC film containing plasticizers such as ester phtalate will reduce the image forming ability of the paper and cause printed images to fade. We recommend that files made of polythylene, polypropylene, polyester, etc. be used.

- Self-adhesive cellophane tapes containing an alcohol type plasticizer will cause the image to fade. Double-sided adhesive tape is recommended for use instead of paste.

- Handling thermal paper with dirty or sweaty fingers might cause images to fade.

- Do not store developed paper with the sensitized surfaces touching as images might be transferred from one sheet to another.

LOCALITY



CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 — S.A.
LOCALITY PLAN

REF.	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15		
SCALE	1 : 250000		
AUTHOR	S.P.S.	REPORT	14309
DATE	Jan. '87	PLAN No	SAa 3552

0123

503400 mE

503200 mE

503000 mE

502800 mE

502600 mE

502400 mE

502200 mE

502000 mE

501800 mE

501600 mE

501400 mE

6609300 mN

6606300 mN

6609000 mN

6608800 mN

6608000 mN

6607000 mN

6606800 mN

1000m 900 800 700 600 500 400 300 200 100 0 100 200

AMG North

CRA EXPLORATION PTY LIMITED

MT. EBA E.L. 1315 — S.A.
LAKE LABYRINTH WEST GRID

REF.	KINGOONYA SH 53-11		
SCALE	1 : 10000		
AUTHOR	M.N.R.	REPORT	14309
DATE	Jan. '87	PLAN No	SAa 4449

01124

0125

CRA EXPLORATION PTY LIMITED

MT. EBA E.L. 1315 – S.A.
LAKE LABYRINTH WEST GRID
GEOLOGY

REF.	KINGOONYA SH 53-11
SCALE	1 : 10000
AUTHOR	M.N.R.
DATE	Jan. '87
REPORT	14309
PLAN No	SAg 4450

m 200 100 0 100 200 300 400 500 600 700 800 900 1000m

Scrub

Salt encrusted sand

Salt lake

Lake Salt

Lake Salt

660630O mN

660680O mN

660700O mN

660800O mN

660880O mN

660900O mN

669300 mN

503400 mE

503200 mE

503000 mE

502800 mE

502600 mE

502400 mE

502200 mE

502000 mE

501800 mE

501600 mE

501400 mE

AMG North

MT. EBA E.L 1315

SURVEY SPECIFICATIONS

LEGEND

Magnetic contours (values in gammas)

Magnetic Low

SHEET INDEX

(1)

(2)

SURVEY SPECIFICATIONS

The survey was flown by Aerial Surveys Pty. Ltd. for the U.S. Department of Energy and Minerals in 1979.

The survey was flown using Magnetic Guidance from Locomotive Series (Proton) equipment.

The above map is based on the data obtained by the Bendix Aviation Corporation for the U.S. Department of Energy, Mining, Industry, Technology and Commerce, Subsidiary Agreement No. 1 to the Agreement of 1974 between the Commonwealth of Australia and the United States of America for Cooperation in Mineral Resources Development.

Values are the total magnetic field minus 50,000 gammas.

6532-8

CRA EXPLORATION PTY LIMITED

MT. EBA E.L 1315 – S.A.

COMPOSITE MAGNETIC CONTOURS

Ref	TARCOOLA SH 53-10 ORROROO SH 53-11 HILDARA SH 53-14 QUORN SH 53-15		
Scale	1: 100 000	Drawn	K. D. D.
Author	G. P. S.	Report No	14309
Date	Mar. 80	Plan No	SAm 4483



AIRBORNE SURVEY SPECIFICATIONS

MAGNETOMETER :	Cesium Vapour optical absorption. Sensitivity : 0.04 nT
RECORDING INTERVAL :	0.2 sec (approx 13m sampling) at mean ground speed of 220 km/hour.
SPECTROMETER :	Nuclear Data 256 channel ADC Volume : 33.5 litres
TOTAL COUNT WINDOW :	0.8 - 3.00 MeV
AUX. URANIUM WINDOW :	1.048 - 1.21 MeV
POTASSIUM WINDOW :	1.36 - 1.56 MeV
URANIUM WINDOW :	1.66 - 1.86 MeV
THORIUM WINDOW :	2.42 - 2.82 MeV
RECORDING INTERVAL :	1.0 sec (approx 60m sampling) at mean ground speed of 220 km/hour.
DATA RECORDING :	Geoterrex MADACS acquisition system. Digital to magnetic tape.
NOMINAL TERRAIN CLEARANCE :	Both detectors in aircraft at 80m.
NOMINAL LINE SPACING :	Traverse lines 300 metres. Tie lines 4.0 km.
FLIGHT PATH NAVIGATION :	Visual, aided by SINGER KEARFOTT AN/ASN 128 Doppler navigation system with SPERRY C12 compass and VG14 vertical gyro
FLIGHT PATH RECORD :	Geocam 35mm continuous tracking camera and computed Doppler AMG coordinates
FLIGHT LINE RECOVERY :	Visually to 1:25,000 black & white enlargements of high level photography to control Doppler positioning

RESIDUAL MAGNETIC CONTOURS

Grid notation refers to Australian Map Grid Zone 53
Digitised from 1:25,000 black & white enlargements of high level photography.

Magnetics	:Diurnally levelled.
	:Aircraft heading subtracted
IGRF (1980)	:Removed. Datum 5000 nT added
Grid mesh size	:60 x 60 metres
Grid filter	:Polynomial, radius 90 metres
Contour Interval	10,50 and 500 nT



6532-9

JOB NO : 87-329
Flown by GEOTERREX PTY LTD : JUNE 1986
Compiled by Geoterrex Pty Ltd., Sydney, NSW.
Processed by Engineering Computer Services, Bowral

CRA EXPLORATION PTY LIMITED

MT EBA EL 1315 S.A.

MAGNETIC ANOMALIES

Ref : TARCOOLA SH 53-10, KINGOONYA SH 53-11, CHILDARA SH 53-14, GAIRDNER SH 53-15			
Date. JAN 87	Author G.P.J.	Report No. 14309	Plan No. SAa 4481

Lav. 6532
0126

CRA EXPLORATION PTY. LIMITED
(INC. IN N.S.W.)
Adelaide Office: 31 OSMOND TERRACE, NORWOOD 5067
Head Office: 55 COLLINS STREET, MELBOURNE 3001

P.O. BOX 254 Norwood
TELEPHONE: 42 8871
TELEGRAMS: "EXPLORECO"
TELEX: AA88605

30th April, 1987

The Director-General,
Department of Mines & Energy, South Australia
P.O. Box 151,
EASTWOOD. S.A. 5063.

Dear Sir,

Re: Mt. Eba E.L. 1315, S.A.
Report For The Quarter Ended 9th April, 1987

During the quarter there was no field work undertaken. Interpretation of aeromagnetic data has resulted in the selection of two prospect areas for follow up ground geophysics. Ground magnetic data from the Lake Labyrinth West Prospect indicates the source is a discrete reversely polarised body requiring drill testing.

Expenditure for the quarter to the nearest accounting period amounted to $6064.00. The expenditure consisted of:

Payroll	$3146.00
General Supplies	$ 862.00
Property	$ 108.00
General Overheads	$1948.00
Total	$6064.00

Yours faithfully,

W.H. JOHNSTON
CHIEF GEOLOGIST S.A./N.T.

WHJ/pq

997 - 4/5/87

CRA EXPLORATION PTY. LIMITED
(INC. IN N.S.W.)
Adelaide Office: 31 OSMOND TERRACE, NORWOOD 5067
Head Office: 55 COLLINS STREET, MELBOURNE 3001

P.O. BOX 254 Norwood
TELEPHONE: 42 8871
TELEGRAMS: "EXPLORECO"
TELEX: AA 88605

15th July, 1987

The Director General,
Department of Mines & Energy, South Australia
P.O. Box 151,
EASTWOOD. S.A. 5063.

Dear Sir,

Re: Mt. Eba EL 1315, S.A.
Report For The Quarter Ended 9th July, 1987

During the sixth quarterly period of tenure, there was no field work undertaken on the above exploration licence.

Yours faithfully,

W.H. JOHNSTON
CHIEF GEOLOGIST S.A./N.T.

WHJ/pq

RECEIVED
17 JUL 1987
DEPT. OF MINES AND ENERGY SECURITY
6532

CRA EXPLORATION PTY. LIMITED

SEVENTH QUARTERLY REPORT FOR MOUNT EBA E.L. 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH OCTOBER, 1987.

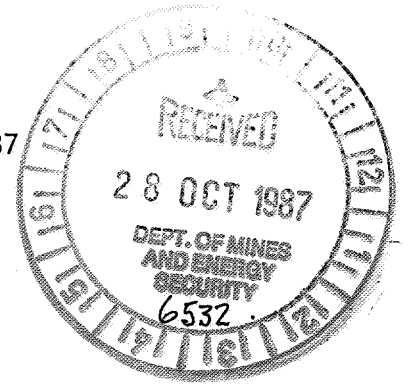
AUTHOR: G.L. MACKEE

COPIES TO: SADME
CIS CANBERRA

DATE: 14TH OCTOBER, 1987

SUBMITTED BY: G. L. Mackee

ACCEPTED BY:



14802

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CONTENTS

	PAGE
LIST OF PLANS	
1. SUMMARY	1
2. CONCLUSIONS AND RECOMMENDATIONS	1
3. INTRODUCTION	1
4. PREVIOUS WORK	1
5. WORK COMPLETED	2
5.1 Glenloth Prospect	2
5.2 Lake Labyrinth West Prospect	2
5.3 South Lake Prospect	2
EXPENDITURE	4
REFERENCES	5
LOCATION	5
KEYWORDS	5

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba E.L. 1315 - Locality Map	1:250 000
SAa 4481	Mt. Eba E.L. 1315 - Magnetic Anomalies	1:100 000
SAa 4749	Mt. Eba E.L. 1315 - Lake Labyrinth West Prospect, Ground Magnetic Contours	1: 10 000
SAa 4735	Mt. Eba E.L. 1315 - Lake Labyrinth West Prospect, Gravity & Magnetic Profiles, Line 502200mE	1: 10 000
SAa 4755	Mt. Eba E.L. 1315 - Gravity & Magnetic Model, Line 502200mE	1: 10 000
SAa 4762	Mt. Eba E.L. 1315 - South Lake Prospect, Prospect Grid Location	1: 50 000

1. SUMMARY

During the quarter, rock chip sampling was completed at the Glenloth Prospect, a 155 line km grid was commenced at the South Lake Prospect and an exploration drill hole into a possible intrusive body was proposed at Lake Labyrinth Prospect following modelling of gravity and magnetic data.

2. CONCLUSIONS AND RECOMMENDATIONS

The source of the 2.75 mgal/4000 nT gravity/magnetic anomaly at Lake Labyrinth West Prospect is probably an intrusive and possibly a carbonatite source.

A drill hole sited at 6607800mN, on line 502200mE, directed -60°S, should be completed to test the source of the geophysical anomalies.

3. INTRODUCTION

Mt. Eba E.L. 1315 is located on the Kingoonya 1:250 000 sheet and adjoining parts of the Tarcoola, Childara and Gairdner 1:250 000 sheets (refer plan SAa 3552). The licence was granted to CRA Exploration Pty. Ltd. on the 9th January, 1986 for a period of one year. Subsequently, the E.L. was extended for a further one year period.

This report covers activity to the end of the seventh quarter; no field work was completed during the fifth and sixth quarters.

4. PREVIOUS WORK

Exploration within the area by other companies is summarised in the first quarterly report (Sugden, S.P.). To the end of the seventh quarter CRAE has completed a detailed, low-level airborne magnetic and radiometric survey, detailed ground magnetic grids at Wallabyry Range and Lake Labyrinth West prospects, geochemical assaying of outcrop rock samples and compilation of geological outcrop plans. Table 1 summarises all activity up to and including the seventh quarter.

5. WORK CARRIED OUT

During the quarter, field work was completed at the Glenloth, Lake Labyrinth West and South Lake prospects (refer plan SAa 4481 for prospect locations).

5.1 Glenloth Prospect

A rock chip sampling program was completed over outcrop of mapped Glenloth granite which coincides with a magnetic anomaly of 250nT. Eleven rock chip samples were collected; assay results for a comprehensive suite of elements are awaited.

5.2 Lake Labyrinth West Prospect

The detailed ground magnetic data from the 1986 survey was machine-contoured (plan SAa 4749). Line 502200mE was selected for follow up with a gravity traverse of 100 metre spaced stations.

The resultant bouguer gravity, elevation and ground magnetic profiles are presented in plan SAa 4735. A bouguer gravity anomaly of 2.75 mgals is coincident with the source(s) of the 4000nT reversely polarized magnetic anomaly. Geophysical modelling of the residual bouguer gravity and magnetic anomalies was completed; results are presented in plan SAa 4755.

The source of the gravity/magnetic anomaly is probably an intrusive, and possibly a carbonatite. A drill hole to test the source is proposed at or near 6607800mN on line 502200mE, directed -60° south. Final location for the drill hole is dependant on drill access as this site is on the edge of a salt lake.

5.3 South Lake Prospect

The periphery of this magnetically quiet zone hosts several mineral occurrences (Sugden, S.P., Jan, 1987) and is suspected of being caused by a (blind) granite.

Contractors Solo Geophysics and Co. have commenced emplacement of a survey grid of 400 metre spaced lines totalling 155 line km (refer plan SAa 4762). Bulldozing of scrub in areas of thick vegetation is necessary in some parts of this grid and approval for use of declared equipment was given by S.A.D.M.E.

Ground magnetics, limited gravity surveying and detailed geological outcrop mapping are planned.

G.L. MACKEE

GLM/dp

TABLE 1

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1986	Literature Search	SADME Open File	Compilation of previous exploration	First Qly Rep on Mt. Eba EL 1315
1986	Rock Chip Sampling	27 Samples Assayed (19 elements)		First Qly Rep on Mt. Eba EL 1315
1986	145.1Km Ground Magnetics	20m stations, MP-3 Magnetometer	Wallabyng Range Prospect	First Qly Rep on Mt. Eba EL 1315
1986	Rock Chip Sampling	33 Samples Assayed (20 elements)	Wallabyng Range	Second Qly Rep on Mt. Eba EL 1315
1986	Detailed Airborne Magnetic/Radiometric Survey	300m N/S lines, 80m terrain clearance	Geoterrex P/L (Contractors)	Third/Four Qly Rep on Mt. Eba EL 1315
1986	Compilation Plans - Outcrop Geology - Radiometrics Anomalies	1:100 000 (SADME Mapping)		Third Qly Rep on Mt. Eba EL 1315
1986	26Km Ground Magnetics	10m Stations, Scintrex MP-3 Magnetometer	Lake Labyrinth West Prospect	Fourth Qly Rep on Mt. Eba EL 1315
1987	Compilation Plan of all Aeromagnetic Surveys	1:100 000		Fourth Qly Rep on Mt. Eba EL 1315
1987	Rock Chip Sampling	11 Samples Assayed	Glenloth Prospect	Seventh Qly Rep on Mt. Eba EL 1315
1987	3Km Gravity	100m Stations; LaCoste & Romberg gravimeter	Lake Labyrinth West Prospect	Seventh Qly Rep on Mt. Eba EL 1315

EXPENDITURE

Expenditure for the 3 month period ending 30th September, 1987 the nearest accounting period was $19 106.00, as listed below.

	$
Payroll	6 436
Supplies	1 188
Vehicle	3 792
Travel	796
Rent	3 154
Contractors	831
Sundry	600
Overheads	2 309
Total	$19 106

REFERENCES

SUGDEN, S.P., April 1986: "First Quarterly Report for Mt. Eba E.L. 1315, South Australia, for the period ending 9th April, 1986" - CRAE Report No. 13885

SUGDEN, S.P., July 1986: "Second Quarterly Report for Mt. Eba E.L. 1315, South Australia, for the period ending 9th July, 1986" - CRAE Report No. 14067

SUGDEN, S.P., October 1986: "Third Quarterly Report for Mt. Eba E.L. 1315, South Australia, for the period ending 9th October, 1986" - CRAE Report No. 14183

SUGDEN, S.P., January 1987: "Fourth Quarterly Report for Mt. Eba E.L. 1315, South Australia, for the period ending 9th January, 1987" - CRAE Report No. 14309

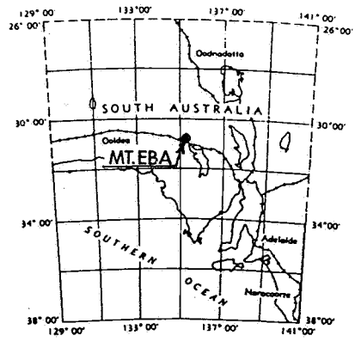
LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geophys-Mag, Geophys-Grav.

LOCALITY



CRA EXPLORATION PTY LIMITED

MT. EBA E.L. 1315 — S.A.
LOCALITY PLAN

REF.	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15		
SCALE	1 : 250 000		
AUTHOR	S.P.S.	REPORT	14802
DATE	Jan. '87	PLAN No	SAa 3552

0138



134°45' 134°50' 134°55' 135°00' 135°05' 135°10' 135°15'

480000 mE 490000 mE 500000 mE 510000 mE 520000 mE 530000 mE

30°30' 30°35' 30°40' 30°45' 30°50' 30°55' 31°00' 31°05'

6620000 mN 6610000 mN 6600000 mN 6590000 mN 6580000 mN 6570000 mN 6560000 mN

0 1 2 4 6 8 10 12 14 16 18 20 Km.

1 : 100000

AIRBORNE SURVEY SPECIFICATIONS

MAGNETOMETER :	Cesium Vapour optical absorption. Sensitivity : 0.04 nT
RECORDING INTERVAL :	0.2 sec (approx 13m sampling) at mean ground speed of 220 km/hour.
SPECTROMETER :	Nuclear Data 256 channel ADC Volume : 33.5 litres
TOTAL COUNT WINDOW :	0.8 - 3.00 MeV
AUX. URANIUM WINDOW :	1.048 - 1.21 MeV
POTASSIUM WINDOW :	1.36 - 1.56 MeV
URANIUM WINDOW :	1.66 - 1.86 MeV
THORIUM WINDOW :	2.42 - 2.82 MeV
RECORDING INTERVAL :	1.0 sec (approx 60m sampling) at mean ground speed of 220 km/hour.
DATA RECORDING :	Geoterrex MADACS acquisition system. Digital to magnetic tape.
NOMINAL TERRAIN CLEARANCE :	Both detectors in aircraft at 80m.
NOMINAL LINE SPACING :	Traverse lines 300 metres. Tie lines 4.0 km.
FLIGHT PATH NAVIGATION :	Visual, aided by SINGER KEARFOTT AN/ASN 128 Doppler navigation system with SPERRY C12 compass and VG14 vertical gyro
FLIGHT PATH RECORD :	Geocam 35mm continuous tracking camera and computed Doppler AMG coordinates
FLIGHT LINE RECOVERY :	Visually to 1:25.000 black & white enlargements of high level photography to control Doppler positioning

RESIDUAL MAGNETIC CONTOURS

Grid notation refers to Australian Map Grid Zone 53
Digitised from 1:25.000 black & white enlargements of high level photography.

Magnetics	:Diurnally levelled.
	:Aircraft heading subtracted
IGRF (1980)	:Removed. Datum 50000 nT added
Grid mesh size	:60 x 60 metres
Grid filter	:Polynomial, radius 90 metres
Contour Interval	10.50 and 500 nT

30 30 00S
31 07 30S
134 45 00E
135 15 00E

	E1	E2	E3
	E4	E5	E6
E7	E8	E9	E10
E11	E12	E13	E14
E15	E16	E17	E18

6532-10

JOB NO : 87-329
Flown by GEOTERREX PTY LTD : JUNE 1986
Compiled by Geoterrex Pty Ltd., Sydney, NSW.
Processed by Engineering Computer Services, Bowral

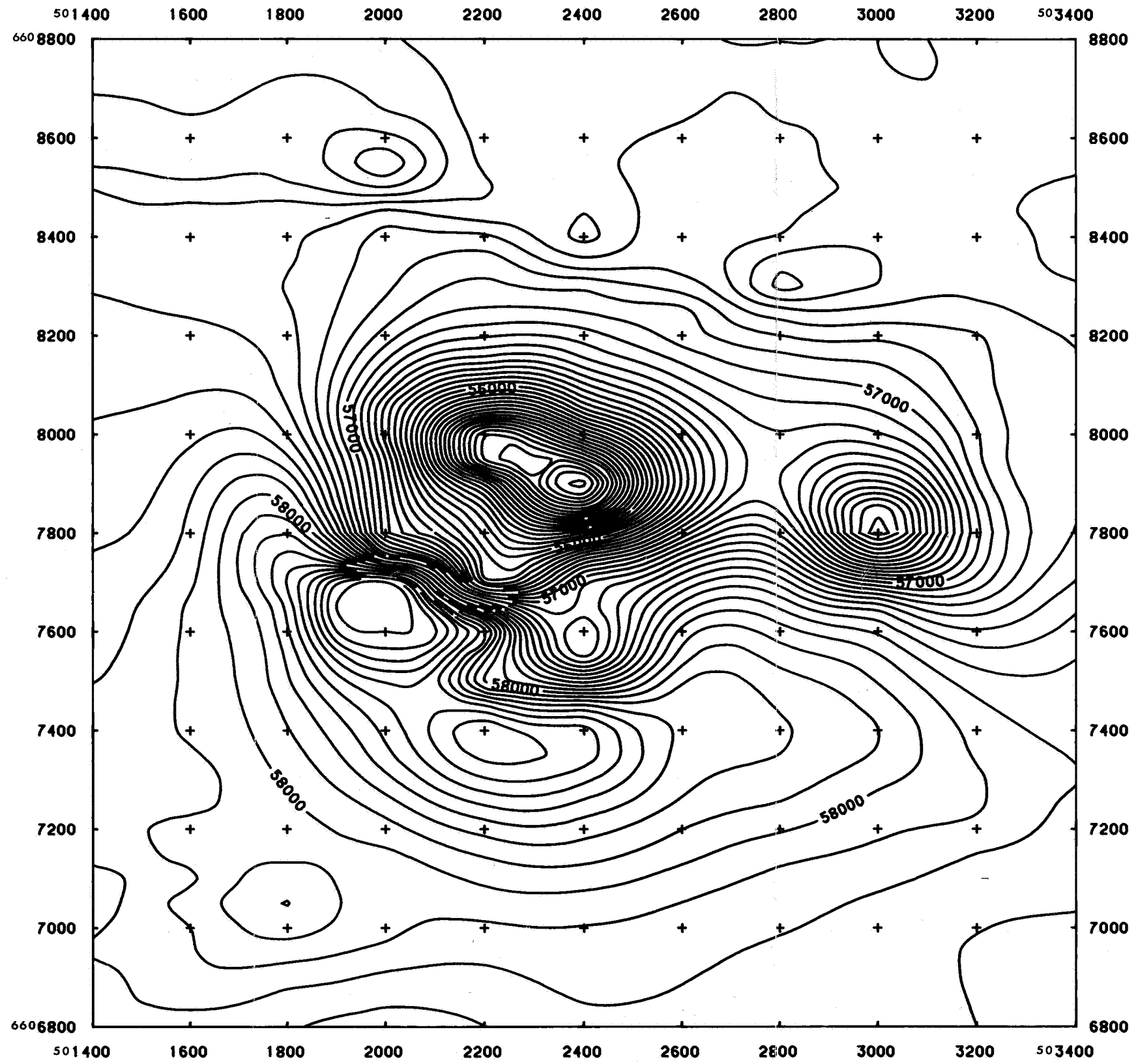
CRA EXPLORATION PTY LIMITED

MT EBA EL 1315 S.A.

MAGNETIC ANOMALIES

Ref. :	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15			
Date. Jan '87	Author G.P.J.	Report No. 14802	Plan No. SAa 4481	

LAKE LABYRINTH WEST GRID : Ground Magnetic Contours



0 100 200 300 400 500 600 700 800 900 1000m.

CRA EXPLORATION PTY. LIMITED .

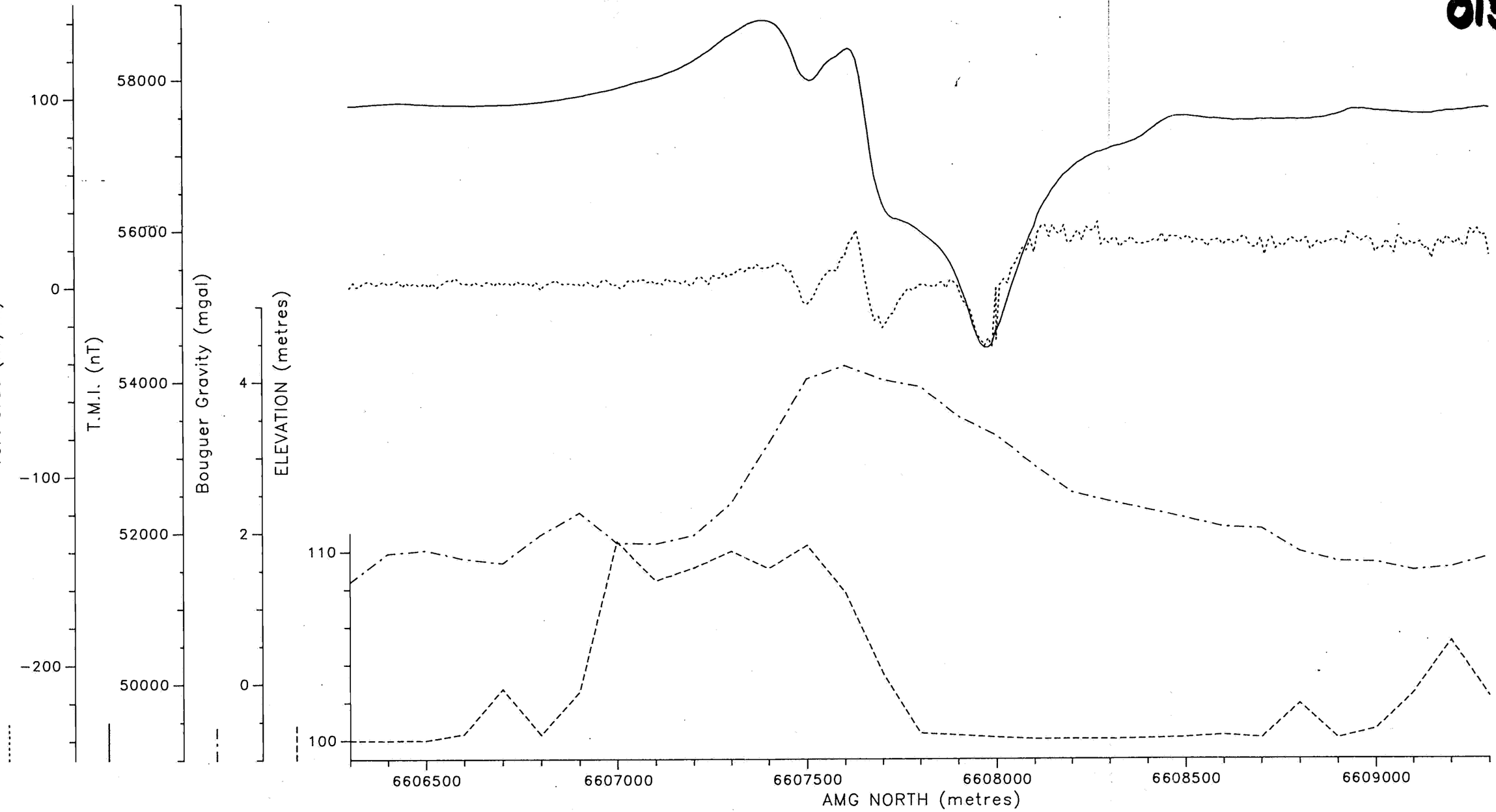
MT. EBA E.L. 1315

Lake Labyrinth West Prospect

Ground Magnetic Contours

Ref. : KINGOONYA SH 53-11	
Scale 1 : 10000	Drawn G.L.M.
Author G.L.M.	Report No 14802
Date Sept. '87	Plan No. SAa 4749

0158



CRA EXPLORATION PTY LTD			
MT EBA E. L. LAKE LABYRINTH PROSPECT GRAVITY AND MAGNETIC PROFILES LINE 502200 mE			
REFERENCE KINGOONYA SH 53-11			
SCALE	1 : 10000	DRAWN	G.L.M.
AUTHOR	GLM	REPORT	14802
DATE	27 AUG 87	PLAN No	SAa 4735

MT EBA E.L. : Lake Labyrinth Prospect, Line 502200mE

MODEL
OBSERVED

MAGNETIC INTENSITY (nT)
(MGal)

1000
0
-1000
2.000
-2000
1.000
-3000

STATION 6500 6700 6900 7100 7300 7500 7700 7900 8100 8300 8500 8700 8900 9100

DEPTH (M)
200
400

#1	#2	#3
P: 0·35	P: 0·35	P: 0·25
SI: 0·1	SI: 0·16	SI: 0·15
7430 / 7530 } 45m	7600 / 7760 } 45m	7800 / 8000 } 45m
7680 / 7580 } 545m	7910 / 7750 } 545m	8150 / 7950 } 545m

DIP: -73° N

#1 #2 #3

CRA EXPLORATION PTY LIMITED

MT. EBA EL 1315 - S.A.

GRAVITY AND MAGNETIC MODEL
LINE 502200 m E

REF. KINGOONYA SH 53-11	
SCALE 1:10 000	
AUTHOR G.L.M.	REPORT 14802
DATE 30-9-87	PLAN No 4755

0139

485000mE 490000mE 495000mE 500000mE 505000mE

6594000mN 6590000mN 6585000mN 6580000mN 6575000mN 6571000mN

30°45' 30°50' 30°55' 31°00'

134°55' 135°00'

Warna Rockhole

VERMIN PROOF FENCE

TRANS AUSTRALIAN RAILWAY

Carters Well

Tank (disused)

Kenella Well

HOPEFUL HILL

approx. position

approx. position

498000mE

494000mE

500000mE

6586000mN

6584000mN

6580000mN

Eanea Dam

4734

SOUTH LAKE

salt

salt lakes

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

0 5km 10km

1:50 000

6532-11

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT
GRID LOCATION

REF.	TARCOOLA SH 53-10		
SCALE	1:50 000	DRAWN	F.R.
AUTHOR	G.L.M.	REPORT	14802
DATE	OCT.'87	PLAN NO.	SAa 4762

CRA EXPLORATION PTY. LIMITED

The contents of this report remain the property of C.R.A. Exploration Pty. Limited and may not be published in whole or in part nor used in a company prospectus without the written consent of the Company.

EIGHTH QUARTERLY REPORT FOR MOUNT EBA EL 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH JANUARY, 1988.

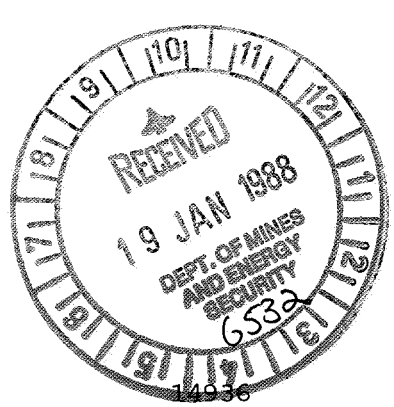
AUTHOR: D.C. PALMER

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CIS CANBERRA

DATE: 14TH DECEMBER, 1987

SUBMITTED BY: Dan Palmer

ACCEPTED BY:



CONTENTS

	PAGE
LIST OF PLANS	
LIST OF TABLES	
LIST OF APPENDICES	
1. SUMMARY	1
2. CONCLUSIONS AND RECOMMENDATIONS	1
3. INTRODUCTION	1
4. PREVIOUS WORK	1
5. WORK CARRIED OUT	4
5.1 Glenloth Prospect	4
5.2 Lake Labyrinth West Prospect	4
5.3 South Lake Prospect	4
EXPENDITURE	6
REFERENCES	7
LOCATION	7
KEYWORDS	7

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba EL 1315 - Locality Plan	1:250 000
SAa 3763	Mt. Eba EL 1315 - Rock Chip Sample Locations	1:100 000
SAa 4450	Mt. Eba EL 1315 - Lake Labyrinth West Grid Geology and Drillhole Location - DD87ME1	1: 10 000
SAa 4762	Mt. Eba EL 1315 - South Lake Prospect, Prospect Grid Location	1: 50 000

LIST OF TABLES

Table 1	Summary Of Work Completed On Mt. Eba EL 1315
Table 2	Summary Of Work Completed On South Lake Prospect, Mt. Eba EL 1315

LIST OF APPENDICES

Appendix I	Rock Sample Ledger - Glenloth Prospect
Appendix II	Drillhole Log - DD87ME1

1. SUMMARY

During the quarter, a 155 km grid was emplaced at the South Lake Prospect, with magnetics and gravity data in the process of reduction.

No anomalous geochemistry was noted in assay results for rock chip samples at the Glenloth Prospect.

Drillhole DD87ME1 reached a total depth of 51.0 m and the source of the gravity/magnetic anomaly at Lake Labyrinth West Prospect remains untested.

2. CONCLUSIONS AND RECOMMENDATIONS

Completion of drillhole DD87ME1 should be undertaken to test the source of the geophysical anomalies at Lake Labyrinth West Prospect.

Geological mapping of outcrop/float at South Lake Prospect is required to assist gravity and magnetic data modelling.

3. INTRODUCTION

Mt. Eba EL 1315 is located on the Kingoonya 1:250 000 sheet and adjoining parts of the Tarcoola, Childara and Gairdner 1:250 000 sheets (refer plan SAa 3552). The licence was granted to CRA Exploration Pty. Limited on the 9th January, 1986 for a period of one year and subsequently extended for a further one year period.

This report covers work carried out during the eighth quarter.

4. PREVIOUS WORK

Exploration within the immediate area of the EL, by other companies, is summarised in the first quarterly report for Mt. Eba EL 1315 (Sugden, S.P.).

Table 1 summarises all activity up to and including the eighth quarter.

TABLE 1

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1986	Literature Search	SADME Open File	Compilation of previous exploration	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	27 Samples Assayed (19 elements)		1st Qtly Rpt on Mt. Eba EL 1315
1986	145.1 km Ground Magnetics	20 m stations, MP-3 Magneto-meter	Wallabyng Range Prospect	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	33 Samples Assayed (20 elements)	Wallabyng Range	2nd Qtly Rpt on Mt. Eba EL 1315
1986	Detailed Airborne Magnetic/Radio-metric Survey	300 m N/S lines, 80 m terrain clearance	Geoterrex P/L (Contractors)	3rd/4th Qtly Rpt on Mt. Eba EL 1315
1986	Compilation Plans - Outcrop Geology - Radiometrics Anomalies	1:100 000 (SADME Mapping)		3rd Qtly Rpt on Mt. Eba EL 1315
1986	26 km Ground Magnetics	10 m stations, Scintrex MP-3 Magnetometer	Lake Labyrinth West Prospect	4th Qtly Rpt on Mt. Eba EL 1315
1987	Compilation Plan of all Aero-magnetic Surveys	1:100 000		4th Qtly Rpt on Mt. Eba EL 1315
1987	Rock Chip Sampling	11 Samples Assayed	Glenloth Prospect	7th Qtly Rpt on Mt. Eba EL 1315
1987	3 km Gravity	100 m stations; LaCoste & Romberg gravimeter	Lake Labyrinth West Prospect	7th Qtly Rpt on Mt. Eba EL 1315

TABLE 1 (cont.)

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1987	107 km Ground Magnetics	10 m stations; Scintrex MP-3 Magnetometer	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
	65 km Gravity	100 m stations; Lacoste & Romberg gravimeter	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
1987	DD87ME1	Total depth 51.0 m HW tricone chips	Kingoonya Drilling P/L Lake Labyrinth West Prospect	8th Qtly Rpt on Mt. Eba EL 1315

5. WORK CARRIED OUT

5.1 Glenloth Prospect

No anomalous geochemistry was noted in assay results for rock chip samples at the Glenloth magnetic anomaly (plan SAa 3763). A geochemical rock sample ledger appears in Appendix I.

5.2 Lake Labyrinth West Prospect

Drillhole DD87ME1, collared at 6607765mN on line 502200mE, was designed to test the source of a 4000 nT reversely polarized magnetic and coincident 2.8 mgal gravity anomaly (plan SAa 4450).

Drillhole DD87ME1, directed -60° south, reached a total depth of 51.0 m before drilling was terminated. The hole had yet to intersect 'basement' and therefore the source of the gravity/magnetic anomaly remains untested.

Completion of the hole is planned for a future date.

A drill log for DD87ME1 appears in Appendix II.

5.3 South Lake Prospect

A detailed grid of 400 m spaced lines totalling 155 line km has been emplaced along the south and east edges of a circular, magnetically quiet zone centred near South Lake. It is thought this zone may represent a blind granitic intrusion or a hydrothermal alteration centre. The gridded area includes areas of known gold, tin and lead/zinc mineralisation - refer First Quarterly Report and plan SAa 4762.

Solo Geophysics and Co. were contracted to supervise the line clearing (bulldozing), and subsequent gridding, ground magnetics and gravity surveys - refer Table 2 for work completed. Detailed geological mapping of outcrop/float plus further ground magnetics surveying is planned. The magnetics and gravity data is in the process of reduction and plotting and will be presented in the next quarterly report.

TABLE 2

SUMMARY TABLE OF SURVEY

Line	From	To	km	Magnetics	Gravity
6584000mN	490000mE	501000mE	11.0		11.0
496000mE	6574000mN	6590000mN	16.0	16.0	16.0
6580000mN	493000mE	500000mE	7.0		7.0
493600mE	6577000mN	6582000mN	5.0		-
494000mE	"	"	5.0		-
494400mE	"	"	5.0		-
494800mE	"	"	5.0		-
495200mE	"	"	5.0		-
495600mE	"	"	5.0		-
496400mE	"	6582500mN	5.5	5.5	5.5
496800mE	"	"	5.5	5.5	5.5
497200mE	"	"	5.5	5.5	5.5
497600mE	"	"	5.5	5.5	5.5
496400mE	6585500mN	6588000mN	2.5	2.5	-
496800mE	"	"	2.5	2.5	-
497200mE	"	"	2.5	2.5	-
497600mE	"	"	2.5	2.5	-
498000mE	6577000mN	"	11.0	11.0	-
498400mE	"	"	11.0	11.0	-
498800mE	"	"	11.0	11.0	-
499200mE	"	"	11.0	11.0	11.0
499600mE	"	"	11.0	11.0	-
500000mE	6584000mN	"	4.0	4.0	-
		Totals (km)	155.0	107.0	65.0

D.C. PALMER

DCP/pq

EXPENDITURE

Expenditure for the 3 month period ending 31st December, 1987 the nearest accounting period was $102 950.00, as listed below.

	$
Drilling	19 045
Payroll	17 639
Supplies	4 958
Vehicle	2 788
Travel	1 925
Rent	1 707
Contractors	44 623
Laboratory	417
Overheads	9 848
Total	$102 950

REFERENCES

SUGDEN, S.P., April 1986 "First Quarterly Report for Mt. Eba EL 1315 South Australia, for the period ending 9th April, 1986" - CRAE Report No. 13885

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geophys-Mag, Geophys-Grav, Geochemistry, Drill Diamond

APPENDIX I

ROCK SAMPLE LEDGER - GLENLOTH PROSPECT

C.R.A. EXPLORATION PTY. LTD.- ROCK SAMPLE FIELD DATA SHEET.

Area: MTEBA EL1315 Collected: S P.S Analysed by: ANALABS Lab. report no: 15.6.06.01084
Map ref: CHILDARA Date collected: 30/9/87 Date anal. rec:
Photo name: Date to lab: 3/10/87 Plan no:
Run No: 2032/072 D.P.O. No: 37576 C.R.A. report no:

Less than detection limit ⊟ 0.151

Sample type: 1. Chip. 3. Channel. 2. Float 4. Panel.
Test: 1. Chemistry 2. Duplicate 3. Thin section 4. Polished section.

Sample Number	COORDINATES AM.G/Long./Lat./Local EAST	NORTH	SAMPLE TYPE	WIDTH (m)	AREA (sq.m)	No. CHIPS	TEST	GLENLOTH PROSPECT ROCK DESCRIPTIONS	Co	Cr	Ni	Cu	Zn	As	Ag	Sn	Ba	La	W	Au
ANALYSIS METHOD									ICP	ICP	ICP	ICP	ICP	XRF	ICP	XRF	ICP	ICP	XRF	FIRE AAS
DETECTION LIMIT (ppm)									50	10	10	5	5	2	5	3	5	5	20	0.005
									Metal Content (ppm)											
919493	497100	6569000	1	-1	-1	-1	1	Equigranular med. gr K-Feldspar-plag-qtz-amphibole granite	21600	155	-	28	62	20	-	4	782	50	-	-
919494	497100	6569000	1	-1	-1	-1	1	Med. grained qtz-K-Feldspar-plag-amphibole granite	14800	196	-	7	55	10	-	6	1460	46	-	-
919495	497150	6569200	1	-1	-1	-1	1	Med. grained red brown qtz-K-feld rock	5420	250	-	6	18	9	-	-	615	9	-	-
919496	497150	6569200	1	-1	-1	-1	1	Cse grained lt. red brown qtz-K-feld rock	5770	241	-	-	7	-	-	-	362	6	-	-
919497	497250	6569300	1	-1	-1	-1	1	Dk. green fine grained pyroxenite or amphibolite	43800	56	17	40	168	20	-	4	1030	33	-	0.01
919498	497400	6569400	1	-1	-1	-1	1	Brecciated quartz blow.	668	357	-	6	-	6	-	-	73	-	-	0.005
919499	497500	6569100	1	-1	-1	-1	1	Lt. red brown qtz-K-feldspar granite	3810	206	-	6	20	8	-	-	342	17	-	0.008
919500	497800	6569100	1	-1	-1	-1	1	Amphibolite epidotite rock.	85500	116	-	41	105	10	-	-	104	15	-	0.01
919821	497700	6569000	1	-1	-1	-1	1	Quartz-feldspar-biotite granite	15100	182	-	8	52	10	-	-	1150	44	-	0.005
919822	497900	6569300	1	-1	-1	-1	1	Quartz	259	263	-	7	-	6	-	-	26	-	-	-
919823	497700	6569250	1	-1	-1	-1	1	Pink qtz-K-feldspar granite? or gneiss?	1450	162	-	7	12	9	-	-	1110	7	-	-

MT EBA EL. 1315
GLENLOTH PROSPECT

C.R.A. EXPLORATION PTY. LTD.
ANALYTICAL RESULT SHEET

Laboratory: ANALABS

Lab. rept. no. 15.6.06.01034

CR.A. D.P.O. no. 37576

Date: 3/10/87.

Less than detection Limit ⊟

0152

Method	XRF	ICP	XRF
Detection limit	10ppm	10ppm	3ppm
Sample Number	Metal Content (ppm)		
	Pb	Th	U
919493	35	14	3
919494	15	15	-
919495	30	15	3
919496	60	11	5
919497	-	14	-
919498	-	-	-
919499	15	-	4
919500	25	-	-
919821	50	15	3
919822	-	-	-
919823	-	-	-

APPENDIX II

DRILL HOLE LOG - DD87ME1

CRA EXPLORATION PTY. LIMITED.

DD87ME1 DRILL LOG

PROJECT MT. EBA EL 1315 - LAKE LABYRINTH PROSPECT

CO-ORDINATES 502200mE 6607765mN AZIMUTH 0° DRILLERS KINGOONYA DRILLING COMMENCED 17/11/87 DEPTH 51.0m HOLE No. DD87ME1

RL COLLAR _____ INCLINATION -60°S DRILL TYPE LONGYEAR 38 COMPLETED 23/11/87 CASING LEFT _____ DPO Nos. _____

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS	
0	9				CLAYSTONE: Olive green with medium grained quartz and gypsum						
9.0	30.0				CLAYSTONE/SANDSTONE: Variably clay cemented sandstone and interbedded claystones (9-15m, 24-30.0m)						
					15-18m Ironstained red brown sandstone, nedium-to-coarse grained with rounded ironstone, quartz and rock fragments						
					21.0-24.0m as for 15.0-18.0 n						
30.0	51.0				SANDSTONE: Pale brown to white grey nediu n-to-coarse grained quartz sandstone, clay cemented, with minor rounded ironstone, jasper, quartzite fragments, rare glauconite.						
					T.D. 51.0m HOLE TERMINATED						

SUMMARY : _____

LOGGED BY D.C. PALMER DATE 22/11/87

SHEET 1 OF 1

0154

LOCALITY

SOUTH AUSTRALIA

MT. EBA

SOUTHERN OCEAN

CRA EXPLORATION PTY LIMITED

MT. EBA E.L. 1315 — S.A.
LOCALITY PLAN

REF.	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15		
SCALE	1 : 250 000		
AUTHOR	S.P.S.	REPORT	14936
DATE	Dec. '87	PLAN No	SAa 3552

0155

INDEX TO 1:100 000 SHEETS

GN TN MN

COMPANY WELL

LAKE LABYRINTH

WALLABING RANGE
GRID WE PLAN SAm 4031

1:10000 E
10000 N

RINGWOOD VIA

Windorah

Barrara Hill

LAKE HARRIS

1159715 1159716 1159717 1159728 1159714 1159718 1159719 1159720 1159726 1159722 1159721 1159723 1159724 1159725 1159727 1159706 1159708 1159709 1159704 1159705 1159703 1159702

919353-4-5 919185 919184 919356 919382 919383 919408 919409 919497 919498 919499 919822 919500 919821 919493

o 1159723 1985 Sample Locations
• 9-7382 1986 Sample Locations
• 919408 1987 Sample Locations

1 : 250

6532-12

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.

ROCK CHIP SAMPLE LOCATIONS

Ref.	[illegible]		
Scale	1 : 100000	Drawn	B.D.B.
Author	S.P.S.	Report No	14936
Date	Dec. '87	Plan No.	SAm 1763

503400 mE
503200 mE
503000 mE
502800 mE
502600 mE
502400 mE
502200 mE
502000 mE
501800 mE
501600 mE
501400 mE

6609300 mN
6609000 mN
6608800 mN
6608000 mN
6607000 mN
6606800 mN
6606300 mN

Salt Lake
Salt Lake
DD87ME1

1000m 900 800 700 600 500 400 300 200 100 0 100 m200

AMG North

Salt Lake
Salt encrusted sand
Scrub
• DD87ME1

CRA EXPLORATION PTY LIMITED

MT. EBA E.L. 1315 – S.A.
LAKE LABYRINTH WEST GRID
GEOLOGY WITH
DRILLHOLE LOCATION - DD87ME1

REF.	KINGOONYA SH 53-11		
SCALE	1 : 10000		
AUTHOR	D.C.P.	REPORT	14936
DATE	DEC. '87	PLAN No	SAa 4450

0158

485000mE 490000mE 495000mE 500000mE 505000mE

6594000mN 6590000mN 6585000mN 6580000mN 6575000mN 6571000mN

30°45' 30°50' 30°55' 31°00'

134°55' 135°00'

Warna Backhole

TARCOOLA 29Km

VERMIN PROOF FENCE

TRANS AUSTRALIAN RAILWAY

Carters Well

Tank (disused)

Earea Dam

4734

PK 5836

PK 5936

6586000mN

VERMIN PROOF FENCE

KINGOONYA 26·5 Km

SOUTH LAKE

6584000mN

500000mE

6580000mN

498000mE

494000mE

approx. position

approx position

Kenella Well

HOPEFUL HILL

salt

salt lakes

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

0 5km 10km

1:50 000

6532-13

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT
GRID LOCATION

REF.	TARCOOLA SH 53-10		
SCALE	1:50 000	DRAWN	F.R.
AUTHOR	G.L.M.	REPORT	14936
DATE	OCT.'87	PLAN NO.	SAa 4762

CRA EXPLORATION PTY. LIMITED

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NINTH QUARTERLY REPORT FOR MOUNT EBA EL 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH APRIL, 1988.

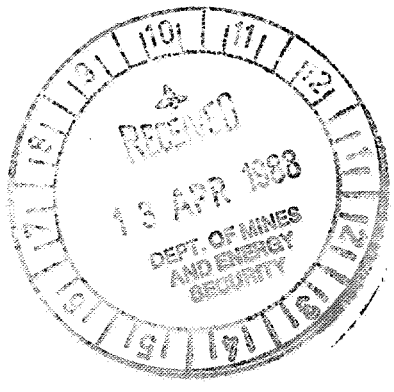
AUTHOR: D.C. PALMER

COPIES TO: SADME
CIS CANBERRA

DATE: 28TH MARCH, 1988

SUBMITTED BY:

ACCEPTED BY:



CONTENTS

	PAGE
LIST OF PLANS	
LIST OF TABLES	
LIST OF APPENDICES	
1. SUMMARY	1
2. INTRODUCTION	1
3. PREVIOUS WORK	1
4. WORK CARRIED OUT	3
4.1 Geophysics	3
4.2 Rock Sampling	4
4.3 Geochemistry	4
EXPENDITURE	5
REFERENCES	6
LOCATION	6
KEYWORDS	6

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba EL 1315, SA - Locality Plan	1:250 000
SAa 4481	Mt. Eba EL 1315, SA - Magnetic Anomalies	1:100 000
SAa 4762	Mt. Eba EL 1315, SA - South Lake Prospect, Prospect Grid Location	1: 50 000
SAa 4860	Mt. Eba EL 1315, SA - South Lake Prospect Stacked Magnetic Profiles	1: 25 000
SAa 4894	Mt. Eba EL 1315, SA - South Lake Prospect Rock Sample Location Plan	1: 25 000
SA 385	South Lake Option - First Schedule Exploration Area, Wilgena Area - SA	1: 63 360
SAa 118	South Lake Area - Plan Showing Costean Location and Weathered Rock Sample Location and Results	1: 2 000

LIST OF TABLES

Table 1 Summary Of Work Completed On Mt. Eba EL 1315

LIST OF APPENDICES

Appendix I Rock Sample Ledger - South Lake Prospect
Appendix II Bedrock Sample Ledger - South Lake Tin Mine Grid

1. SUMMARY

During the quarter, rock sampling was undertaken as a preliminary to geological outcrop mapping.

Ground magnetic data from the South Lake Prospect grid was reduced and plotted.

Pulps of bedrock samples from CRAE's 1977 South Lake Tin mine grid were submitted for Au by fire assay. Results are awaited.

2. INTRODUCTION

Mt. Eba EL 1315 is located on the Kingoonya 1:250 000 sheet and adjoining parts of the Tarcoola, Childara and Gairdner 1:250 000 sheets (refer plan SAa 3552). The licence was granted to CRA Exploration Pty. Limited on 9th January, 1986 for a period of one year, with the latest renewal on 9th January, 1988 for a one year period.

3. PREVIOUS WORK

Past exploration within the immediate area of the EL, by other companies, is summarised in the first quarterly report for Mt. Eba EL 1315 (Sugden, S.P.).

Table 1 summarises all activity up to and including the ninth quarter.

TABLE 1

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1986	Literature Search	SADME Open File	Compilation of previous exploration	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	27 Samples Assayed (19 elements)		1st Qtly Rpt on Mt. Eba EL 1315

TABLE 1 (cont.)

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1986	145.1 km Ground Magnetics	20 m stations, MP-3 Magneto-meter	Wallabyng Range Prospect	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	33 Samples Assayed (20 elements)	Wallabyng Range	2nd Qtly Rpt on Mt. Eba EL 1315
1986	Detailed Airborne Magnetic/Radio-metric Survey	300 m N/S lines, 80 m terrain clearance	Geoterrex P/L (Contractors)	3rd/4th Qtly Rpt on Mt. Eba EL 1315
1986	Compilation Plans - Outcrop Geology - Radiometrics Anomalies	1:100 000 (SADME Mapping)		3rd Qtly Rpt on Mt. Eba EL 1315
1986	26 km Ground Magnetics	10 m stations, Scintrex MP-3 Magnetometer	Lake Labyrinth West Prospect	4th Qtly Rpt on Mt. Eba EL 1315
1987	Compilation Plan of all Aeromag-netic Surveys	1:100 000		4th Qtly Rpt on Mt. Eba EL 1315
1987	Rock Chip Sampling	11 Samples Assayed	Glenloth Prospect	7th Qtly Rpt on Mt. Eba EL 1315
1987	3 km Gravity	100 m stations; LaCoste & Romberg gravimeter	Lake Labyrinth West Prospect	7th Qtly Rpt on Mt. Eba EL 1315
1987	107 km Ground Magnetics	10 m stations; Scintrex MP-3 Magnetometer	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
	65 km Gravity	100 m stations; Lacoste & Romberg gravimeter	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315

TABLE 1 (cont.)

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1987	DD87ME1	Total depth 51.0 m HW tricone chips	Kingoonya Drilling P/L Lake Labyrinth West Prospect	8th Qtly Rpt on Mt. Eba EL 1315
1988	Ground Magnetics Profiles	1:25 000	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Rock Sampling	Petrology (Pontifex & Assoc.)	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	60 Samples Assayed for Au	Reassaying of Bedrock Samples CRAE 1977 South Lake Grid	9th Qtly Rpt on Mt. Eba EL 1315

4. WORK CARRIED OUT

Field work during the ninth quarter on Mt. Eba EL 1315, was concentrated over the South Lake Prospect (refer plan SAa 4481 for prospect location).

4.1 Geophysics

During the previous quarter a detailed grid of 400 m spaced lines totalling 155 line kilometres were emplaced along the south and east edges of a circular magnetically quiet zone centred near South Lake (plan SAa 4762). Ground magnetics and gravity surveys were completed (refer CRAE Report 14936).

Ground magnetic data has been reduced and details of results are presented in profile format on plan SAa 4860. Gravity data is still in the process of reduction.

4.2 Rock Sampling

Twenty seven rock samples were collected from the area of the South Lake Prospect as a preliminary to detailed geological outcrop mapping (refer plan SAa 4894 for sample locations). Petrology is awaited on six of the rock samples. A sample ledger appears in Appendix I.

4.3 Geochemistry

In September 1977, CRAE signed a work option agreement with Peter Philip-Harbutt over seven mineral claims situated at South Lake (refer plan SA 385). During the work option period a grid was emplaced, bedrock sampling, costeaning and geochemical assaying for base metals including Sn and Au was undertaken. The location of the bedrock sample sites are shown on plan SAa 118 and the relationship of the grid to the 1987 South Lake Prospect grid is shown on plan SAa 4894.

The pulps of all the bedrock samples from the 1977 programme have been submitted for Au by fire assay. Results are awaited. A sample ledger appears in Appendix II.

D.C. PALMER

DCP/pq

EXPENDITURE

Expenditure for the 3 month period ending 31st March, 1988, the nearest accounting period was $18 379.00, as listed below.

	$
Payroll	7 896
Supplies	1 565
Vehicle	1 809
Travel	(411)
Rent	2 103
Contractors	536
Laboratory	500
Overheads	4 381
Total	$18 379

REFERENCES

SUGDEN, S.P. April 1986 — First Quarterly Report for Mt. Eba EL 1315, South Australia, for the period ending 9th April, 1986 (CRAE Report No. 13885)

PALMER, D.C. April, 1988 — Eighth Quarterly Report for Mt. Eba EL 1315, South Australia, for the period ending 9th January, 1988 (CRAE Report No. 14936)

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geophys-Mag, Geophys-Grav, Geochemistry

APPENDIX I

SOUTH LAKE PROSPECT - ROCK SAMPLE LEDGER

C.R.A. EXPLORATION PTY. LTD.- ROCK SAMPLE FIELD DATA SHEET.

PAGE N° 1

Area: MT EBA ELIAS Collected: D.C.P Analysed by: Lab. report no:
Map ref: TARCOOLA Date collected: 29/2/88 Date anal. rec:
Photo name: Date to lab: Plan no:
Run No: D.P.O. No: C.R.A. report no: SOUTH LAKE PROSPECT Less than detection limit ☐ 0167

Sample type: 1. Chip. 2. Float 3. Channel. 4. Panel.
Test: 1. Chemistry 2. Duplicate 3. Thin section 4. Polished section.

Sample Number	COORDINATES (m) AM.G / ~~Long./Lat./Local~~ EAST	NORTH	SAMPLE TYPE	WIDTH (m)	AREA (sq.m)	No. CHIPS	TEST	SOUTH LAKE PROSPECT RECONAISSANCE ROCK SAMPLE DESC.	ANALYSIS METHOD / DETECTION LIMIT (ppm) / Metal Content (ppm)
1164119	496400	6581050	1	-1	-1	1	3	K-Feldspar-quartz granitic gneiss	
1164120	496401	6581050	2	-1	-1	1	3	Med. crystalline pyroxene plagioclase gabbro	
1164121	495990	6579450	1	-1	-1	1		Med-Coarse crystalline weathered K-Feldspar quartz banded gneiss	
1164122	496000	6577970	1	-1	-1	1	3	Coarse crystalline weathered K-Feldspar-quartz-biotite granite	
1164123	495200	6577930	2			1		Sheared K-Feldspar-quartz gneiss	
1164124	495200	6577930	2			3		X. coarse crystalline K-Feldspar-quartz pegmatite	
1164125	495200	6577920	2			1		Fine crystalline dolerite	
1164126	495240	6577750	1			3		Med to C. crystalline equigranular K-Feldspar-quartz (biotite-clay) granite	
1164127	495200	6578800	1			1		K-Feldspar-quartz granitic gneiss	
1164128	495200	6578350	1			2		Med-coarse crystalline K-Feldspar-quartz banded gneiss	
1164129	495200	6577600	1			1		Coarse crystalline equigranular quartz-K-Feldspar (biotite) granite, weathered.	
1164130	495200	6577730	1			1	3	Pale white porphyritic biotite quartz plagioclase granodiorite dyke?	
1164131	496390	6579224	1			2		Coarse crystalline K-Feldspar-quartz banded gneiss	
1164132	496728	6579229	1			3		Goethite quartz Ironstone.	
1164133	497195	6580487	1			2		Coarse crystalline K-Feldspar-quartz banded gneiss	
1164134	497130	6580510	1			1		K-Feldspar-quartz banded gneiss	
1164135	497130	6580510	1			2		Interbanded Quartz-K-Feldspar gneiss and quartz pyroxene amphibolite?	

C.R.A. EXPLORATION PTY. LTD.- ROCK SAMPLE FIELD DATA SHEET.

PAGE N: 2

Area: MTEBA EL1315 Collected: D.C.P Analysed by: Lab.report no:
Map ref: Date collected: 29/2/88 Date anal. rec:
Photo name: Date to lab: Plan no:
Run No: D.P.O. No: C.R.A.report no: SOUTH LAKE PROSPECT Less than detection limit [-] 0168

Sample type: 1. Chip. 2. Float 3. Channel. 4. Panel.
Test: 1. Chemistry 2. Duplicate 3. Thin section 4. Polished section.

Sample Number	COORDINATES AM.G/Long./Lat./Local EAST	NORTH	SAMPLE TYPE	WIDTH (m)	AREA (sq.m)	No. CHIPS	TEST		Metal Content (ppm)
ANALYSIS METHOD									
DETECTION LIMIT(ppm)									
1164136	498000	6580885	1			1		Coarse crystalline K-Feldspar-quartz pegmatite	
1164137	498400	6581900	1			4		K-Feldspar-quartz banded gneiss	
1164138	498400	6582580	2			1		K-Feldspar-quartz banded gneiss (weathered)	
1164139	497150	6582740	1			2		Quartz vein with iron oxide.	
1164140	497150	6582740	1			2		Weathered Kaolinitized granite	
1164141	496900	6582850	2			1		X coarse crystalline K-Feldspar-quartz-pegmatite	
1164142	496900	6582850	2			1	3	Fine crystalline dolerite	
1164143	496900	6582850	2			2		Banded/layered medium crystalline quartzpyroxene-plagioclase gneiss?	
1164144	499200	6584600	1			2		K-Feldspar-quartz-banded gneiss	
1164145	499200	6584590	1			1	3	Plagioclase-quartz(garnet?) biotite gneiss?	

APPENDIX II

SOUTH LAKE TIN MINE GRID - BEDROCK SAMPLES LEDGER

SAMPLE NOS. 698101 - 698160

Page No. 1

TENEMENT South Lake

GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. No. 20167

AREA/PROSPECT ..... SAMPLE Nos. 698144, 698101-698109

GEOLOGIST G.D.K. , I DATE 9-9-77

PLAN REFERENCE SAa 118

ANALYSED BY AMDEL, ANALABS

A 9006

0170

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			
0/200N	698144										✓								Yellow sand textured granitoid.
0/250N	698101										✓								Limonitic & red brown stained
																			qtz fels peg (deeply weathered)
0/300N	102										✓								Hard pink qtz fels granitoid.
0/350N	103										✓								Cream-pink-hard granitoid.
0/400N	104										✓								Coarse grained qtz fels
																			pegmatoid & intense red brown
																			stain - deeply weathered.
0/450N	105										✓								Deeply weathered qtz fels -
																			coarse grained granitoid. White
																			colour.
0/500N	106										✓								Deeply weathered pink-cream
																			qtz fels granitoid.
0/550N	107										✓								Deeply weathered even grained
																			fine granitoid unlaminated
																			cream colour.
0/600N	108										✓								Deeply weathered grey granitoid
																			& red brown spots.
0/650N	698109										✓								Deeply weathered grey granitoid
																			& red brown spots.

TENEMENT South Lake

AREA/PROSPECT

PLAN REFERENCE SAa 118

A 9006

GEOCHEMICAL SOIL SAMPLING LEDGER

SAMPLE Nos. 698110 - 698118

Page No. 2

D.P.O. No. 2016 7 017 1

GEOLOGIST GDK DATE 9-9-77

ANALYSED BY AMDEL

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			
0/700N	698110										✓								Coarse grained weathered fels granitoid.
0/750N	111										✓								Cream granitoid medium grained ē tinge of pink.
0/800N	112										✓								Cream medium - coarse grained qtz fels granitoid ē red & yellow Fe staining.
0/850N	113										✓								Deeply weathered kaolinised coarse grained granitoid ē red Fe staining.
0/900N	114										✓								Deeply weathered kaolinised coarse grained cream & red brown granitoid.
0/950N	115										✓								Deeply weathered kaolinised cream coarse grained granitoid
0/1000N	116										✓								Fine grained deeply weathered granitoid.
0/1050N	117										✓								Coarse grained cream green granitoid.
0/1100N	698118										✓								Fine grained grey glutinous mud after granitoid

Page No. 3

GEOCHEMICAL SOIL SAMPLING LEDGER

TENEMENT South Lake
AREA/PROSPECT
PLAN REFERENCE SAa 118
SAMPLE Nos. 69819 - 698129
D.P.O. No. 20167
GEOLOGIST G.D.K DATE 9-9-77
ANALYSED BY AMDEL 0172

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			
300W/200N	698119										✓								Cream coarse grained deeply weathered granitoid.
																			White kaolinised granitoid.
300W/250N	120										✓								White kaolinised granitoid - deeply weathered.
300W/300N	121										✓								Coarse grained kaolinised red brown speckled white granitoid.
																			Coarse grained white granitoid.
300W/350N	122										✓								Deeply weathered mottled intense red brown & cream granitoid.
																			Cream deeply weathered granitoid & limonit spotting.
300W/400N	123										✓								Deeply weathered cream granitoid & limonite spotting & some red brown staining.
300W/450N	124										✓								Deep red brown stained kaolinised granitoid
																			Highly siliceous pink tals granitoid.
300W/500N	125										✓								Mottled cream, red & yellow granitoid - not completely kaolinised
300W/550N	126										✓								
300W/600N	127										✓								
300W/650N	128										✓								
300W/700N	698129										✓								

Page No. 4

GEOCHEMICAL SOIL SAMPLING LEDGER

TENEMENT South Lake
AREA/PROSPECT
PLAN REFERENCE SAa118
SAMPLE Nos. 698130 - 698139
D.P.O. No. 20167
GEOLOGIST GDK DATE 9-9-77
ANALYSED BY AMDEL

0173

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			
300W/750N	698130										✓								Kaolinised pale grey granitoid.
300W/800N	131										✓								Well laminated fine grained cream feldspathic granitoid.
																			Strike 55° dip 70°W.
																			Coarse grained qtz fels granitoid
300W/850N	132										✓								cream colour - resistant to
																			weathering.
																			White kaolinised coarse grained
300W/900N	133										✓								qtz fels granitoid.
																			White kaolinised coarse grained
300W/950N	134										✓								qtz fels granitoid.
																			White qtz fels granitoid resistant
300W/1000N	135										✓								to weathering.
																			White kaolinised coarse grained
300W/1050N	136										✓								granitoid.
																			White kaolinised coarse grained
300W/1100N	137										✓								granitoid.
																			White kaolinised coarse grained
300W/150N	138										✓								granitoid.
																			White kaolinised coarse grained
300W/100N	698139										✓								granitoid & limonite mottling.

Page No. 5

GEOCHEMICAL SOIL SAMPLING LEDGER

TENEMENT South Lake
AREA/PROSPECT
PLAN REFERENCE SAa118
SAMPLE Nos. 698140 - 698151
D.P.O. No. 20167
GEOLOGIST G.D.K DATE 9-9-77
ANALYSED BY AMDEL

0174

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			
300W/50N	698140										✓								White kaolinised granitoid.
300W/00	141										✓								Mottled red, brown & grey qtz fels granitoid.
300W/50S	142										✓								Highly quartzitic mottled red, yellow & brown granitoid.
300W/100S	143										✓								Highly limonitic stained qtz fels granitoid - some qtz veins.
300E/250N	145										✓								Khaki & red brown mottled clay & qtz - some black staining.
300E/300N	146										✓								Hard pink granitoid & foliation defined by qtz biebs - o/c strike 65°
300E/350N	147										✓								Qtz sand below lake mud sediments. Depth 15cm.
300E/400N	148										✓								Cream & pink qtz fels medium grained granulite.
300E/450N	149										✓								Qtz pink fels granulite.
300E/500N	150										✓								Coarse grained pink & cream pgy very siliceous.
300E/550N	698151										✓								Mottled red, brown & cream qtz fels granitoid.

Page No. 6

GEOCHEMICAL SOIL SAMPLING LEDGER

TENEMENT South Lake — SAMPLE Nos. 698152 - 698160 — D.P.O. No. 20167

AREA/PROSPECT — GEOLOGIST G.DK — DATE 9-9-77

PLAN REFERENCE SAa 118 — ANALYSED BY AMDEL

0175

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			
300E/600N	698152										✓								Coarse grained pink & cream granitoid - very siliceous.
300E/650N	153										✓								Very decomposed sand & red brown mottling.
300E/700N	154										✓								Red brown clay.
300E/750N	155										✓								Very decomposed sand underlain by red brown clay.
300E/800N	156										✓								Qtz fels granitoid - medium grain size - khaki colour - deeply weathered.
300E/850N	157										✓								Deeply weathered mottled cream yellow clay after granitoid & some black staining.
300E/900N	158										✓								Limonite stained qtz fels granitoid medium to coarse grained.
300E/950N	159										✓								Limonite stained qtz fels granitoid as above.
300E/1000N	698160										✓								Fine grained quartzo feldspathic rock deeply weathered khaki yellow & minor red & black staining.

LOCALITY

SOUTH AUSTRALIA

MT. EBA

SOUTHERN OCEAN

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 — S.A.
LOCALITY PLAN

REF.	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15		
SCALE	1 : 250000		
AUTHOR	D.C.P.	REPORT	15109
DATE	Mar. '88	PLAN No	SAa 3552

0176



AIRBORNE SURVEY SPECIFICATIONS

MAGNETOMETER :	Cesium Vapour optical absorption. Sensitivity : 0.04 nT
RECORDING INTERVAL :	0.2 sec (approx 13m sampling) at mean ground speed of 220 km/hour.
SPECTROMETER :	Nuclear Data 256 channel ADC Volume : 33.5 litres
TOTAL COUNT WINDOW :	0.8 - 3.00 MeV
AUX. URANIUM WINDOW :	1.048 - 1.21 MeV
POTASSIUM WINDOW :	1.36 - 1.56 MeV
URANIUM WINDOW :	1.66 - 1.86 MeV
THORIUM WINDOW :	2.42 - 2.82 MeV
RECORDING INTERVAL :	1.0 sec (approx 60m sampling) at mean ground speed of 220 km/hour.
DATA RECORDING :	Geoterrex MADACS acquisition system. Digital to magnetic tape.
NOMINAL TERRAIN CLEARANCE :	Both detectors in aircraft at 80m.
NOMINAL LINE SPACING :	Traverse lines 300 metres. Tie lines 4.0 km.
FLIGHT PATH NAVIGATION :	Visual, aided by SINGER KEARFOTT AN/ASN 128 Doppler navigation system with SPERRY C12 compass and VG14 vertical gyro
FLIGHT PATH RECORD :	Geocam 35mm continuous tracking camera and computed Doppler AMG coordinates
FLIGHT LINE RECOVERY :	Visually to 1:25,000 black & white enlargements of high level photography to control Doppler positioning

RESIDUAL MAGNETIC CONTOURS

Grid notation refers to Australian Map Grid Zone 53
Digitised from 1:25,000 black & white enlargements of high level photography.

Magnetics	:Diurnally levelled.
	:Aircraft heading subtracted
IGRF (1980)	:Removed. Datum 5000 nT added
Grid mesh size	:60 x 60 metres
Grid filter	:Polynomial, radius 90 metres
Contour Interval	10.50 and 50 nT



0 1 2 4 6 8 10 12 14 16 18 20 Km.

1 : 100000

6532-14

JOB NO : 87-329
Flown by GEOTERREX PTY LTD : JUNE 1986
Compiled by Geoterrex Pty Ltd., Sydney, NSW.
Processed by Engineering Computer Services, Bowral

CRA EXPLORATION PTY LIMITED

MT EBA EL 1315 S.A.

MAGNETIC ANOMALIES

Ref. :	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15			
Date. Mar '88	Author G.P.J.	Report No. 15109	Plan No. SAa 4481	

485000mE
490000mE
495000mE
500000mE
505000mE
30°45'
30°50'
30°55'
31°00'
134°55'
135°00'
6594000mN
6590000mN
6585000mN
6580000mN
6575000mN
6571000mN
6586000mN
6584000mN
6582000mN
496000mE
498000mE
500000mE
494000mE
• Warna Rocknole
TARCOOLA
29Km
VERMIN PROOF FENCE
TRANS AUSTRALIAN RAILWAY
Carters Well
Tank (disused)
Earea Dam
4734
MC 5324
MC 5361
KINGOONYA
26·5 Km
SOUTH LAKE
approx. position
approx position
Kenella Well
HOPEFUL HILL
salt
salt lakes

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

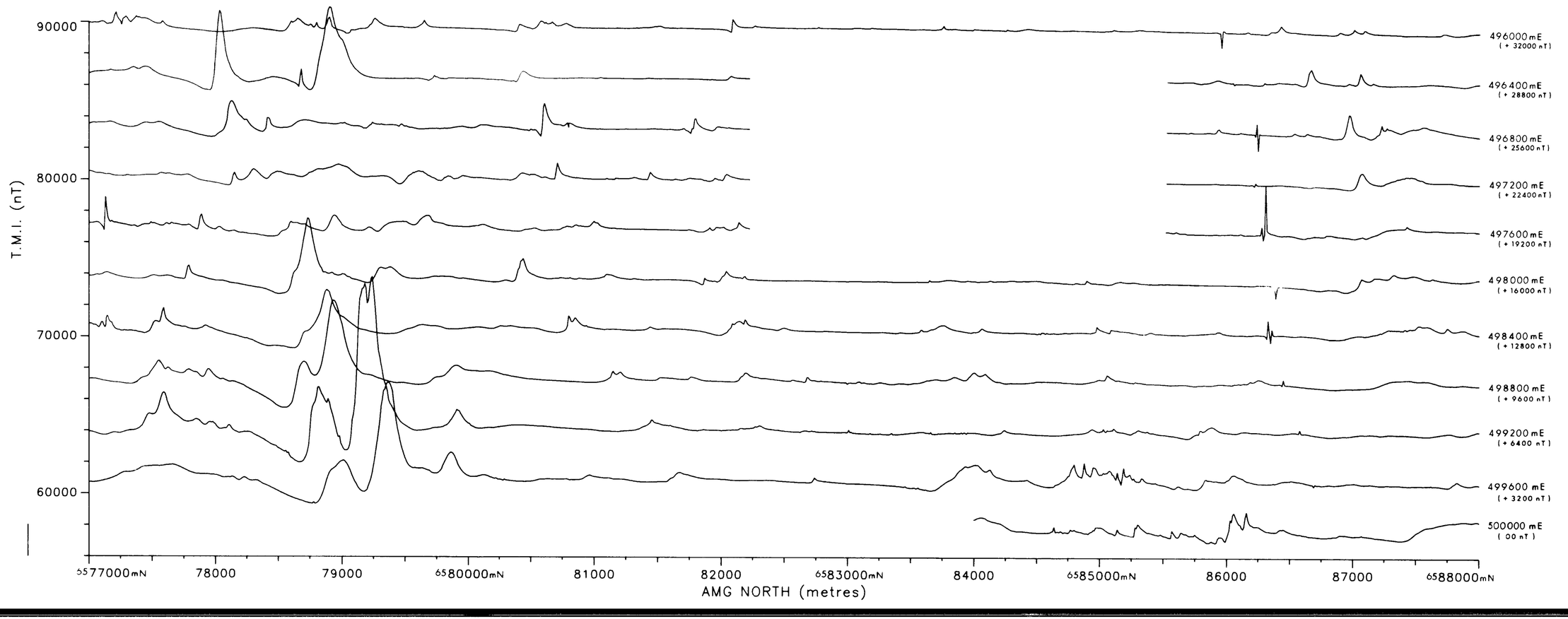
0 5km 10km
1:50 000

6532-15

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT
GRID LOCATION

REF.	TARCOOLA SH 53-10		
SCALE	1:50000	DRAWN	F.R.
AUTHOR	G.L.M.	REPORT	15109
DATE	OCT.'87	PLAN NO.	SAa 4762



6532-16

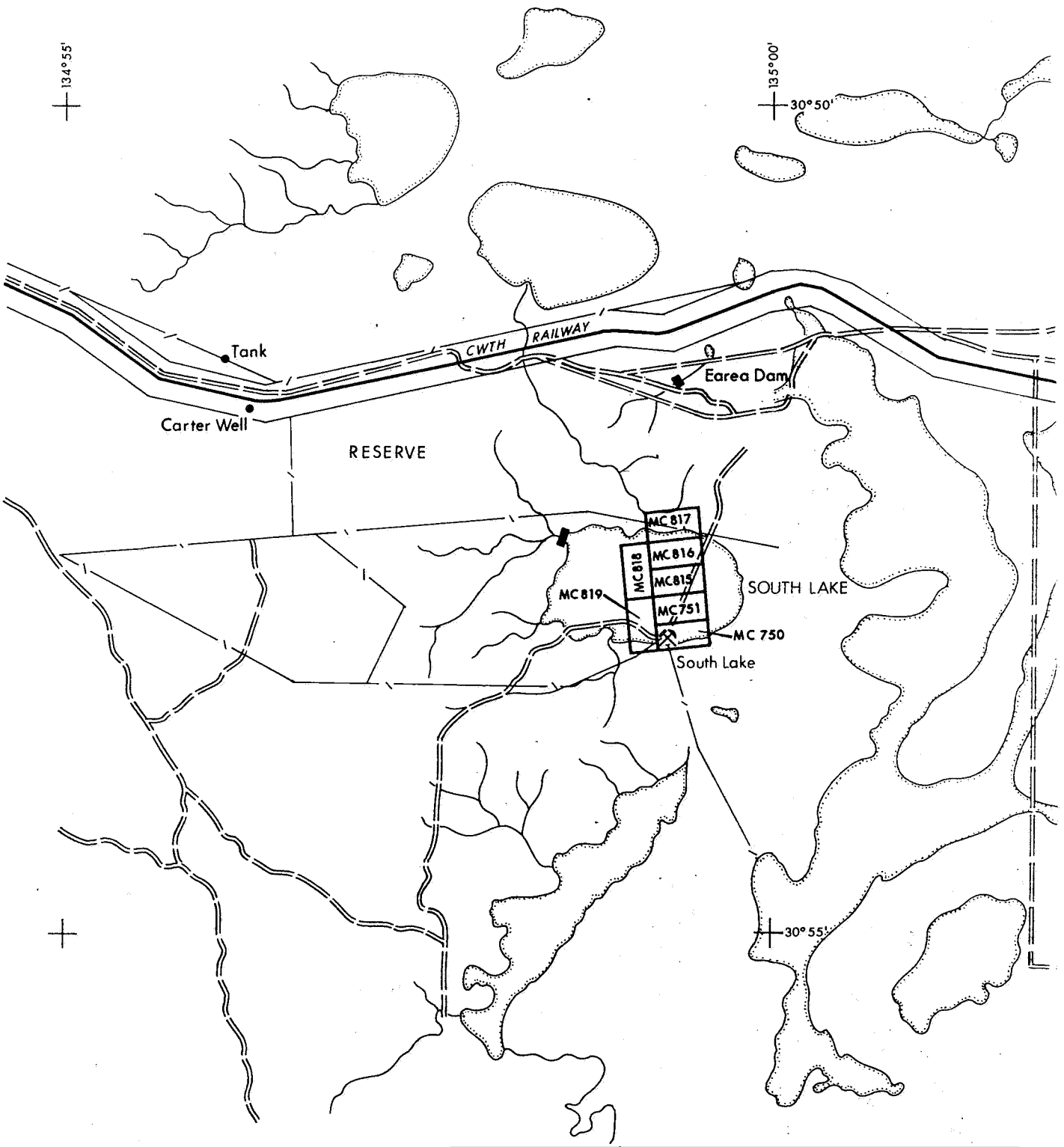
CRA EXPLORATION PTY LTD

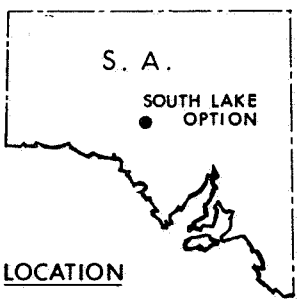
MT EBA E.L. 1315 – S.A.

SOUTH LAKE PROSPECT

STACKED MAGNETIC PROFILES

REFERENCE TARCOOLA SH 53–10	
SCALE 1:25000	DRAWN GLM
AUTHOR GLM	REPORT 15109
DATE 28 JAN 88	PLAN No SAa 4860





C.R.A. EXPLORATION PTY. LIMITED

FIRST SCHEDULE EXPLORATION AREA

SOUTH LAKE OPTION

(C.R.A.E./ PHILIP-HARBUTT)

WILGENA AREA — SOUTH AUSTRALIA

Report No 15109

Ref. TARCOOLA SH 53-10	Scale 1 : 63 360 (1" = 1 mile)
Date 20—7—1977	Plan No SA 385

CRA EXPLORATION PTY. LIMITED

TENTH QUARTERLY REPORT FOR MOUNT EBA EL 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH JULY, 1988

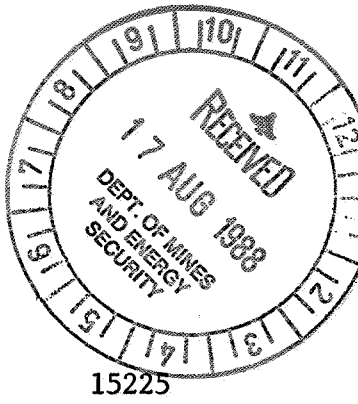
AUTHOR: D.C. PALMER

COPIES TO: SADME
CIS CANBERRA

DATE: 26TH JUNE, 1988

SUBMITTED BY: S.L. Mackee for D.C.P.

ACCEPTED BY:



15225

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CONTENTS

	Page
LIST OF PLANS	
LIST OF TABLES	
LIST OF APPENDICES	
1. SUMMARY	1
2. INTRODUCTION	1
3. PREVIOUS WORK	1
4. WORK CARRIED OUT	4
4.1 Lake Labyrinth West Prospect	4
4.2 South Lake Prospect	5
EXPENDITURE	6
REFERENCES	7
LOCATION	7
KEYWORDS	7

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba EL 1315, S.A. - Locality Plan	1:250 000
SAa 4450	Mt. Eba EL 1315, S.A. - Lake Labyrinth West Grid, Geology with Drill Hole Locations	1:100 000
SAa 4762	Mt. Eba EL 1315, S.A. - South Lake Prospect Prospect Grid Location	1: 50 000
SAa 4898	Mt. Eba EL 1315 - South Lake Prospect Stacked Gravity Profiles	1: 25 000
SA 385	South Lake Option - First Schedule Exploration Area, Wilgena Area - S.A.	1: 63 360
SAa 118	South Lake Area - Plan showing Costean Location and Weathered Rock Sample Location and Results	1: 2 000
SAa 4894	Mt. Eba EL 1315, S.A. - South Lake Prospect Rock Sample Location Plan	1: 25 000
SAa 4755	Mt. Eba EL 1315, S.A. - Gravity and Magnetic Model Line 502200mE	1: 10 000

LIST OF TABLES

Table 1 Summary of Work Completed on Mt. Eba EL 1315

LIST OF APPENDICES

Appendix I Drill Hole Log - DD88ME2
Appendix II South Lake Prospect Gravity Data
Appendix III Bedrock Sample Ledger - South Lake Tin Mine Grid
Appendix IV Petrological Report Nos. 5222 & 5268

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1. SUMMARY

Drill hole DD88ME2 was completed at 302.50 m after drilling through a sequence of andesitic, basaltic volcanics, carbonate/chlorite altered peridotite and doleritic dykes. Seventy eight samples have been submitted for assay and seven for petrological examination. Assay results are currently awaited.

A sufficient volume of peridotite was intersected to fully account for the coincident magnetic/gravity anomaly at Lake Labyrinth Prospect.

Gravity data from the South Lake Prospect were reduced and plotted.

Rock samples from the area of South Lake Prospect comprise a suite of post-metamorphism granitoids and metamorphosed basic igneous and granitoid rocks.

Sixty bedrock samples from CRAE 1977 South Lake Tin Mine grid returned Au values below a 0.008 ppm detection limit.

2. INTRODUCTION

Mt. Eba EL 1315 is located on the Kingoonya 1:250 000 sheet and adjoining parts of the Tarcoola, Childara and Gairdner 1:250 000 sheets (plan SAa 3552). The licence was granted to CRA Exploration Pty. Limited on 9th January, 1986 for a period of one year, with the latest renewal on 9th January, 1988 for a one year period.

This report details work carried out on Mt. Eba EL 1315 during the tenth quarter.

3. PREVIOUS WORK

Past exploration within the immediate area of the EL, by other companies, is summarised in the first quarterly report for Mt. Eba EL 1315 (Sugden, S.P.).

Table 1 summarises all activity up to and including the tenth quarter.

TABLE 1

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1986	Literature Search	SADME Open File	Compilation of previous exploration	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	27 Samples Assayed (19 elements)		1st Qtly Rpt on Mt. Eba EL 1315
1986	145.1 km Ground Magnetics	20 m stations, MP-3 Magneto-meter	Wallabyng Range Prospect	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	33 Samples Assayed (20 elements)	Wallabyng Range	2nd Qtly Rpt on Mt. Eba EL 1315
1986	Detailed Airborne Magnetic/Radio-metric Survey	300 m N/S lines, 80 m terrain clearance	Geoterrex P/L (Contractors)	3rd/4th Qtly Rpt on Mt. Eba EL 1315
1986	Compilation Plans - Outcrop Geology - Radiometrics Anomalies	1:100 000 (SADME Mapping)		3rd Qtly Rpt on Mt. Eba EL 1315
1986	26 km Ground Magnetics	10 m stations, Scintrex MP-3 Magnetometer	Lake Labyrinth West Prospect	4th Qtly Rpt on Mt. Eba EL 1315
1987	Compilation Plan of all Aeromag-netic Surveys	1:100 000		4th Qtly Rpt on Mt. Eba EL 1315
1987	Rock Chip Sampling	11 Samples Assayed	Glenloth Prospect	7th Qtly Rpt on Mt. Eba EL 1315
1987	3 km Gravity	100 m stations; LaCoste & Romberg gravimeter	Lake Labyrinth West Prospect	7th Qtly Rpt on Mt. Eba EL 1315

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TABLE 1 (cont.)

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1987	107 km Ground Magnetics	10 m stations; Scintrex MP-3 Magnetometer	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
	65 km Gravity	100 m stations; Lacoste & Romberg gravimeter	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
1987	DD87ME1	Total depth 51.0 m HW tricone chips	Kingoonya Drilling P/L Lake Labyrinth West Prospect	8th Qtly Rpt on Mt. Eba EL 1315
1988	Ground Magnetics Profiles	1:25 000	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Rock Sampling	Petrology (Pontifex & Assoc.)	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	60 Samples Assayed for Au	Reassaying of Bedrock Samples CRAE 1977 South Lake Grid	9th Qtly Rpt on Mt. Eba EL 1315
1988	Stacked Gravity Profiles	1:25 000	South Lake Prospect	10th Qtly Rpt on Mt. Eba EL 1315
1988	DD88ME2	502200mE 6607768mN -60°S Total Depth 302.5 m	Mathews Drilling Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315
1988	DD88ME2	Petrology (Pontifex & Assoc.) 7 samples	Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315

4. WORK CARRIED OUT

4.1 Lake Labyrinth West Prospect

Drill hole DD88ME2, collared at 6607768mN on line 502200mE was designed to test the source of a 4000nT reversely polarized magnetic and coincident 2.8 mgal gravity anomaly at the Lake Labyrinth Prospect (plan SAa 4755).

The drill hole directed at -60° south reached a total depth of 302.5 m, intersecting a complex sequence of andesitic, basaltic volcanic units and finished within a massive variably carbonate/chlorite altered peridotite. The whole sequence was intruded by pegmatitic veins and dykes which usually had distinct lamprophyric alteration halos.

A sufficient volume of peridotite was intersected to fully account for the coincident magnetic/gravity anomaly.

A summary lithological log of drill hole DD88ME2 is detailed as follows:

0	- 72	m	Cover sediments
72	- 94.9	m	Interlayered andesite & peridotite with rare pegmatite bands.
94.9	- 112.88	m	Interlayered peridotite, pyroxenite & basalt with rare felsic pegmatite bands.
112.88	- 134.1	m	Porphyritic andesite with dolerite bands.
134.1	- 146.2	m	Interlayered porphyritic andesite & peridotite.
146.2	- 156.1	m	Carbonate altered porphyritic andesitic basalt.
156.1	- 158.1	m	Andesite.
158.1	- 167.3	m	Carbonate altered peridotite.
167.3	- 170.7	m	Carbonate altered andesitic basalt with gneiss xenoliths.
170.7	- 182.2	m	Carbonate altered peridotite with pegmatite bands.
182.2	- 199.3	m	Chlorite altered peridotite with felsic pegmatite bands.
199.3	- 302.5	m	Peridotite with felsic pegmatite bands, and rare dolerite.

Total Depth 302.50 m

Within the above rock units, trace pyrite, chalcopyrite and pyrrhotite was evident, with the sulphides more frequent in the peridotite and basaltic volcanics.

Seventy eight samples have been submitted for assay and seven samples for petrological examination. Results have been received for the petrology and are included in Appendix IV. Assays are awaited.

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4.2 South Lake Prospect

Geophysics

During the eighth quarter a detailed grid was emplaced along the south and east edges of a circular magnetically quiet zone centred near South Lake (plan SAa 4762). Ground magnetics and gravity surveys were completed, and the ground magnetic data is presented in profile format in CRAE Report 15109. The gravity data were reduced during this quarter and results are presented in profile format on plan SAa 4898. The data are tabulated in Appendix II.

Geochemistry

Sixty pulps of bedrock samples from CRAE's 1977 South Lake Tin Grid (plan SA 385) were assayed for Au by fire assay. Assay results for all samples returned Au values below a 0.008 ppm detection limit (plan SAa 118). A sample ledger appears in Appendix III.

Petrology

Petrological descriptions of six rock samples from the area of the South Lake Prospect (plan SAa 4894) were made by I.R. Pontifex & Assoc. Their report is attached in Appendix IV.

The suite was summarized as post-metamorphism granitoids and metamorphosed basic igneous and granitoid rocks.

J. L. Mackie
for

D.C. PALMER

DCP/pq

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EXPENDITURE

Expenditure for the three month period ending 30th June, 1988, the nearest accounting period was $65 940, as detailed below.

	$
Drilling	39 992
Payroll	10 689
Supplies	2 076
Vehicle	3 266
Travel	704
Rent	2 520
Contractors	512
Laboratory	1 507
Sundry	150
Overheads	4 524
Total	$65 940

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REFERENCES

Sugden, S.P. First Quarterly Report For Mt. Eba EL 1315, South Australia, For The Period Ending 9th April, 1986. (CRAE Report No. 13885)

Palmer, D.C. Eighth Quarterly Report For Mt. Eba EL 1315, South Australia, For The Period Ending 9th January, 1988. (CRAE Report No. 14936)

Palmer, D.C. Ninth Quarterly Report For Mt. Eba EL 1315, South Australia, For The Period Ending 9th April, 1988. (CRAE Report No. 15109)

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geophys-Grav., Geochemistry, Drill - Diamond

APPENDIX I

DRILL HOLE LOG DD88ME2

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EXPL[illegible]ON P[illegible]ITED

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

0189

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW, 60-75 HQ | DPO Nos. 37534, 37539, 37540, 37535

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS SUSC. x10^{-5} SI	
0	69		Rotary		COVER SEQUENCE						
			HW		0 - 3.0 Claystone: Yellow to olive green with minor angular gypsum, angular to subrounded quartz fragments and calcrete						
					3.0- 9.0 Sandstone/Claystone: Pale yellow to yellow brown quartzose sandstone comprising subangular to subrounded quartz, angular gypsum, minor clays						
					9.0-30.0 Sandstone: White to pale yellow quartzose sandstone comprising medium to fine grained quartz (subangular to subrounded), iron stained, rare quartzite and minor fine grains of ironstone 15.0-21.0m medium to coarse grained.						
					30.0-51.0 Sandstone: As above with abundant fine ironstone grains						
					51.0-69.0 Sandstone: Pale brown, medium to coarse grained quartzose sandstone with subrounded quartz dominant, minor ironstone, quartzite chips, trace carbonaceous fragments, minor clay, rare green chlorite? after pyroxene						
69.0	72.0				WEATHERED BASEMENT/SANDSTONE					80	
					Dark brown quartzose sandstone as for 51.0-59.0 with common to abundant chlorite fragments to 2mm, fine grained black rock fragments (mafics?), minor biotite (altered) with an increase in chlorite and mafic content from 69.5m						
72.0	74.5		NQ		PORPHYRITIC DACITE/RHYODACITE					30	
					Brown to grey weathered porphyritic acid (intermediate?) volcanic, dacite? consisting of euhedral phenocrysts of plagioclase (25%), and subordinate k-feldspar (15%) to 2mm with fine laths of hornblende and biotite (15% combined) distributed throughout. A fine crystalline quartz dominant ground mass. Numerous cross cutting chlorite-serpentinite veinlets with minor iron oxide and micro brecciation/fracturing. Core very broken.						
					72.1-72.8 Core loss						
					74.4 K-feldspar xenocryst - surrounded with chloritic altered margins. Lower contact 10-40° LCA (approx.)						
74.5	94.9				PERIDOTITE WITH INTERLAYERED DACITE/RHYODACITE AND DISCORDANT PEGMATITES AND RARE DOLERITE						
					Rock weathered to 81.0m. Core very broken and fragmented obscuring structure	1161801	74.5	75.55			
					74.5 -75.55 Peridotite Dark green to grey, weathered, massive medium crystalline peridotite comprising of altered plagioclase and olivene? (40%), euhedral amphibole (25%), disseminated magnetite (10-15%) and scattered phenocrysts of euhedral biotite (10-15%). Possible pyroxene (10%). Numerous iron oxide and chlorite veining at 0-5° LCA. Trace disseminated pyrite and chalcopyrite. Lower boundary 45° LCA (approx.).				74.8m	1500	

SUMMARY :

LOGGED BY D.C. PALMER DATE 25/04/88

SHEET 1 OF 8

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DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

0199

CO-ORDINATES 502200mE 6607268mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW, 60-75 HQ | DPO Nos 37534, 37539, 37540, 37535

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10^{-5} SI
			NQ		75.55-76.3 Porphyritic Dacite Brown to grey dacite as for 72.00-74.5m with k-feldspar-quartz (biotite) pegmatite at 76.4-76.5m and chlorite and iron oxide lined fractures. Lower boundary 90° LCA (approx.)	1161802	75.55	76.3		
					76.3 -84.12 Peridotite? Dark green to grey weathered massive medium crystalline diorite comprising plagioclase (40%) and an interlocking mass of euhedral amphibole (25-30%),	1161803	76.3	78.0		
					magnetite (10-15%), pyroxene? (5-10%) and biotite (10-15%) minor irregular quartz	1161804	78.0	79.5		
					and calcite veinlets. Trace pyrite and chalcopyrite disseminated through rock.	1161805	79.5	81.0		
					Discordant. K-feldspar-quartz-amphibole pegmatite from 81.0-81.30 at 55° LCA	1161806	81.0	81.3		
						1161807	81.3	84.12		
					84.12-84.8 Rhyodacite Possibly discordant, comprising medium crystalline phenocrysts of plagioclase (25%) and k-feldspar (45%) which may be rotated (flow banding?) and subordinate quartz (20%). Minor amphibole and biotite. Well orientated chlorite between feldspathic phenocrysts. Core loss between 84.35-84.8.					
					84.8 -85.28 Dolerite? Weathered discordant? Plagioclase-amphibole-k-feldspar-biotite dolerite, rock very friable.	1161808	84.8	85.28		
					85.28-87.0 Peridotite As for 76.5-84.12m with thin (1-2mm) siderite? and quartz veinlets.				86.0	15000
					Trace pyrite and chalcopyrite with veins. Minor clay coatings on some fracture surfaces	1161809	85.28	87.0		
					87.0 -87.3 Pegmatite Quartz-k-feldspar-plagioclase-(biotite-chlorite) pegmatite. Medium to coarse crystalline, frequently fractured. Upper boundary 60° LCA.	1161810	87.0	87.3		
					87.3 -88.45 Peridotite As for 85.28-87.0m. Trace pyrite and chalcopyrite.				88.0	5000
						1161811	87.3	88.45		
					88.45-88.9 Pegmatite Very coarsely crystalline, quartz (80%), k-feldspar (15%) and biotite (5%) Trace chlorite. Unit discordant with lower boundary 30° LCA	1161812	88.45	88.90		
					88.9 -89.7 Peridotite As for 85.28-87.0m	1161813	88.90	89.70		
					89.7 -90.0 Core Loss					
					90.0 -91.0 Pegmatite As for 87.0-87.3m	1161814	89.7	91.0		
					90.4 -90.0 Core Loss					
					91.0 -94.9 Peridotite As for 74.5-75.5 with discordant quartz vein (55° LCA) at 94.2m and from 94.4m chloritic/serpentinitic alteration of plagioclase and olivene? within the peridotite	1161815	91.0	92.5		
									92.4	8500
						1161816	92.5	94.0		
						1161817	94.0	94.9		
94.9	112.88				INTERLAYERED ULTRAMAFICS AND BASALT WITH DISCORDANT PEGMATITE BANDS Unit is a series of interlayed basic volcanics with discordant pegmatite bands. The basic volcanics are altered to hornblendites near the pegmatite bands. Rock very fractured and broken with quartz plagioclase veining and minor siderite veinlets.					

SUMMARY :

LOGGED BY DC PALMER/SP SUGDEN DATE 27/04/88

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

0191

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW, 60-75 HQ | DPO Nos. 37534, 37539, 37540, 37535

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10^{-5} SI
			NQ		94.90-95.45 Hornblendite with Pegmatite Dark to light green medium to coarse crystalline					
					massive amphibole, altered rock, comprising euhedral amphibole 45% and biotite (25%)				95.2	80
					with fine grained altered plagioclase. This appears to be an alteration halo to small	1161818	94.9	95.45		
					discordant irregular k-feldspar-quartz pegmatite bands (contacts 40-80° LCA) at	919866	95.25	95.3	(PET)	
					97.05-97.14, 95.27-95.30 and 95.45-95.5m. Minor siderite and quartz veining with					
					traces pyrite					
					95.45-95.8 Peridotite As for 76.5-84.12. Lower contact 60° LCA (v.approx.)	1161819	95.45	95.80	95.7	5000
					95.8 -97.4 Vesicular/Amgdalyoidal Basalt Dark green-grey massive fine grained rock with	1161820	95.80	97.40		
					groundmass of mafic minerals and plagioclase. Irregularly scattered vesicules 1-3mm	919867	96.5	96.55	(PET)	
					in diameter which may be quartz or carbonate filled. Trace pyrite and chalcopyrite					
					(97.10m). Minor irregular quartz veining (20-60° LCA) Trace pyrite and chalcopyrite					
					on fracture planes. Lower contact 60° LCA.					
					97.4 -98.8 Peridotite As for 76.5-84.12 with moderate quartz/carbonate?? veining (carbonate	1161821	97.40	98.80	97.8	10000
					doesn't react with acid). Small pegmatite band at 40° LCA from 98.3-98.4m					
					98.8 -99.2 Pegmatite As above	1161822	98.80	99.20		
					99.2 -99.68 Peridotite As above with thin pyrite veins at 15° LCA and minor carbonate at 99.5m	1161823	99.20	99.86		
					99.68-99.86 Hornblendite Similar to 94.9-95.45 with k-feldspar (20%) forming medium sized				99.8	4000
					grains in ground mass with amphibole (50%) biotite 15% and minor plag <5%. Minor					
					chalcopyrite and pyrite (approx. 1%) as fine disseminated grains. Lower contact					
					17° LCA. Interpreted as alteration contact to pegmatite below.	919868	107.2	107.25 (PET)		
					99.86-100.23 Pegmatite K-feldspar-quartz-biotite rock with thin amphibolitic margins	1161824	99.86	100.23		
					100.23-100.85 Peridotite Weakly amphibolitic altered with carbonate veining	1161825	100.23	100.85		
					100.85-101.35 Hornblendite As for 99.68-99.86	1161826	100.85	101.35		
					101.63-106.45 Pegmatite Coarse crystalline felsic pegmatite consisting of quartz 35%, k-feldspar -	1161827	101.35	103.00	102.0	20
					25%, microcline? 35%, and minor biotite 5%, with minor amphibolitic xenoliths	1161828	103.00	104.50		
					and carbonate/clay veining. Minor amphibole-biotite-k-feldspar veining	1161829	104.50	105.60		
						1161830	105.60	106.45		
					106.45-112.88 Pyroxenite Dark green to grey massive to very weakly foliated (30° LCA) medium				107.1	7500
					crystalline pyroxenite comprising plagioclase (35-40%). Pyroxene 25-30%, Magnetite	1161831	106.45	108.00	112.1	11000
					10-15% and biotite 10-15%. Trace disseminated pyrite and rare chalcopyrite.	1161832	108.00	109.45		
					Abundant carbonate?? and quartz veining (some with clay) at irregular orientations,	1161833	109.45	111.00		
					and serpentine.	1161834	111.00	112.00		
112.88	134.10				PORPHYRITIC ANDESITE WITH MINOR DISCORDANT DOLERITE? BANDS	1161835	112.00	112.88	114.0	35
					Dark grey to grey green porphyritic andesite comprising of subhedral plagioclase phenocrysts to 2mm					
					in size (30%) weakly orientated biotite laths (25%) and minor hornblende (5-10%) in a finely					
					crystalline plagioclase groundmass. Rare disseminated pyrite and chalcopyrite. Minor mafic bands.					
					Lower contact 55° LCA. Core now competent.					

SUMMARY:

LOGGED BY DC PALMER/SP SUGDEN DATE 4/05/88

EXPLORATION PLOTTED

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

0192

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW, 60-75 HQ | DPO Nos 37534, 37535, 37539, 37540

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10^{-5}
			NQ							
					118.47-119.10 Hornblendite as for 94.9-95.45. Possibly an	1161836	118.47	119.10		
					alteration halo to a pegmatite band near hole. Indistinct contacts	919869	119.7	119.75 (PET)		
					122.85-123.8 Medium grained k-feldspar-hornblende-biotite-plagioclase with distinct amphibole	1161837	122.85	123.80	123.0	40
					needles. Possibly lamprophyric-basalt related. Traces pyrite and chalcopyrite	919870	123.5	123.75 (PET)		
134.1	146.2				INTERBANDED PORPHYRITIC ANDESITE AND PERIDOTITE WITH MINOR DOLERITE?					
					BANDS					
					134.1 -136.4 Peridotite Grey green medium grained plagioclase-amphibole-biotite. Diorite with				135.0	11000
					traces very fine grained pyrite and chalcopyrite, thin irregular anastamosing	1161838	134.10	135.50		
					chlorite/serpentinite veinlets and minor irregular carbonate? veinlets.	1161839	135.50	136.40		
					134.5 -134.65 Pegmatite band with chloritic or amphibolitic alteration halo and traces chalcopyrite and pyrite					
					136.4 -140.87 Porphyritic Andesite Dark green to grey fine grained dacite with plagioclase and				137.5	25
					rare k-feldspar phenocrysts and small biotite laths in a very fine grained quartzose ground mass. Rock fractured by very thin carbonate? veinlets. Lower contact is distinct with a chilled amphibolitic margin at 30° LCA					
					140.87-144.65 Peridotite Grey green to grey medium grained plagioclase-amphibole-biotite.				142.0	11000
					Diorite containing rare traces fine grained disseminated pyrite. Minor thin	1161840	140.87	142.0		
					carbonate? veinlets (60° LCA) and chlorite veinlets (30° LCA). Minor chloritic	1161841	142.0	142.85		
					alteration, possibly related to Dolerite? Dykes.					
					142.85-143.1 Discordant Hornblendite unit. Amphibole-chlorite-plagioclase-biotite	1161842	142.85	144.65		
					rock, possibly altered. Diorite as 118.47-119.1 with upper contact 60° LCA and lower 120° LCA. Minor k-feldspar pegmatite remnant in centre, contacts gradational					
					144.65-145.06 Andesite As for 136.4-140.8m	1161843	144.65	145.06	145.5	30
					145.06-146.21 Alkali Dolerite?? Medium grained plagioclase-k-feldspar-amphibole-pyroxene-	1161844	145.06	146.21		
					biotite rock with amphibole forming distinct needles. K-feldspar usually forms in dominant sections. Altered pegmatite or alkali dolerite? Rare pyrite as fine disseminated euhedral grains. Distinct chilled upper contact at 70° LCA.					
146.21	156.10				CARBONATE ALTERED PORPHYRITIC ANDESITIC ALKALI BASALT					
					Fine grained dark green-grey with small phenocrysts of k-feldspar and plagioclase often altered	1161845	146.21	148.00	147.3	3400
					to calcite. 1-3mm in size and elongate forming a weak foliation at 30-40° LCA. Ground mass	1161846	148.00	149.59		
					very fine grained mafic minerals and minor biotite. Lower contact chilled, irregular with angle	919871	147.7	147.9 (PET)		
					approximately 30° LCA.					
					149.59-150.43 Medium grained doleritic band with k-feldspar veinlets and xenoliths	1161847	149.59	150.43	150.4	37

SUMMARY :

LOGGED BY S.P. SUGDEN DATE 5/5/88

EXPLORATION PLOTTED

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No. 0193

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW, 60-75 HQ | DPO Nos 37534, 37539, 37540, 37535

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10^{-5}
			NQ							
					150.43-153.4 More andesitic interval with angular k-feldspar quartz gneiss and peridotite	1161848	150.43	152.00		
					xenoliths rare thin carbonate veins	1161849	152.00	153.40		
						1161850	153.40	155.00	154.5	3000
						1161851	155.00	156.16		
156.16	158.1				ANDESITE					
					Fine grained light grey with k-feldspar and plagioclase phenocrysts and rare biotite laths, in a	1161852	156.16	158.10	157.2	20
					quartzose ground mass. Rare thin chlorite veining core fractured with indistinct lower contact					
158.1	167.3				CARBONATE ALTERED PERIDOTITE					
					Medium grained, Dark green-grey diorite consisting of equigranular mass of plagioclase, olivene?					
					and laths of biotite with traces of very fine grained disseminated euhedral chalcopyrite, variably					
					altered by carbonate (calcite) replacing plagioclase within rock and numerous thin veinlets which					
					may contain chalcopyrite. Vein orientations of 0°, 30° and 50° LCA					
					158.1 -159.35 Peridotite contains extensive chlorite veining	1161853	158.10	159.35		
					159.35-159.5 Thin pegmatitic band with chloritic or amphibolitic alteration halo of surrounding	1161854	159.35	160.00		
					peridotite	1161855	160.00	161.50	161.0	9500
					163.75-165.0 Moderately carbonate altered section	1161856	161.50	163.00		
					165.0 -167.3 Strongly carbonate altered section	1161857	163.00	163.75		
						1161858	163.75	165.00		
						1161859	165.00	166.00		
						1161860	166.00	167.30	166.6	8000
167.3	170.7				CARBONATE ALTERED PORPHYRITIC ANDESITIC BASALT WITH GNEISS XENOLITHS	919872	162.1	162.3 (PET)		
					Dark grey very fine grained andesitic basalt with small phenocrysts to 1mm of carbonate (after	1161861	167.30	169.00		
					plagioclase) in a mafic ground mass. Minor traces disseminated pyrite and chalcopyrite. Thin	1161862	169.00	170.25		
					carbonate veinlets throughout. Phenocrysts form a vague lineation of 30° LCA. In parts the	1161863	170.25	171.46		
					basalt contains xenoliths of k-feldspar-quartz gneiss					
					170.25-171.7 Xenolith? of medium to fine grained well foliated quartz-k-feldspar-biotite-	1234565	168.38	168.44 (WHOLE ROCK)		
					amphibole gneiss?? with coarse grained k-feldspar-quartz segregations, wisps					
					and bands parallel to foliation. Traces pyrite and at 170.8-170.9 carbonate					
					altered dolorite with chilled margins. Irregular contact.					
170.7	172.75				BRECCIA/SHEAR ZONE	1161864	171.46	172.75	171.0	150
					Complex disrupted texture with carbonate and chloritic clasts (after diorite??) within a similar					
					matrix. Minor quartz and quartz-k-feldspar veinlets. Lower contact 55° LCA.					

SUMMARY :

LOGGED BY S.P. SUGDEN DATE 8/5/88

SHEET 5 OF 8

EXPL ON P ITED

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

0194

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW 60-75 HQ | DPO Nos 37534, 37535, 37539, 37540

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10^{-5} SI
172.75	182.2		NQ		CARBONATE ALTERED PERIDOTITE					
					Grey to grey green medium grained peridotite weak to strongly carbonate altered with carbonate					
					replacing plagioclase grains, shattered in parts by fine networks of calcite veinlets. Rare					
					k-feldspar-quartz-amphibole pegmatite bands to 15cm thick with distinct chloritised peridotite					
					margins to 15cm wide. Rare traces pyrite and chalcopyrite as disseminated grains					
					172.75-173.7 Strongly carbonate altered and veined interval	1161865	172.75	173.7		
					175.05-176.0 Strongly carbonate altered section	1161866	173.7	175.05		
					176.0 -176.15 Pegmatite band with traces of pyrite and chloritic altered peridotite margins	1161867	175.05	176.0		
						1161868	176.0	177.3	176.4	150
					176.15-177.3 Strongly chlorite and amphibolitic? altered section with minor biotite and	1161869	177.3	178.0		
					chalcopyrite	1161870	178.0	180.2		
					179.15 Thin carbonate veinlet with pyrite and pyrrhotite blebs	1161871	180.2	182.2	182.0	4500
					178.0 -180.2 Less altered peridotite					
					180.2 -180.55 Carbonate and chlorite altered peridotite with chlorite veinlets					
182.2	199.3				CHLORITE ALTERED PERIDOTITE					
					Medium grained grey green biotite, plagioclase, amphibole, chlorite peridotite with rare pyrite,					
					chalcopyrite and pyrrhotite as disseminated grains throughout. Minor talc coated joints of 30°					
					LCA. Peridotite variably chloritically (or amphibolitic?) altered throughout. Minor k-feldspar			?		
					quartz pegmatite bands with intensely chloritised halos.					
					182.2 -185.1 Strongly to toally chloritised section with carbonate veinlets and amphibole rich	1161872	182.2	184.0	183.0	7
					sections. Minor talc, with fractured and brecciated quartz vein from 183.0-	1161873	184.0	185.1	186.0	5000
					183.5m	1161874	185.1	186.5		
					187.7 -187.8 Thin k-feldspar/quartz bands with chloritic alteration halos	1161875	186.5	188.0		
					188.7 -189.6 Very strongly chloritic and talc altered sections	1161876	188.0	190.0		
					190 -191.15 Very strongly chloritic section	1161877	190.0	191.15	190.5	4000
					191.15-191.75 K-feldspar-quartz pegmatite band	1161878	191.15	191.75		
					191.75-193.3 Strongly chloritic and carbonate altered peridotite with thin carbonate veinlets	1161879	191.75	193.3		
						1161880	193.3	193.7		
					193.3 -193.7 Pegmatite band upper contact 40° LCA	1161881	193.7	195.0		
					193.7 -196.3 Moderate to strong chloritic altered and moderate carbonate altered peridotite,	1161882	195.0	196.3	194.6	5000
					rare traces chalcopyrite and moderate thin carbonate veinlets	1161883	196.3	198.0		
						1161884	198.0	199.3		
					196.3 -199.3 Weakly chloritically altered peridotite					

SUMMARY :

LOGGED BY S.P. SUGDEN DATE 8/5/88

SHEET 6 OF 8

EXPLORATION PLOTTED

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

0195

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | INCLINATION -60° | DRILLERS MATHEWS DRILLING | DRILL TYPE LONGYEAR 44 | COMMENCED 19/04/88 | COMPLETED 27/05/88 | DEPTH 302.5m | CASING LEFT 0-72 HW, 60-75 HQ | HOLE No. | DPO Nos. 37534, 37535, 37539, 37540

RL COLLAR

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x 10^{-5} SI
199.3					PERIDOTITE WITH K-FELDSPAR-QUARTZ PEGMATITE BANDS AND RARE DOLERITE					
					Medium grained drak grey to grey green amphibole-biotite-plagioclase. Peridotite weakly	1161885	199.3	200.2	199.5	9000
					chloritically and carbonate altered in parts. Traces disseminated chalcopyrite and pyrite					
					throughout. Minor to moderate, thin irregular carbonate veinlets. Minor talc on joint facings.	1161886	203.5	205.3		
					Peridotite fractured and altered by k-feldspar-quartz pegmatite bands. Peridotite next to	1161887	205.3	206.6		
					pegmatite bands intensely chloritised. Very rare xenoliths of quartz-k-feldspar porphyry and	1161888	209.6	211.0		
					k-feldspar-quartz-biotite gneiss	1161889	211.0	212.3		
					203.5 -205.3 Chloritic altered section with discontinuous pegmatite bands to 20cm thick				204.5	2500
					205.3 -206.4 Chloritic altered section with thin carbonate veinlets					
					206.4 -206.7 As 203.5-205.3m					
					206.7 -209.6 Peridotite					
					209.6 -212.3 Intensely chloritised section with discontinuous wisps and bands to 50cm of				210.0	6000
					quartz-k-feldspar-biotite-chlorite porphyry. Porphyroblasts of k-feldspar to 4mm.					
					Biotite forms a crude foliation which maybe contorted in parts.					
					212.3 -220.2 Peridotite	1161890	212.3	213.8	215.0	2500
					220.2 -220.7 Chloritised peridotite with pegmatite bands containing talc				220.0	2500
						1161891	216.0	218.0		
					221.1 Quartz-talc band at 90° LCA					
					222.3 -223.8 Chloritised peridotite with irregular pegmatite bands. Minor talc	1161892	220.2	220.7		
					223.8 -227.8 Peridotite with chloritically altered sections surrounding pegmatite bands to 30cm	1161893	222.3	223.8	225.0	4000
					thick	1161894	223.8	225.0		
					230.15-230.35 Pegmatite band with chlorite halo at 30° LCA	1161895	225.0	227.8	230.0	1500
					231.0 -231.3 As above	1161896	227.8	229.2		
					231.75-231.9 As above	1161897	229.2	231.0		
					232.9 -233.6 As above, contact at 30° LCA	1161898	231.0	231.9	233.0	3000
					234.4 Thin pegmatite band					
					235.6 Thin pegmatite band at 45° LCA					
					236.9 -239.8 Peridotite chloritically and carbonate altered in parts with pegmatite bands at	1161899	236.9	238.5	238.0	4000
					237.0-237.1 and 238.25-238.45. Talc with pegmatite bands	1161900	238.5	239.8		
					240.7 -240.75 Pegmatite band with chlorite alteration haloes					
					241.7 -241.85 As above				242.0	3700
					242.1 -242.3 As above					
					244.3 -244.7 As above	949180	244.3	244.7		
					245.0 -245.15 As above	949181	244.7	246.2		
					245.75-246.2 As above	949182	246.2	247.8		
					246.2 0247.8 Weak to moderate carbonate altered peridotite with thin carbonate veinlets	949183	247.8	248.1	248.0	700
					containing traces chalcopyrite	949184	248.1	249.0		

SUMMARY :

LOGGED BY SP SUGDEN DATE 26/05/88

SHEET 7 OF 8

EXPLORATION PTY. LIMITED

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No. 0196

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW 60-75 HQ | DPO Nos. 37534, 37535, 37539, 37540

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10^{-5}SI
			NQ		247.8 -248.1 Distinct fine grained mafic band with chloritised garnets?? Lower contact 30° LCA	949185	249.0	250.75		
						949186	250.75	252.2	251.9	800
					248.1 -249.0 Carbonate altered peridotite					
					249.0 -250.75 Dolerite? Medium-fine grained green grey feldspar-biotite-pyroxene rock with clasts of k-feldspar quartz-biotite gneiss. From 250.0m amphibole phenocrysts. Upper contact 80° LCA.					
					250.75-252.5 Strongly chloritically and variably carbonate altered peridotite with clasts and wisps of k-feldspar-quartz gneiss					
					252.5 -257.5 Peridotite					
					257.5 -257.6 Fractured quartz chlorite vein or band				258.0	3000
					259.75-260.0 Pegmatite band	949187	259.75	260.6		
					260.0 -260.6 Chlorite altered peridotite	949188	260.6	262.0		
					260.6 -269.05 Periodotite				264.0	5000
					269.05-269.1 Quartz-plagioclase-amphibole-chlorite pegmatite band				267.3	4400
					269.1 -270.6 Peridotite					
					270.6 -270.7 Amphibole-plagioclase-quartz-carbonate pegmatite band at 50° LCA				270.3	6800
					270.7 -279.9 Peridotite				273.3	5000
					279.9 -282.3 Very weakly chloritically altered peridotite with chlorite-plagioclase vein at 280.9-281.1m	949189	279.9	280.9		
						949190	280.9	282.3	276.5	6500
					282.3 -285.4 Peridotite				279.6	7200
					285.4 -287.0 Core fractured with weak carbonate alteration and veining	949191	285.4	287.0	282.7	7500
									285.3	2000
					287.0 -292.55 Peridotite with fine wispy carbonate veins				288.6	5000
					292.55-294.6 Peridotite with rare thin chloritic shear zones and weakly chloritic altered				291.1	3800
					294.6 -295.9 Peridotite	949192	294.6	295.9		
					295.9 -296.4 K-feldspar quartz pegmatite band	949193	295.9	296.4	296.0	10
					296.4 -300.3 Peridotite					
					300.3 -301.1 Carbonate altered peridotite	949194	300.3	301.1		
					301.1 -302.5 Peridotite	949195	301.1	302.5	302.2	2000
					E.O.H. 302.5m					

SUMMARY :

LOGGED BY S.P. SUGDEN DATE 26/05/88

SHEET 8 OF 8

APPENDIX II

SOUTH LAKE PROSPECT GRAVITY DATA

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED"

CRA EXPLORATION PTY. LIMITED

GRAVITY SURVEY DATA

AREA:	MT. EBA EL 1315
PROSPECT:	SOUTH LAKE
WORK CONDUCTED BY:	SOLO GEOPHYSICS PTY. LTD.
METER NO:	561
MAIN BASE:	DEPT. OF LANDS BM 4734 (5836.1052)
	499450mE, 6585300mN, 126.102 m AHD
	Observed Gravity: 979344.95 m GAL
	Latitude: -30.86543 deg.
	Longitude: 134.99477 deg.

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

OUTH LAKES PROSPECT, MT, EBA, E.L. 1315

TAT	A.M.G.		ELEV.	ABSOLUTE	BOUGUER GRAVITY [gms/cc]					
O.	NORTH'G	EAST'G		GRAVITY	2.1	2.2	2.3	2.4	2.5	2.6
226	6574000.	496000.	137.46	979352.38	-31.24	-31.81	-32.39	-32.97	-33.54	-34.52
225	6574100.	496000.	137.04	979352.50	-31.13	-31.70	-32.28	-32.85	-33.43	-34.40
224	6574200.	496000.	136.25	979352.75	-30.96	-31.53	-32.10	-32.67	-33.25	-34.22
223	6574300.	496000.	135.65	979353.00	-30.81	-31.38	-31.95	-32.52	-33.09	-34.05
222	6574400.	496000.	135.26	979352.94	-30.87	-31.44	-32.00	-32.57	-33.14	-34.10
221	6574500.	496000.	135.24	979352.75	-30.99	-31.56	-32.13	-32.69	-33.26	-34.22
220	6574600.	496000.	134.98	979352.75	-30.96	-31.53	-32.09	-32.66	-33.23	-34.19
219	6574700.	496000.	134.26	979352.75	-31.03	-31.59	-32.16	-32.72	-33.28	-34.24
218	6574800.	496000.	134.04	979352.69	-31.08	-31.64	-32.20	-32.76	-33.33	-34.28
217	6574900.	496000.	133.64	979352.63	-31.17	-31.73	-32.29	-32.85	-33.41	-34.36
216	6575000.	496000.	133.05	979352.63	-31.23	-31.79	-32.34	-32.90	-33.46	-34.41
215	6575100.	496000.	132.89	979352.44	-31.38	-31.93	-32.49	-33.05	-33.60	-34.55
214	6575200.	496000.	132.80	979352.06	-31.69	-32.25	-32.80	-33.36	-33.92	-34.86
213	6575300.	496000.	132.51	979352.00	-31.75	-32.31	-32.86	-33.42	-33.97	-34.92
212	6575400.	496000.	132.13	979352.19	-31.58	-32.13	-32.68	-33.24	-33.79	-34.73
211	6575500.	496000.	131.72	979352.44	-31.38	-31.94	-32.49	-33.04	-33.59	-34.53
210	6575600.	496000.	130.71	979352.56	-31.37	-31.91	-32.46	-33.01	-33.56	-34.49
209	6575700.	496000.	131.35	979352.44	-31.32	-31.87	-32.42	-32.97	-33.52	-34.45
208	6575800.	496000.	131.89	979351.94	-31.64	-32.19	-32.75	-33.30	-33.85	-34.79
207	6575900.	496000.	131.92	979351.50	-31.95	-32.50	-33.05	-33.61	-34.16	-35.10
206	6576000.	496000.	132.03	979351.19	-32.18	-32.73	-33.28	-33.84	-34.39	-35.33
204	6576100.	496000.	132.32	979350.88	-32.34	-32.89	-33.45	-34.00	-34.55	-35.50
203	6576200.	496000.	132.39	979350.69	-32.49	-33.04	-33.60	-34.15	-34.71	-35.65
202	6576300.	496000.	132.22	979350.56	-32.55	-33.11	-33.66	-34.21	-34.77	-35.71
201	6576400.	496000.	131.83	979350.44	-32.72	-33.28	-33.83	-34.38	-34.93	-35.87
200	6576500.	496000.	131.67	979350.19	-32.93	-33.48	-34.03	-34.58	-35.14	-36.07
199	6576600.	496000.	131.13	979350.13	-33.03	-33.58	-34.13	-34.68	-35.23	-36.17
198	6576700.	496000.	130.52	979350.19	-33.03	-33.58	-34.13	-34.68	-35.22	-36.15
197	6576800.	496000.	130.77	979350.13	-32.96	-33.50	-34.05	-34.60	-35.15	-36.08
196	6576900.	496000.	131.59	979349.69	-33.13	-33.68	-34.23	-34.78	-35.33	-36.27
195	6577000.	496000.	132.31	979349.25	-33.31	-33.87	-34.42	-34.98	-35.53	-36.47
194	6577100.	496000.	133.57	979348.75	-33.47	-34.03	-34.59	-35.15	-35.71	-36.66
193	6577200.	496000.	134.33	979348.56	-33.43	-33.99	-34.55	-35.11	-35.68	-36.63
192	6577300.	496000.	133.29	979348.56	-33.62	-34.18	-34.74	-35.30	-35.86	-36.81
191	6577400.	496000.	130.26	979348.81	-33.96	-34.51	-35.06	-35.60	-36.15	-37.08
190	6577500.	496000.	128.61	979348.69	-34.35	-34.88	-35.42	-35.96	-36.50	-37.42
189	6577600.	496000.	127.61	979348.44	-34.77	-35.31	-35.84	-36.38	-36.91	-37.82
188	6577700.	496000.	126.89	979348.63	-34.69	-35.22	-35.75	-36.28	-36.81	-37.72
187	6577800.	496000.	128.83	979348.25	-34.52	-35.06	-35.60	-36.14	-36.68	-37.59
186	6577900.	496000.	128.56	979348.25	-34.50	-35.04	-35.58	-36.12	-36.65	-37.57
185	6578000.	496000.	127.00	979348.44	-34.59	-35.12	-35.65	-36.18	-36.71	-37.62
184	6578100.	496000.	130.83	979347.56	-34.57	-35.12	-35.67	-36.22	-36.77	-37.70
183	6578200.	496000.	129.62	979348.06	-34.24	-34.79	-35.33	-35.87	-36.41	-37.34
182	6578300.	496000.	126.50	979348.56	-34.35	-34.88	-35.41	-35.94	-36.47	-37.37
181	6578400.	496000.	124.78	979349.38	-33.90	-34.42	-34.95	-35.47	-35.99	-36.88
180	6578500.	496000.	126.10	979349.06	-33.80	-34.32	-34.85	-35.38	-35.91	-36.81
179	6578600.	496000.	123.78	979349.63	-33.70	-34.22	-34.74	-35.26	-35.77	-36.66
178	6578700.	496000.	123.06	979349.81	-33.63	-34.15	-34.66	-35.18	-35.69	-36.57
177	6578800.	496000.	124.29	979349.63	-33.48	-34.00	-34.52	-35.04	-35.56	-36.45
176	6578900.	496000.	125.60	979349.25	-33.48	-34.00	-34.53	-35.06	-35.58	-36.48
175	6579000.	496000.	126.97	979349.06	-33.30	-33.84	-34.37	-34.90	-35.43	-36.34
174	6579100.	496000.	129.21	979348.81	-32.93	-33.48	-34.02	-34.56	-35.10	-36.02
173	6579200.	496000.	133.76	979347.94	-32.75	-33.31	-33.88	-34.44	-35.00	-35.95
172	6579300.	496000.	128.69	979348.69	-33.03	-33.57	-34.11	-34.65	-35.19	-36.11
171	6579400.	496000.	129.14	979348.25	-33.33	-33.87	-34.41	-34.95	-35.50	-36.42
170	6579500.	496000.	131.83	979347.44	-33.47	-34.02	-34.57	-35.13	-35.68	-36.62
169	6579600.	496000.	131.71	979347.38	-33.46	-34.01	-34.56	-35.12	-35.67	-36.61

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

168 6579700, 496000, 126,99 979347,94 -33,90 -34,43 -34,97 -35,50 -36,03 -36,94
167 6579800, 496000, 126,13 979347,81 -34,13 -34,66 -35,19 -35,72 -36,24 -37,14
166 6579900, 496000, 127,50 979347,44 -34,13 -34,66 -35,19 -35,73 -36,26 -37,17
165 6580000, 496000, 127,21 979347,38 -34,19 -34,73 -35,26 -35,79 -36,33 -37,23
163 6580100, 496000, 128,57 979347,00 -34,18 -34,72 -35,26 -35,79 -36,33 -37,25
162 6580200, 496000, 130,54 979346,50 -34,20 -34,75 -35,29 -35,84 -36,39 -37,32
161 6580300, 496000, 130,79 979346,63 -33,92 -34,47 -35,02 -35,57 -36,12 -37,05
160 6580400, 496000, 131,21 979346,69 -33,71 -34,26 -34,81 -35,36 -35,91 -36,85
159 6580500, 496000, 132,22 979346,63 -33,50 -34,06 -34,61 -35,16 -35,72 -36,66
158 6580600, 496000, 134,75 979346,38 -33,10 -33,66 -34,23 -34,79 -35,36 -36,32
157 6580700, 496000, 138,61 979345,63 -32,93 -33,52 -34,10 -34,68 -35,26 -36,25
156 6580800, 496000, 137,58 979345,63 -33,08 -33,66 -34,24 -34,81 -35,39 -36,37
155 6580900, 496000, 136,30 979346,13 -32,76 -33,33 -33,90 -34,48 -35,05 -36,02
154 6581000, 496000, 138,83 979345,88 -32,41 -32,99 -33,57 -34,16 -34,74 -35,73
153 6581100, 496000, 138,96 979346,13 -32,07 -32,65 -33,23 -33,82 -34,40 -35,39
152 6581200, 496000, 137,76 979346,25 -32,13 -32,71 -33,29 -33,87 -34,44 -35,43
151 6581300, 496000, 136,31 979346,44 -32,17 -32,75 -33,32 -33,89 -34,46 -35,43
150 6581400, 496000, 139,78 979345,81 -32,00 -32,58 -33,17 -33,75 -34,34 -35,34
149 6581500, 496000, 144,68 979344,75 -31,90 -32,50 -33,11 -33,72 -34,32 -35,35
148 6581600, 496000, 147,64 979344,00 -31,92 -32,54 -33,16 -33,78 -34,40 -35,45
147 6581700, 496000, 151,75 979342,94 -31,98 -32,62 -33,26 -33,89 -34,53 -35,61
146 6581800, 496000, 150,49 979343,00 -32,15 -32,78 -33,41 -34,04 -34,68 -35,75
145 6581900, 496000, 159,54 979341,00 -32,10 -32,76 -33,43 -34,10 -34,77 -35,91
144 6582000, 496000, 152,35 979342,50 -32,06 -32,70 -33,34 -33,98 -34,62 -35,70
143 6582100, 496000, 145,85 979344,06 -31,88 -32,50 -33,11 -33,72 -34,33 -35,37
142 6582200, 496000, 145,67 979344,06 -31,86 -32,47 -33,08 -33,69 -34,30 -35,34
141 6582300, 496000, 149,53 979343,50 -31,51 -32,14 -32,76 -33,39 -34,02 -35,08
140 6582400, 496000, 151,05 979343,13 -31,44 -32,08 -32,71 -33,34 -33,98 -35,05
066 6582500, 496000, 152,35 979343,06 -31,19 -31,83 -32,47 -33,11 -33,75 -34,83
065 6582600, 496000, 147,13 979344,00 -31,34 -31,95 -32,57 -33,19 -33,80 -34,85
064 6582700, 496000, 148,65 979343,81 -31,12 -31,74 -32,37 -32,99 -33,61 -34,67
063 6582800, 496000, 143,92 979344,31 -31,54 -32,14 -32,74 -33,35 -33,95 -34,97
062 6582900, 496000, 140,37 979344,50 -32,08 -32,67 -33,26 -33,85 -34,44 -35,44
061 6583000, 496000, 138,42 979345,00 -31,98 -32,56 -33,14 -33,72 -34,30 -35,28
060 6583100, 496000, 138,94 979344,81 -31,95 -32,53 -33,12 -33,70 -34,28 -35,27
059 6583200, 496000, 142,26 979344,00 -31,93 -32,52 -33,12 -33,71 -34,31 -35,32
058 6583300, 496000, 142,76 979343,63 -32,15 -32,75 -33,35 -33,95 -34,55 -35,56
057 6583400, 496000, 138,84 979344,25 -32,34 -32,92 -33,50 -34,08 -34,67 -35,66
056 6583500, 496000, 139,38 979343,94 -32,45 -33,03 -33,62 -34,20 -34,79 -35,78
055 6583600, 496000, 140,69 979343,81 -32,21 -32,80 -33,39 -33,98 -34,57 -35,57
054 6583700, 496000, 144,83 979342,63 -32,38 -32,99 -33,60 -34,20 -34,81 -35,84
053 6583800, 496000, 142,71 979342,75 -32,67 -33,26 -33,86 -34,46 -35,06 -36,07
052 6583900, 496000, 137,15 979343,44 -33,16 -33,74 -34,31 -34,89 -35,46 -36,44
001 6584000, 496000, 146,15 979341,63 -32,92 -33,53 -34,14 -34,76 -35,37 -36,41
060 6584100, 496000, 147,33 979341,19 -33,03 -33,65 -34,27 -34,89 -35,50 -36,55
061 6584200, 496000, 145,47 979341,50 -33,05 -33,66 -34,27 -34,88 -35,49 -36,53
062 6584300, 496000, 139,32 979342,69 -33,12 -33,70 -34,28 -34,87 -35,45 -36,45
063 6584400, 496000, 140,12 979342,38 -33,22 -33,81 -34,40 -34,99 -35,57 -36,57
064 6584500, 496000, 143,36 979341,50 -33,29 -33,89 -34,49 -35,09 -35,69 -36,71
065 6584600, 496000, 145,05 979340,94 -33,40 -34,01 -34,61 -35,22 -35,83 -36,86
066 6584700, 496000, 143,75 979341,19 -33,38 -33,98 -34,59 -35,19 -35,79 -36,82
067 6584800, 496000, 140,96 979341,44 -33,68 -34,27 -34,86 -35,45 -36,04 -37,04
068 6584900, 496000, 141,78 979341,19 -33,65 -34,24 -34,83 -35,43 -36,02 -37,03
069 6585000, 496000, 143,20 979340,88 -33,60 -34,20 -34,80 -35,40 -36,00 -37,02
070 6585100, 496000, 141,13 979341,25 -33,56 -34,16 -34,75 -35,34 -35,93 -36,94
071 6585200, 496000, 136,45 979342,19 -33,62 -34,19 -34,76 -35,33 -35,91 -36,88
072 6585300, 496000, 133,61 979342,63 -33,76 -34,32 -34,88 -35,44 -36,00 -36,95
073 6585400, 495999, 132,62 979342,69 -33,80 -34,35 -34,91 -35,47 -36,02 -36,97
074 6585500, 496000, 131,61 979342,94 -33,75 -34,30 -34,85 -35,41 -35,96 -36,89
075 6585600, 496000, 130,02 979342,94 -34,01 -34,56 -35,10 -35,65 -36,19 -37,12

076 6585700, 496000, 128,77 979343,19 -33,96 -34,50 -35,04 -35,58 -36,12 -37,04
077 6585800, 496000, 127,97 979343,50 -33,77 -34,30 -34,84 -35,38 -35,91 -36,82
078 6585900, 496000, 126,96 979343,50 -33,88 -34,41 -34,94 -35,48 -36,01 -36,91
079 6586000, 496000, 126,27 979343,50 -33,95 -34,48 -35,01 -35,54 -36,07 -36,97
469 6586100, 496000, 125,69 979343,50 -34,05 -34,58 -35,11 -35,63 -36,16 -37,05
470 6586200, 496000, 124,94 979343,56 -34,09 -34,62 -35,14 -35,66 -36,19 -37,08
471 6586300, 496000, 124,14 979343,69 -34,07 -34,59 -35,11 -35,63 -36,15 -37,03
472 6586400, 496000, 123,75 979343,75 -33,99 -34,51 -35,03 -35,55 -36,06 -36,95
473 6586500, 496000, 123,09 979343,75 -34,08 -34,60 -35,11 -35,63 -36,15 -37,02
474 6586600, 496000, 123,45 979343,44 -34,23 -34,75 -35,27 -35,79 -36,30 -37,18
475 6586700, 496000, 123,65 979343,25 -34,34 -34,86 -35,38 -35,89 -36,41 -37,29
476 6586800, 496000, 125,10 979342,81 -34,35 -34,87 -35,40 -35,92 -36,45 -37,34
477 6586900, 496000, 125,44 979342,81 -34,21 -34,73 -35,26 -35,78 -36,31 -37,20
478 6587000, 496000, 124,16 979343,13 -34,13 -34,66 -35,18 -35,70 -36,22 -37,10
479 6587100, 496000, 124,15 979343,00 -34,18 -34,70 -35,22 -35,74 -36,26 -37,14
480 6587200, 496000, 126,59 979342,06 -34,48 -35,01 -35,55 -36,08 -36,61 -37,51
481 6587300, 496000, 129,84 979341,25 -34,54 -35,09 -35,63 -36,18 -36,72 -37,64
482 6587400, 496000, 131,16 979340,56 -34,83 -35,37 -35,92 -36,47 -37,02 -37,96
483 6587500, 496000, 130,90 979340,63 -34,74 -35,29 -35,84 -36,39 -36,93 -37,87
484 6587600, 496000, 130,85 979340,75 -34,60 -35,15 -35,70 -36,24 -36,79 -37,73
485 6587700, 496000, 131,48 979340,38 -34,71 -35,26 -35,81 -36,36 -36,91 -37,85
486 6587800, 496000, 130,83 979340,50 -34,71 -35,26 -35,81 -36,36 -36,91 -37,84
487 6587900, 496000, 127,18 979341,25 -34,67 -35,20 -35,73 -36,27 -36,80 -37,71
488 6588000, 496000, 124,23 979342,00 -34,52 -35,04 -35,56 -36,08 -36,60 -37,49
489 6588100, 496000, 123,35 979342,25 -34,40 -34,92 -35,44 -35,95 -36,47 -37,35
490 6588200, 496000, 121,56 979342,44 -34,53 -35,04 -35,55 -36,06 -36,57 -37,44
491 6588300, 496000, 120,64 979342,38 -34,71 -35,22 -35,73 -36,23 -36,74 -37,60
492 6588400, 496000, 120,59 979342,44 -34,56 -35,07 -35,57 -36,08 -36,58 -37,44
493 6588500, 496000, 120,61 979342,56 -34,40 -34,90 -35,41 -35,91 -36,42 -37,28
494 6588600, 496000, 120,60 979342,50 -34,39 -34,89 -35,40 -35,90 -36,41 -37,27
495 6588700, 496000, 120,63 979342,44 -34,38 -34,89 -35,39 -35,90 -36,40 -37,26
496 6588800, 496000, 120,64 979342,38 -34,32 -34,82 -35,33 -35,83 -36,34 -37,20
497 6588900, 496000, 120,67 979342,63 -34,04 -34,54 -35,05 -35,55 -36,06 -36,92
498 6589000, 496000, 120,75 979342,69 -33,87 -34,37 -34,88 -35,38 -35,89 -36,75
499 6589100, 496000, 121,01 979342,50 -33,95 -34,46 -34,96 -35,47 -35,98 -36,84
500 6589200, 496000, 123,02 979342,00 -33,92 -34,43 -34,95 -35,46 -35,98 -36,86
501 6589300, 496000, 126,52 979341,44 -33,66 -34,19 -34,72 -35,25 -35,78 -36,68
502 6589400, 496000, 131,69 979340,44 -33,39 -33,95 -34,50 -35,05 -35,60 -36,54
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504 6589600, 496000, 132,45 979340,31 -33,22 -33,78 -34,33 -34,89 -35,44 -36,39
505 6589700, 495999, 130,93 979340,63 -33,15 -33,70 -34,25 -34,80 -35,35 -36,28
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508 6590000, 496000, 127,84 979342,00 -32,26 -32,80 -33,33 -33,87 -34,40 -35,31
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338 6577100, 496400, 135,34 979348,63 -33,22 -33,79 -34,36 -34,93 -35,49 -36,46
337 6577200, 496400, 133,94 979348,81 -33,26 -33,82 -34,38 -34,94 -35,51 -36,46
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335 6577400, 496400, 134,72 979348,44 -33,36 -33,92 -34,49 -35,05 -35,62 -36,58
334 6577500, 496400, 130,96 979348,88 -33,66 -34,21 -34,76 -35,31 -35,86 -36,79
333 6577600, 496400, 127,53 979349,25 -33,97 -34,50 -35,03 -35,57 -36,10 -37,01
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329 6578000, 496400, 124,44 979349,88 -33,76 -34,28 -34,80 -35,33 -35,85 -36,73
328 6578100, 496400, 123,87 979349,75 -33,91 -34,43 -34,95 -35,47 -35,99 -36,87
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326 6578300, 496400, 126,74 979349,13 -33,77 -34,30 -34,83 -35,37 -35,90 -36,80
325 6578400, 496400, 129,14 979348,50 -33,77 -34,31 -34,85 -35,39 -35,93 -36,85
324 6578500, 496400, 126,15 979348,75 -34,11 -34,64 -35,17 -35,70 -36,23 -37,13

323	6578600,	496400,	123,06	979349,75	-33,71	-34,22	-34,74	-35,25	-35,77	-36,65
322	6578700,	496400,	121,81	979350,31	-33,38	-33,89	-34,40	-34,91	-35,42	-36,29
321	6578800,	496400,	123,66	979350,25	-32,99	-33,51	-34,02	-34,54	-35,06	-35,94
320	6578900,	496400,	130,27	979349,00	-32,66	-33,20	-33,75	-34,30	-34,84	-35,77
319	6579000,	496400,	130,71	979348,31	-33,21	-33,76	-34,31	-34,86	-35,41	-36,34
318	6579100,	496400,	123,07	979349,63	-33,51	-34,03	-34,54	-35,06	-35,57	-36,45
317	6579200,	496400,	122,57	979349,56	-33,59	-34,10	-34,62	-35,13	-35,64	-36,52
316	6579300,	496400,	123,64	979349,13	-33,76	-34,28	-34,79	-35,31	-35,83	-36,71
315	6579400,	496400,	130,07	979347,69	-33,66	-34,20	-34,75	-35,29	-35,84	-36,77
314	6579500,	496400,	126,66	979348,25	-33,77	-34,31	-34,84	-35,37	-35,90	-36,80
313	6579600,	496400,	126,28	979348,25	-33,82	-34,35	-34,88	-35,40	-35,93	-36,83
312	6579700,	496400,	122,98	979349,00	-33,74	-34,25	-34,77	-35,28	-35,80	-36,68
311	6579800,	496400,	123,99	979348,31	-34,11	-34,63	-35,15	-35,67	-36,19	-37,07
310	6579900,	496400,	124,52	979348,13	-34,11	-34,64	-35,16	-35,68	-36,20	-37,09
227	6580000,	496400,	122,38	979348,38	-34,24	-34,75	-35,26	-35,78	-36,29	-37,16
228	6580100,	496400,	123,80	979348,06	-34,21	-34,72	-35,24	-35,76	-36,28	-37,16
229	6580200,	496400,	123,51	979348,06	-34,17	-34,68	-35,20	-35,72	-36,24	-37,12
230	6580300,	496400,	125,73	979347,63	-34,09	-34,61	-35,14	-35,67	-36,19	-37,09
231	6580400,	496400,	125,57	979347,75	-33,87	-34,40	-34,92	-35,45	-35,97	-36,87
232	6580500,	496400,	126,76	979347,56	-33,72	-34,26	-34,79	-35,32	-35,85	-36,75
233	6580600,	496400,	131,70	979346,81	-33,32	-33,87	-34,42	-34,97	-35,53	-36,46
234	6580700,	496400,	134,55	979346,44	-33,02	-33,58	-34,15	-34,71	-35,28	-36,23
235	6580800,	496400,	130,20	979347,38	-32,98	-33,52	-34,07	-34,62	-35,16	-36,09
236	6580900,	496400,	131,71	979347,06	-32,85	-33,41	-33,96	-34,51	-35,06	-36,00
237	6581000,	496400,	134,25	979346,75	-32,53	-33,10	-33,66	-34,22	-34,79	-35,74
238	6581100,	496400,	132,07	979347,06	-32,67	-33,22	-33,78	-34,33	-34,88	-35,82
239	6581200,	496400,	131,25	979346,94	-32,86	-33,41	-33,96	-34,51	-35,06	-35,99
240	6581300,	496400,	131,84	979346,25	-33,39	-33,95	-34,50	-35,05	-35,60	-36,54
241	6581400,	496400,	137,68	979345,38	-32,89	-33,46	-34,04	-34,62	-35,20	-36,18
242	6581500,	496400,	140,09	979344,81	-32,87	-33,46	-34,04	-34,63	-35,22	-36,21
243	6581600,	496400,	140,34	979344,50	-33,00	-33,59	-34,18	-34,77	-35,36	-36,36
244	6581700,	496400,	140,06	979344,50	-33,00	-33,59	-34,18	-34,76	-35,35	-36,35
245	6581800,	496400,	138,32	979344,69	-33,17	-33,75	-34,33	-34,91	-35,49	-36,48
246	6581900,	496400,	140,90	979344,25	-32,93	-33,52	-34,11	-34,70	-35,29	-36,29
247	6582000,	496400,	143,10	979343,94	-32,68	-33,28	-33,88	-34,48	-35,08	-36,10
248	6582100,	496400,	139,83	979344,69	-32,58	-33,17	-33,75	-34,34	-34,93	-35,92
249	6582200,	496400,	139,90	979344,63	-32,57	-33,15	-33,74	-34,33	-34,91	-35,91
250	6582300,	496400,	142,82	979344,31	-32,17	-32,76	-33,36	-33,96	-34,56	-35,58
251	6582400,	496400,	146,54	979344,00	-31,61	-32,22	-32,84	-33,45	-34,06	-35,11
252	6582500,	496400,	151,14	979343,25	-31,28	-31,91	-32,55	-33,18	-33,81	-34,89
309	6577000,	496800,	132,31	979349,81	-32,81	-33,36	-33,92	-34,47	-35,03	-35,97
308	6577100,	496800,	133,12	979349,31	-33,00	-33,56	-34,12	-34,68	-35,24	-36,18
307	6577200,	496800,	133,98	979349,00	-33,09	-33,65	-34,21	-34,77	-35,33	-36,29
306	6577300,	496800,	132,84	979349,00	-33,25	-33,80	-34,36	-34,92	-35,48	-36,42
305	6577400,	496800,	130,87	979349,25	-33,41	-33,96	-34,51	-35,06	-35,60	-36,54
304	6577500,	496800,	129,10	979349,50	-33,42	-33,96	-34,50	-35,04	-35,58	-36,50
303	6577600,	496800,	128,52	979349,50	-33,49	-34,02	-34,56	-35,10	-35,64	-36,56
302	6577700,	496800,	128,71	979349,31	-33,55	-34,09	-34,63	-35,17	-35,71	-36,63
301	6577800,	496800,	127,96	979349,00	-33,95	-34,49	-35,02	-35,56	-36,10	-37,01
300	6577900,	496800,	128,25	979349,13	-33,72	-34,25	-34,79	-35,33	-35,87	-36,78
299	6578000,	496800,	130,24	979348,69	-33,66	-34,20	-34,75	-35,29	-35,84	-36,77
298	6578100,	496800,	126,26	979349,75	-33,37	-33,90	-34,43	-34,96	-35,49	-36,39
297	6578200,	496800,	124,87	979350,06	-33,29	-33,82	-34,34	-34,86	-35,39	-36,28
296	6578300,	496800,	121,65	979350,63	-33,39	-33,90	-34,41	-34,92	-35,43	-36,30
295	6578400,	496800,	123,02	979350,25	-33,39	-33,91	-34,42	-34,94	-35,45	-36,33
294	6578500,	496800,	124,43	979349,94	-33,34	-33,86	-34,39	-34,91	-35,43	-36,31
293	6578600,	496800,	125,61	979349,69	-33,26	-33,79	-34,32	-34,84	-35,37	-36,26
292	6578700,	496800,	123,88	979349,75	-33,49	-34,01	-34,53	-35,05	-35,57	-36,45
291	6578800,	496800,	123,11	979350,06	-33,26	-33,78	-34,29	-34,81	-35,33	-36,20
290	6578900,	496800,	121,32	979350,38	-33,29	-33,80	-34,31	-34,82	-35,33	-36,19

289	6579000,	496800,	121,50	979350,19	-33,37	-33,88	-34,39	-34,90	-35,41	-36,27
288	6579100,	496800,	121,50	979350,06	-33,42	-33,93	-34,44	-34,94	-35,45	-36,32
287	6579200,	496800,	121,16	979350,13	-33,37	-33,88	-34,39	-34,89	-35,40	-36,27
286	6579300,	496800,	121,16	979349,81	-33,58	-34,09	-34,60	-35,11	-35,62	-36,48
285	6579400,	496800,	123,87	979349,00	-33,74	-34,26	-34,78	-35,30	-35,82	-36,70
284	6579500,	496800,	120,97	979349,44	-33,84	-34,35	-34,85	-35,36	-35,87	-36,73
283	6579600,	496800,	120,96	979349,38	-33,84	-34,35	-34,86	-35,36	-35,87	-36,73
282	6579700,	496800,	121,02	979349,13	-34,03	-34,54	-35,05	-35,55	-36,06	-36,92
281	6579800,	496800,	120,95	979349,00	-34,10	-34,60	-35,11	-35,62	-36,13	-36,99
280	6579900,	496800,	120,96	979348,88	-34,16	-34,66	-35,17	-35,68	-36,18	-37,05
264	6580000,	496800,	120,94	979348,69	-34,27	-34,77	-35,28	-35,79	-36,29	-37,16
265	6580100,	496800,	122,08	979348,50	-34,14	-34,66	-35,17	-35,68	-36,19	-37,06
266	6580200,	496800,	126,08	979347,44	-34,25	-34,77	-35,30	-35,83	-36,36	-37,26
267	6580300,	496800,	128,24	979347,13	-34,00	-34,54	-35,08	-35,61	-36,15	-37,06
268	6580400,	496800,	132,77	979346,44	-33,60	-34,16	-34,72	-35,27	-35,83	-36,78
269	6580500,	496800,	137,85	979345,44	-33,45	-34,03	-34,60	-35,18	-35,76	-36,74
270	6580600,	496800,	131,31	979347,19	-33,02	-33,57	-34,12	-34,67	-35,23	-36,16
271	6580700,	496800,	134,05	979346,50	-33,08	-33,64	-34,21	-34,77	-35,33	-36,28
272	6580800,	496800,	126,37	979348,06	-33,11	-33,64	-34,17	-34,70	-35,23	-36,13
273	6580900,	496800,	126,45	979347,94	-33,13	-33,66	-34,19	-34,72	-35,25	-36,15
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275	6581100,	496800,	131,14	979347,00	-32,94	-33,49	-34,04	-34,59	-35,14	-36,07
276	6581200,	496800,	134,23	979346,31	-32,83	-33,39	-33,96	-34,52	-35,08	-36,04
277	6581300,	496800,	134,50	979346,13	-32,90	-33,46	-34,03	-34,59	-35,15	-36,11
278	6581400,	496800,	137,48	979345,44	-32,88	-33,46	-34,04	-34,61	-35,19	-36,17
277	6581300,	496800,	134,50	979346,19	-32,86	-33,43	-33,99	-34,55	-35,12	-36,08
279	6581500,	496800,	142,88	979344,38	-32,67	-33,27	-33,87	-34,47	-35,07	-36,08
262	6581600,	496800,	140,41	979344,63	-32,90	-33,48	-34,07	-34,66	-35,25	-36,25
261	6581700,	496800,	144,31	979343,94	-32,61	-33,21	-33,82	-34,42	-35,03	-36,06
260	6581800,	496800,	144,55	979344,31	-32,14	-32,75	-33,35	-33,96	-34,56	-35,59
259	6581900,	496800,	143,47	979344,13	-32,48	-33,08	-33,68	-34,28	-34,88	-35,91
258	6582000,	496800,	140,72	979344,69	-32,44	-33,03	-33,62	-34,21	-34,80	-35,80
257	6582100,	496800,	143,14	979344,25	-32,30	-32,89	-33,49	-34,09	-34,69	-35,71
256	6582200,	496800,	140,80	979344,63	-32,36	-32,95	-33,54	-34,13	-34,72	-35,72
255	6582300,	496800,	135,68	979345,56	-32,46	-33,03	-33,60	-34,17	-34,74	-35,71
254	6582400,	496800,	136,76	979345,81	-31,95	-32,53	-33,10	-33,67	-34,24	-35,22
253	6582500,	496800,	138,32	979345,69	-31,63	-32,21	-32,79	-33,37	-33,95	-34,93
421	6577000,	497200,	130,22	979350,63	-32,41	-32,96	-33,50	-34,05	-34,60	-35,52
420	6577100,	497200,	131,89	979349,94	-32,66	-33,21	-33,76	-34,32	-34,87	-35,81
419	6577200,	497200,	133,64	979349,50	-32,63	-33,19	-33,75	-34,31	-34,87	-35,82
418	6577300,	497200,	133,99	979349,19	-32,82	-33,38	-33,94	-34,50	-35,07	-36,02
417	6577400,	497200,	132,83	979349,38	-32,79	-33,35	-33,91	-34,46	-35,02	-35,97
416	6577500,	497200,	132,23	979349,25	-33,00	-33,55	-34,10	-34,66	-35,21	-36,15
415	6577600,	497200,	133,52	979349,13	-32,79	-33,35	-33,91	-34,47	-35,03	-35,98
414	6577700,	497200,	134,02	979349,06	-32,66	-33,22	-33,78	-34,34	-34,91	-35,86
413	6577800,	497200,	131,85	979349,19	-32,96	-33,51	-34,06	-34,61	-35,17	-36,11
412	6577900,	497200,	131,33	979349,19	-33,00	-33,55	-34,10	-34,65	-35,20	-36,14
411	6578000,	497200,	130,90	979349,06	-33,12	-33,67	-34,22	-34,76	-35,31	-36,25
410	6578100,	497200,	129,10	979349,31	-33,20	-33,74	-34,28	-34,82	-35,36	-36,28
409	6578200,	497200,	122,80	979350,69	-33,12	-33,64	-34,15	-34,67	-35,18	-36,06
408	6578300,	497200,	125,24	979350,25	-33,00	-33,52	-34,05	-34,57	-35,10	-35,99
407	6578400,	497200,	127,57	979349,75	-32,87	-33,40	-33,94	-34,47	-35,01	-35,92
406	6578500,	497200,	127,76	979349,50	-33,05	-33,58	-34,12	-34,65	-35,19	-36,10
405	6578600,	497200,	129,32	979348,94	-33,17	-33,71	-34,25	-34,79	-35,33	-36,26
404	6578700,	497200,	128,67	979348,88	-33,31	-33,85	-34,39	-34,93	-35,47	-36,38
403	6578800,	497200,	129,51	979348,50	-33,46	-34,00	-34,54	-35,08	-35,63	-36,55
402	6578900,	497200,	126,29	979349,13	-33,41	-33,94	-34,47	-35,00	-35,53	-36,43
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399	6579200,	497200,	123,39	979349,81	-33,18	-33,70	-34,21	-34,73	-35,25	-36,13

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

398 6579300, 497200, 121,18 979350,13 -33,28 -33,79 -34,30 -34,81 -35,31 -36,18
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423	6579700,	497600,	123,88	979349,44	-33,06	-33,58	-34,10	-34,62	-35,14	-36,02
422	6579800,	497600,	121,26	979349,38	-33,64	-34,15	-34,66	-35,17	-35,67	-36,54
421	6579900,	497600,	120,88	979349,31	-33,74	-34,25	-34,76	-35,26	-35,77	-36,63
366	6580000,	497600,	120,84	979349,13	-33,83	-34,33	-34,84	-35,35	-35,85	-36,71
367	6580100,	497600,	120,87	979349,38	-33,53	-34,03	-34,54	-35,05	-35,55	-36,41
368	6580200,	497600,	120,95	979349,31	-33,49	-33,99	-34,50	-35,01	-35,51	-36,38
369	6580300,	497600,	120,98	979349,31	-33,40	-33,90	-34,41	-34,92	-35,43	-36,29
370	6580400,	497600,	121,03	979349,25	-33,37	-33,88	-34,39	-34,90	-35,40	-36,27
371	6580500,	497600,	124,76	979349,31	-32,42	-32,94	-33,47	-33,99	-34,51	-35,40
372	6580600,	497600,	121,13	979349,38	-33,12	-33,62	-34,13	-34,64	-35,15	-36,01
373	6580700,	497600,	124,78	979348,69	-32,90	-33,42	-33,94	-34,46	-34,99	-35,88
374	6580800,	497600,	122,27	979348,31	-33,76	-34,27	-34,78	-35,30	-35,81	-36,68
375	6580900,	497600,	124,86	979347,94	-33,50	-34,02	-34,55	-35,07	-35,59	-36,46
376	6581000,	497600,	137,71	979346,06	-32,48	-33,05	-33,63	-34,21	-34,78	-35,77
377	6581100,	497600,	141,37	979344,88	-32,80	-33,39	-33,98	-34,57	-35,17	-36,17
378	6581200,	497600,	135,27	979346,00	-32,93	-33,50	-34,06	-34,63	-35,20	-36,16
379	6581300,	497600,	136,30	979345,69	-32,93	-33,50	-34,07	-34,65	-35,22	-36,19
380	6581400,	497600,	137,81	979345,25	-33,00	-33,58	-34,16	-34,73	-35,31	-36,29
381	6581500,	497600,	140,45	979344,63	-32,96	-33,55	-34,14	-34,73	-35,32	-36,32
382	6581600,	497600,	146,33	979343,56	-32,65	-33,26	-33,88	-34,49	-35,10	-36,15
383	6581700,	497600,	140,88	979344,63	-32,69	-33,28	-33,87	-34,46	-35,05	-36,06
384	6581800,	497600,	136,22	979345,44	-32,85	-33,42	-33,99	-34,56	-35,13	-36,10
385	6581900,	497600,	133,55	979346,38	-32,45	-33,01	-33,57	-34,13	-34,69	-35,64
386	6582000,	497600,	131,88	979346,69	-32,41	-32,96	-33,52	-34,07	-34,62	-35,56
387	6582100,	497600,	133,17	979346,56	-32,19	-32,75	-33,31	-33,87	-34,43	-35,38
388	6582200,	497600,	132,20	979346,69	-32,21	-32,77	-33,32	-33,88	-34,43	-35,37
389	6582300,	497600,	128,96	979347,06	-32,46	-33,00	-33,54	-34,08	-34,62	-35,54
390	6582400,	497600,	127,90	979347,25	-32,43	-32,97	-33,51	-34,04	-34,58	-35,49
391	6582500,	497600,	128,30	979347,31	-32,22	-32,76	-33,30	-33,84	-34,37	-35,29
604	6577000,	499200,	123,16	979353,38	-31,21	-31,73	-32,24	-32,76	-33,28	-34,15
603	6577100,	499200,	122,82	979353,19	-31,41	-31,92	-32,44	-32,95	-33,47	-34,34
602	6577200,	499200,	125,67	979352,38	-31,56	-32,09	-32,61	-33,14	-33,67	-34,56
601	6577300,	499200,	127,89	979352,06	-31,26	-31,80	-32,34	-32,87	-33,41	-34,32
600	6577400,	499200,	128,22	979352,44	-30,79	-31,33	-31,87	-32,40	-32,94	-33,85
599	6577500,	499200,	128,19	979352,69	-30,46	-31,00	-31,54	-32,08	-32,61	-33,53
598	6577600,	499200,	127,59	979352,56	-30,63	-31,16	-31,70	-32,23	-32,77	-33,68
597	6577700,	499200,	124,80	979352,44	-31,32	-31,84	-32,36	-32,89	-33,41	-34,30
596	6577800,	499200,	126,01	979352,25	-31,15	-31,68	-32,21	-32,74	-33,26	-34,16
595	6577900,	499200,	126,28	979352,13	-31,18	-31,71	-32,24	-32,77	-33,30	-34,20
594	6578000,	499200,	126,65	979351,88	-31,22	-31,75	-32,29	-32,82	-33,35	-34,25
593	6578100,	499200,	127,10	979351,75	-31,20	-31,73	-32,26	-32,80	-33,33	-34,23
592	6578200,	499200,	127,94	979351,25	-31,45	-31,99	-32,52	-33,06	-33,59	-34,51
592	6578300,	499200,	128,80	979350,69	-31,73	-32,27	-32,81	-33,35	-33,89	-34,80
591	6578400,	499200,	126,71	979350,94	-31,92	-32,45	-32,98	-33,51	-34,04	-34,95
590	6578500,	499200,	126,28	979350,81	-32,01	-32,54	-33,07	-33,60	-34,13	-35,03
589	6578600,	499200,	123,14	979351,63	-31,87	-32,38	-32,90	-33,41	-33,93	-34,81
588	6578700,	499200,	122,00	979351,94	-31,72	-32,23	-32,74	-33,25	-33,77	-34,64
587	6578800,	499200,	122,23	979352,69	-30,86	-31,37	-31,88	-32,39	-32,91	-33,78
586	6578900,	499200,	122,02	979352,56	-30,94	-31,45	-31,96	-32,47	-32,98	-33,85
585	6579000,	499200,	122,44	979352,31	-31,05	-31,56	-32,07	-32,59	-33,10	-33,97
584	6579100,	499200,	124,45	979352,13	-30,72	-31,24	-31,76	-32,29	-32,81	-33,69
583	6579200,	499200,	127,98	979351,25	-30,70	-31,24	-31,78	-32,31	-32,85	-33,76
582	6579300,	499200,	129,37	979350,44	-31,19	-31,73	-32,27	-32,82	-33,36	-34,28
581	6579400,	499200,	130,68	979349,25	-31,95	-32,50	-33,05	-33,60	-34,14	-35,07
580	6579500,	499200,	130,12	979348,88	-32,43	-32,98	-33,52	-34,07	-34,61	-35,54
579	6579600,	499200,	129,90	979348,75	-32,48	-33,03	-33,57	-34,12	-34,66	-35,59
578	6579700,	499200,	130,44	979348,56	-32,53	-33,08	-33,62	-34,17	-34,72	-35,65
577	6579800,	499200,	130,42	979348,50	-32,53	-33,07	-33,62	-34,17	-34,71	-35,64
576	6579900,	499200,	130,51	979348,38	-32,52	-33,07	-33,62	-34,16	-34,71	-35,64
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529 6586000, 499200, 129,14 979343,56 -33,25 -33,80 -34,34 -34,88 -35,42 -36,34

530	6586100,	499200,	130,03	979343,38	-33,21	-33,75	-34,30	-34,84	-35,39	-36,31
531	6586200,	499200,	129,51	979343,31	-33,31	-33,85	-34,40	-34,94	-35,48	-36,41
532	6586300,	499200,	131,78	979342,81	-33,24	-33,80	-34,35	-34,90	-35,45	-36,39
533	6586400,	499200,	129,87	979343,13	-33,29	-33,83	-34,38	-34,92	-35,47	-36,39
534	6586500,	499200,	129,83	979343,06	-33,27	-33,81	-34,36	-34,90	-35,44	-36,37
535	6586600,	499200,	131,25	979342,56	-33,37	-33,92	-34,47	-35,02	-35,57	-36,50
605	6586700,	499200,	129,89	979342,69	-33,49	-34,03	-34,57	-35,12	-35,66	-36,59
606	6586800,	499200,	126,77	979343,56	-33,26	-33,79	-34,32	-34,85	-35,38	-36,29
607	6586900,	499200,	128,68	979343,31	-32,99	-33,53	-34,07	-34,61	-35,15	-36,06
608	6587000,	499200,	128,77	979343,38	-32,87	-33,41	-33,95	-34,49	-35,03	-35,94
609	6587100,	499200,	126,99	979344,06	-32,46	-32,99	-33,52	-34,05	-34,59	-35,49
610	6587200,	499200,	127,29	979344,13	-32,29	-32,82	-33,36	-33,89	-34,42	-35,33
611	6587300,	499200,	128,95	979343,75	-32,24	-32,78	-33,32	-33,86	-34,40	-35,32
612	6587400,	499200,	129,69	979343,69	-32,07	-32,61	-33,15	-33,70	-34,24	-35,16
613	6587500,	499200,	129,91	979343,50	-32,11	-32,65	-33,20	-33,74	-34,29	-35,21
614	6587600,	499200,	129,41	979343,31	-32,30	-32,84	-33,39	-33,93	-34,47	-35,39
615	6587700,	499200,	131,03	979343,06	-32,16	-32,70	-33,25	-33,80	-34,35	-35,29
616	6587800,	499200,	131,25	979343,06	-32,06	-32,61	-33,16	-33,71	-34,26	-35,19
617	6587900,	499200,	130,24	979343,13	-32,11	-32,66	-33,20	-33,75	-34,29	-35,22
618	6588000,	499200,	129,46	979342,31	-33,01	-33,55	-34,09	-34,64	-35,18	-36,10
139	6584000,	490000,	146,56	979340,25	-34,19	-34,80	-35,42	-36,03	-36,64	-37,69
138	6584000,	490100,	146,89	979339,94	-34,44	-35,05	-35,67	-36,28	-36,90	-37,95
137	6584000,	490200,	147,70	979340,00	-34,16	-34,77	-35,39	-36,01	-36,63	-37,68
136	6584000,	490300,	148,36	979340,06	-33,97	-34,59	-35,21	-35,83	-36,46	-37,51
135	6584000,	490400,	149,20	979339,81	-34,07	-34,69	-35,32	-35,94	-36,57	-37,63
134	6584000,	490500,	150,29	979339,75	-33,84	-34,47	-35,10	-35,73	-36,36	-37,44
133	6584000,	490600,	151,20	979339,81	-33,61	-34,25	-34,88	-35,51	-36,15	-37,23
132	6584000,	490700,	152,89	979339,69	-33,37	-34,01	-34,65	-35,29	-35,93	-37,02
131	6584000,	490800,	151,62	979340,13	-33,20	-33,83	-34,47	-35,10	-35,74	-36,82
130	6584000,	490899,	151,75	979339,69	-33,60	-34,24	-34,87	-35,51	-36,14	-37,23
129	6584000,	491000,	151,78	979339,56	-33,69	-34,33	-34,97	-35,60	-36,24	-37,32
128	6584000,	491100,	152,32	979339,69	-33,45	-34,09	-34,73	-35,37	-36,01	-37,09
127	6584000,	491200,	152,97	979339,69	-33,36	-34,00	-34,64	-35,28	-35,93	-37,02
126	6584000,	491300,	153,46	979339,75	-33,15	-33,79	-34,44	-35,08	-35,72	-36,82
125	6584000,	491400,	154,66	979339,56	-33,06	-33,71	-34,35	-35,00	-35,65	-36,75
124	6584000,	491500,	155,60	979339,88	-32,55	-33,20	-33,85	-34,50	-35,16	-36,26
123	6584000,	491600,	153,64	979340,06	-32,84	-33,48	-34,13	-34,77	-35,41	-36,51
122	6584000,	491700,	153,56	979339,88	-33,04	-33,68	-34,32	-34,97	-35,61	-36,70
121	6584000,	491800,	153,15	979340,38	-32,61	-33,25	-33,90	-34,54	-35,18	-36,27
120	6584000,	491900,	152,70	979340,50	-32,56	-33,20	-33,84	-34,48	-35,12	-36,21
119	6584000,	492000,	151,92	979340,56	-32,67	-33,31	-33,94	-34,58	-35,22	-36,30
118	6584000,	492100,	151,28	979340,38	-33,03	-33,67	-34,30	-34,93	-35,57	-36,65
117	6584000,	492200,	150,69	979340,25	-33,25	-33,88	-34,52	-35,15	-35,78	-36,85
116	6584000,	492300,	149,87	979339,69	-34,01	-34,64	-35,26	-35,89	-36,52	-37,59
099	6584000,	492400,	149,20	979339,75	-34,07	-34,70	-35,33	-35,95	-36,58	-37,64
114	6584000,	492500,	149,09	979340,00	-33,84	-34,47	-35,09	-35,72	-36,34	-37,41
113	6584000,	492600,	149,64	979340,19	-33,58	-34,21	-34,84	-35,46	-36,09	-37,16
112	6584000,	492700,	150,40	979340,38	-33,23	-33,86	-34,49	-35,12	-35,75	-36,82
111	6584000,	492800,	150,63	979340,63	-32,90	-33,54	-34,17	-34,80	-35,43	-36,50
110	6584000,	492900,	148,84	979341,06	-32,89	-33,51	-34,13	-34,76	-35,38	-36,44
109	6584000,	493000,	147,83	979341,25	-32,92	-33,54	-34,16	-34,78	-35,40	-36,45
108	6584000,	493100,	146,23	979341,63	-32,87	-33,48	-34,10	-34,71	-35,32	-36,36
107	6584000,	493200,	144,66	979342,00	-32,87	-33,47	-34,08	-34,69	-35,29	-36,32
106	6584000,	493300,	143,96	979342,06	-32,97	-33,58	-34,18	-34,78	-35,39	-36,41
105	6584000,	493400,	143,08	979342,06	-33,11	-33,71	-34,31	-34,91	-35,51	-36,53
104	6584000,	493500,	142,34	979342,38	-32,98	-33,58	-34,18	-34,77	-35,37	-36,38
103	6584000,	493600,	141,52	979342,63	-32,94	-33,54	-34,13	-34,72	-35,32	-36,33
102	6584000,	493700,	140,70	979342,81	-32,94	-33,53	-34,11	-34,70	-35,29	-36,30
101	6584000,	493800,	140,17	979343,00	-32,86	-33,45	-34,04	-34,62	-35,21	-36,21
100	6584000,	493900,	140,03	979343,00	-32,87	-33,45	-34,04	-34,63	-35,21	-36,21

099 6584000, 494000, 140,12 979342,94 -32,93 -33,52 -34,11 -34,69 -35,28 -36,28
098 6584000, 494100, 140,47 979342,63 -33,14 -33,73 -34,32 -34,91 -35,50 -36,50
097 6584000, 494200, 141,07 979342,44 -33,20 -33,79 -34,38 -34,97 -35,56 -36,57
096 6584000, 494300, 141,99 979342,25 -33,22 -33,81 -34,41 -35,00 -35,60 -36,61
095 6584000, 494400, 142,95 979342,31 -32,94 -33,54 -34,14 -34,73 -35,33 -36,35
094 6584000, 494500, 142,45 979342,13 -33,21 -33,81 -34,40 -35,00 -35,60 -36,61
093 6584000, 494600, 141,58 979342,38 -33,18 -33,78 -34,37 -34,96 -35,56 -36,57
092 6584000, 494700, 140,95 979342,75 -32,94 -33,53 -34,12 -34,71 -35,30 -36,31
091 6584000, 494800, 140,31 979342,69 -33,13 -33,72 -34,31 -34,90 -35,49 -36,49
090 6584000, 494900, 139,07 979342,69 -33,38 -33,96 -34,54 -35,13 -35,71 -36,70
089 6584000, 495000, 138,19 979343,06 -33,20 -33,78 -34,36 -34,94 -35,52 -36,50
088 6584000, 495100, 137,86 979343,06 -33,27 -33,84 -34,42 -35,00 -35,58 -36,56
087 6584000, 495200, 137,86 979343,25 -33,13 -33,70 -34,28 -34,86 -35,44 -36,42
086 6584000, 495300, 138,88 979343,06 -33,05 -33,64 -34,22 -34,80 -35,38 -36,37
085 6584000, 495400, 140,67 979342,88 -32,83 -33,42 -34,01 -34,60 -35,19 -36,19
084 6584000, 495500, 143,49 979342,56 -32,52 -33,13 -33,73 -34,33 -34,93 -35,95
083 6584000, 495600, 145,64 979342,06 -32,57 -33,18 -33,79 -34,40 -35,01 -36,05
082 6584000, 495700, 142,38 979342,44 -32,91 -33,50 -34,10 -34,70 -35,29 -36,31
081 6584000, 495800, 140,42 979342,63 -33,14 -33,73 -34,31 -34,90 -35,49 -36,49
080 6584000, 495900, 141,17 979342,31 -33,34 -33,93 -34,52 -35,11 -35,70 -36,71
001 6584000, 496000, 146,15 979341,63 -32,92 -33,53 -34,14 -34,76 -35,37 -36,41
051 6584000, 496100, 139,53 979342,94 -33,06 -33,64 -34,23 -34,81 -35,40 -36,39
050 6584000, 496200, 136,66 979343,50 -33,14 -33,71 -34,28 -34,86 -35,43 -36,40
049 6584000, 496300, 133,40 979344,31 -33,04 -33,60 -34,16 -34,72 -35,28 -36,23
048 6584000, 496400, 131,44 979344,69 -33,08 -33,63 -34,18 -34,73 -35,28 -36,22
047 6584000, 496500, 136,91 979343,63 -32,95 -33,53 -34,10 -34,67 -35,25 -36,22
046 6584000, 496600, 130,15 979344,88 -33,16 -33,71 -34,26 -34,80 -35,35 -36,27
045 6584000, 496700, 126,33 979345,56 -33,36 -33,89 -34,42 -34,95 -35,48 -36,38
044 6584000, 496800, 124,72 979345,94 -33,32 -33,85 -34,37 -34,89 -35,42 -36,30
043 6584000, 496900, 122,97 979346,25 -33,38 -33,89 -34,41 -34,92 -35,44 -36,32
042 6584000, 497000, 122,74 979346,25 -33,47 -33,99 -34,50 -35,01 -35,53 -36,40
041 6584000, 497100, 122,77 979346,13 -33,55 -34,06 -34,57 -35,09 -35,60 -36,48
040 6584000, 497200, 122,62 979346,25 -33,50 -34,01 -34,53 -35,04 -35,56 -36,43
039 6584000, 497300, 126,20 979345,31 -33,60 -34,13 -34,66 -35,18 -35,71 -36,61
038 6584000, 497400, 124,21 979345,63 -33,75 -34,27 -34,79 -35,31 -35,83 -36,71
037 6584000, 497500, 121,49 979346,19 -33,77 -34,28 -34,79 -35,30 -35,81 -36,67
036 6584000, 497600, 121,48 979346,31 -33,68 -34,19 -34,70 -35,21 -35,72 -36,59
035 6584000, 497700, 121,38 979346,19 -33,82 -34,33 -34,84 -35,34 -35,85 -36,72
034 6584000, 497800, 121,37 979346,19 -33,81 -34,32 -34,83 -35,34 -35,85 -36,71
033 6584000, 497900, 121,36 979346,25 -33,76 -34,27 -34,78 -35,29 -35,80 -36,66
032 6584000, 498000, 121,34 979346,38 -33,65 -34,16 -34,66 -35,17 -35,68 -36,55
031 6584000, 498100, 121,34 979346,25 -33,74 -34,25 -34,76 -35,26 -35,77 -36,64
030 6584000, 498200, 121,32 979346,31 -33,71 -34,22 -34,73 -35,24 -35,75 -36,61
029 6584000, 498300, 121,30 979346,25 -33,76 -34,27 -34,78 -35,28 -35,79 -36,66
028 6584000, 498400, 121,30 979346,31 -33,69 -34,20 -34,71 -35,22 -35,72 -36,59
027 6584000, 498500, 121,26 979346,31 -33,70 -34,21 -34,72 -35,22 -35,73 -36,60
026 6584000, 498600, 121,28 979346,44 -33,59 -34,10 -34,61 -35,12 -35,63 -36,49
025 6584000, 498700, 121,29 979346,44 -33,60 -34,11 -34,62 -35,13 -35,64 -36,50
024 6584000, 498800, 121,25 979346,75 -33,26 -33,77 -34,28 -34,78 -35,29 -36,16
023 6584000, 498900, 121,37 979346,75 -33,27 -33,78 -34,29 -34,80 -35,31 -36,17
022 6584000, 499000, 121,35 979346,75 -33,26 -33,77 -34,28 -34,78 -35,29 -36,16
021 6584000, 499100, 121,57 979346,63 -33,33 -33,84 -34,35 -34,86 -35,37 -36,24
002 6584000, 499200, 123,28 979346,25 -33,35 -33,86 -34,38 -34,90 -35,41 -36,29
003 6584000, 499300, 123,84 979346,38 -33,10 -33,62 -34,14 -34,66 -35,17 -36,06
004 6584000, 499400, 124,51 979346,50 -32,81 -33,33 -33,85 -34,37 -34,89 -35,78
005 6584000, 499500, 126,98 979346,13 -32,64 -33,17 -33,71 -34,24 -34,77 -35,68
006 6584000, 499600, 127,15 979346,75 -31,97 -32,50 -33,03 -33,57 -34,10 -35,00
007 6584000, 499700, 128,30 979346,94 -31,54 -32,08 -32,61 -33,15 -33,69 -34,60
008 6584000, 499800, 129,52 979346,69 -31,52 -32,06 -32,61 -33,15 -33,69 -34,61
009 6584000, 499900, 132,35 979345,63 -31,92 -32,48 -33,03 -33,59 -34,14 -35,08

010	6584000,	500000,	132,46	979345,81	-31,74	-32,30	-32,85	-33,41	-33,96	-34,91
011	6584000,	500100,	133,33	979345,88	-31,47	-32,03	-32,59	-33,14	-33,70	-34,65
012	6584000,	500200,	134,47	979345,75	-31,37	-31,93	-32,49	-33,06	-33,62	-34,58
013	6584000,	500300,	132,22	979346,38	-31,21	-31,77	-32,32	-32,88	-33,43	-34,37
014	6584000,	500400,	131,70	979346,69	-31,05	-31,60	-32,16	-32,71	-33,26	-34,20
015	6584000,	500500,	128,61	979347,44	-30,95	-31,49	-32,03	-32,57	-33,11	-34,03
016	6584000,	500600,	123,33	979348,63	-30,93	-31,44	-31,96	-32,48	-32,99	-33,87
017	6584000,	500700,	120,73	979349,56	-30,57	-31,07	-31,58	-32,09	-32,59	-33,45
018	6584000,	500800,	120,71	979349,56	-30,55	-31,06	-31,56	-32,07	-32,57	-33,43
019	6584000,	500900,	120,66	979349,69	-30,46	-30,96	-31,47	-31,97	-32,48	-33,34
020	6584000,	501000,	120,60	979349,88	-30,26	-30,77	-31,27	-31,78	-32,29	-33,14

APPENDIX III

BED ROCK SAMPLE LEDGER - SOUTH LAKE TIN MINE GRID

SAMPLE NOS. 698101 - 698160

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

TENEMENT MTEBA EL1315 — GEOCHEMICAL SOIL SAMPLING LEDGER — Page No. 1

AREA/PROSPECT South Lake Tin Mine Grid — SAMPLE Nos. 698144, 698101–698109 — D.P.O. No. 20167, 37529

PLAN REFERENCE SAa 118 — GEOLOGIST D.K., D.C.P. — DATE 12-9-77, 21-3-88

A 9006 — ANALYSED BY ANALABS AMDEL

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	Sn	W	Mo	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Au	
0/200N	698144										✓		6	<10	<4	10	13	42	9	6	<10	90	<1	<0.008	Yellow sand textured granitoid.
0/250N	698101										✓		14	<10	<4	9	42	29	23	9	40	130	<1	<0.008	Limonitic & red brown stained qtz fels peg (deeply weathered)
0/300N	102										✓		4	<10	4	6	15	20	9	5	10	70	<1	<0.008	Hard pink qtz fels granitoid.
0/350N	103										✓		<4	<10	<4	6	9	11	6	1	10	30	<1	<0.008	Cream-pink - hard granitoid.
0/400N	104										✓		<4	<10	<4	27	34	35	37	24	190	250	1	<0.008	Coarse grained qtz fels pegmatoid & intense red brown stain - deeply weathered.
0/450N	105										✓		<4	<10	<4	33	17	14	7	3	30	90	<1	<0.008	Deeply weathered qtz fels - coarse grained granitoid. white colour.
0/500N	106										✓		8	<10	<4	6	14	12	7	3	30	110	<1	<0.008	Deeply weathered pink-cream qtz fels granitoid.
0/550N	107										✓		8	<10	4	11	13	25	4	2	10	120	<1	<0.008	Deeply weathered even grained fine granitoid unlaminated cream colour.
0/600N	108										✓		16	<10	<4	9	30	25	14	5	30	100	<1	<0.008	Deeply weathered grey granitoid & red brown spots.
0/650N	698109										✓		<4	<10	6	6	11	13	3	2	30	80	<1	<0.008	Deeply weathered grey granitoid & red brown spots.

Page No. 2

TENEMENT MT EBA EL1315 — GEOCHEMICAL SOIL SAMPLING LEDGER — D.P.O. No. 20167, 37529

AREA/PROSPECT SOUTH LAKE TIN MINE GRID — SAMPLE Nos. 698110 - 698118 — GEOLOGIST D.K DCP — DATE 12-9-77, 21-3-88

PLAN REFERENCE SA a 118 — ANALYSED BY ANALABS AMDEL

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	Sn	W	Mo	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Au	
0/700N	698110										✓		18	<10	<4	6	11	11	6	5	20	90	<1	<0.008	Coarse grained weathered fels granitoid.
0/750N	111										✓		6	<10	<4	2	13	13	7	3	20	90	<1	<0.008	Cream granitoid medium grained ē tinge of pink.
0/800N	112										✓		8	35	<4	35	13	11	5	3	30	90	<1	<0.008	Cream medium - coarse grained qtz fels granitoid ē red & yellow Fe staining.
0/850N	113										✓		4	<10	4	51	32	39	14	11	90	150	<1	<0.008	Deeply weathered kaolinised coarse grained granitoid ē red Fe staining.
0/900N	114										✓		6	<10	<4	30	22	26	3	2	20	50	<1	<0.008	Deeply weathered kaolinised coarse grained cream & red brown granitoid.
0/950N	115										✓		8	<10	<4	8	9	9	3	1	10	50	<1	<0.008	Deeply weathered kaolinised cream coarse grained granitoid
0/1000N	116										✓		6	<10	<4	7	15	22	3	1	10	50	<1	<0.008	Fine grained deeply weathered granitoid.
0/1050N	117										✓		4	<10	<4	7	11	19	7	3	10	90	<1	<0.008	Coarse grained cream green granitoid.
0/1100N	698118										✓		8	<10	<4	33	56	33	22	15	40	140	<1	<0.008	Fine grained grey glutinous mud after granitoid.

TENEMENT MTEBA EL1315 — GEOCHEMICAL SOIL SAMPLING LEDGER — Page No. 3

AREA/PROSPECT SOUTH LAKE TIN MINE GRID — SAMPLE Nos. 698119- 698129 — D.P.O. No. 20167, 37529

PLAN REFERENCE SA0118 — GEOLOGIST D.K D.C.P — DATE 12-9-77, 21-3-88

A 9006 — ANALYSED BY ANALABS AMDEL

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	Sn	W	Mo	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Au	
300W/200N	698119										✓		<4	<10	<4	9	11	12	2	2	<10	50	<1	<0.008	Cream coarse grained deeply weathered granitoid.
300W/250N	120										✓		4	<10	<4	7	9	11	2	2	10	70	<1	<0.008	White kaolinised granitoid.
300W/300N	121										✓		4	<10	<4	7	13	15	7	5	40	110	<1	<0.008	White kaolinised granitoid - deeply weathered.
300W/350N	122										✓		<4	<10	<4	17	15	12	9	5	30	70	<1	<0.008	Coarse grained kaolinised red brown speckled white granitoid.
300W/400N	123										✓		<4	<10	<4	9	9	6	1	1	10	40	<1	<0.008	Coarse grained white granitoid.
300W/450N	124										✓		10	<10	10	44	7	63	12	20	250	360	<1	<0.008	Deeply weathered mottled intense red brown & cream granitoid.
300W/500N	125										✓		6	<10	<4	12	15	15	6	3	20	160	4	<0.008	Cream deeply weathered granitoid & limonit spotting.
300W/550N	126										✓		4	<10	6	14	30	21	11	6	30	250	<1	<0.008	Deeply weathered cream granitoid & limonite spotting & some red brown staining.
300W/600N	127										✓		4	<10	<4	33	51	50	35	23	120	180	<1	<0.008	Deep red brown stained kaolinised granitoid
300W/650N	128										✓		<4	<10	<4	7	32	18	11	6	10	110	<1	<0.008	Highly siliceous pink fels granitoid.
300W/700N	698129										✓		<4	<10	<4	27	21	11	7	3	20	130	<1	<0.008	Mottled cream, red & yellow. granitoid - not completely kaolinised

0214

TENEMENT MT EBA EL1315 — GEOCHEMICAL SOIL SAMPLING LEDGER — Page No. 4

AREA/PROSPECT SOUTH LAKE TIN MINE GRID SAMPLE Nos. 698130 - 698139 — D.P.O. No. 20167 37529

PLAN REFERENCE SA0118 — GEOLOGIST D.K, D.C.P DATE 12-9-77, 21-3-88

A 9006 — ANALYSED BY ANALABS, AMDEL

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	Sn	W	Mo	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Au	
300W/750N	698130										✓		4	<10	<4	9	19	17	6	5	30	170	4	<0.008	Kaolinised pale grey granitoid.
300W/800N	131										✓		95	25	<4	540	34	15	6	3	70	70	<1	<0.008	Well laminated fine grained cream feldspathic granitoid. Strike 55° dip 70°W.
300W/850N	132										✓		8	<10	<4	38	15	16	2	1	20	70	<1	<0.008	Coarse grained qtz fels granitoid cream colour - resistant to weathering.
300W/900N	133										✓		<4	<10	<4	9	17	16	4	3	10	110	<1	<0.008	White kaolinised coarse grained qtz fels granitoid.
300W/950N	134										✓		6	<10	<4	14	13	11	3	3	10	70	<1	<0.008	White kaolinised coarse grained qtz fels granitoid.
300W/1000N	135										✓		6	<10	<4	7	11	10	1	1	10	100	<1	<0.008	White qtz fels granitoid resistant to weathering.
300W/1050N	136										✓		4	<10	<4	4	11	8	4	2	10	70	<1	<0.008	White kaolinised coarse grained granitoid.
300W/1100N	137										✓		6	<10	<4	12	16	19	11	4	20	70	<1	<0.008	White kaolinised coarse grained granitoid.
300W/150N	138										✓		<4	<10	<4	12	5	4	2	1	10	10	<1	<0.008	White kaolinised coarse grained granitoid.
300W/100N	698139										✓		6	<10	<4	13	87	33	11	5	40	70	<1	<0.008	White kaolinised coarse grained granitoid & limonite mottling.

TENEMENT MT EBA EL1315 — GEOCHEMICAL SOIL SAMPLING LEDGER — Page No. 3

AREA/PROSPECT SOUTH LAKE TIN MINE GRID — SAMPLE Nos. 698140 - 698143, 698145 - 698151 — D.P.O. No. 20167, 37529

PLAN REFERENCE SA118 — GEOLOGIST D.K., D.C.P. — DATE 12-9-77, 21-3-88

A 9006 — ANALYSED BY ANALABS AMDEL

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	Sn	W	Mo	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Au	
300W/50N	698140										✓		<4	<10	<4	17	7	11	4	6	10	70	<1	<0.008	White kaolinised granitoid.
300W/00	141										✓		<4	<10	<4	9	72	51	46	21	180	70	<1	<0.008	Mottled red, brown & grey qtz fels granitoid.
300W/50S	142										✓		<4	<10	<4	12	39	52	41	13	100	110	<1	<0.008	Highly quartzitic mottled red, yellow & brown granitoid.
300W/100S	143										✓		<4	<10	<4	9	64	28	37	18	90	130	<1	<0.008	Highly limonitic stained qtz fels granitoid - some qtz veins.
300E/250N	145										✓		<4	<10	<4	27	67	51	54	27	140	370	<1	<0.008	Khaki & red brown mottled clay & qtz - some black staining.
300E/300N	146										✓		<4	<10	<4	7	17	14	16	2	10	70	<1	<0.008	Hard pink granitoid & foliation defined by qtz biebs - o/c strike 65°
300E/350N	147										✓		44	<10	<4	9	19	13	9	3	10	130	<1	<0.008	Qtz sand below lake mud sediments. Depth 15cm.
300E/400N	148										✓		8	<10	<4	12	20	19	10	5	10	160	<1	<0.008	Cream & pink qtz fels medium grained granulite.
300E/450N	149										✓		26	<10	<4	4	17	29	8	3	<10	100	<1	<0.008	Qtz pink fels granulite.
300E/500N	150										✓		10	<10	4	12	15	11	14	4	10	100	<1	<0.008	Coarse grained pink & cream peg very siliceous.
300E/550N	698151										✓		410	10	6	14	22	18	11	10	50	190	<1	<0.008	Mottled red, brown & cream qtz fels granitoid.

0216

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TENEMENT MTEBA EL1315

GEOCHEMICAL SOIL SAMPLING LEDGER

D.P.O. No. 20167, 37529

AREA/PROSPECT SOUTH LAKE TIN MINE GRID SAMPLE Nos. 698152 - 698160

GEOLOGIST D.K., D.C.P. DATE 12-9-77, 21-3-88

PLAN REFERENCE SAa118

ANALYSED BY ANALABS AMDEL

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	Sn	W	Mo	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Au	
300E/600N	698152										✓		6	<10	<4	14	7	8	5	1	10	50	<1	<0.008	Coarse grained pink & cream granitoid - very siliceous.
300E/650N	153										✓		560	<10	10	14	15	13	7	4	50	70	<1	<0.008	Very decomposed sand & red brown mottling.
300E/700N	154										✓		4	<10	8	12	32	17	14	6	40	130	<1	<0.008	Red brown clay.
300E/750N	155										✓		10	<10	4	7	17	10	5	2	20	50	<1	<0.008	Very decomposed sand underlain by red brown clay.
300E/800N	156										✓		<4	<10	<4	29	112	78	88	29	160	270	<1	<0.008	Qtz fels granitoid - medium grain size - khaki colour - deeply weathered.
300E/150N	157										✓		<4	<10	6	33	59	130	33	29	60	900	<1	<0.008	Deeply weathered mottled cream yellow clay after granitoid & some black staining.
300E/100N	158										✓		<4	<10	<4	12	28	30	13	8	30	110	<1	<0.008	Limonite stained qtz fels granitoid medium to coarse grained.
300E/50N	159										✓		4	<10	<4	17	59	110	31	20	30	180	<1	<0.008	Limonite stained qtz fels granitoid as above.
300E/00	698160										✓		8	<10	4	24	140	33	79	73	200	880	<1	<0.008	Fine grained quartzo feldspathic rock deeply weathered khaki yellow & minor red & black staining.

APPENDIX IV

PETROLOGICAL REPORT - I.R. PONTIFEX & ASSOC.

REPORT NO. 5222 & 5268

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

0218

Pontifex & Associates Pty. Ltd.

TEL. (08) 332 6744
A.H. (08) 31 3816
FAX (08) 332 5062

26 KENSINGTON ROAD, ROSE PARK
SOUTH AUSTRALIA

P.O. BOX 91, NORWOOD
SOUTH AUSTRALIA 5067

MINERALOGICAL REPORT NO. 5222

18th April, 1988

TO:	D.C. Palmer / W. H. Johnston CRA Exploration Pty Ltd 31 Osmond Terrace NORWOOD SA 5067
COPY TO:	CRA Exploration Pty Ltd 31 Osmond Terrace NORWOOD SA 5067 Attention: L. D. Kennedy Chief Geologist, Information Services CRA Exploration Pty Ltd PO, Box 656, FYSHWICK A.C.T. 2609
YOUR REFERENCE:	DPO No 37530
MATERIAL	Rock Samples
IDENTIFICATION:	1164119, 4120, 4122 1164130, 142, 145
WORK REQUESTED:	Thin section preparation, description, comments as requested.
SAMPLES & SECTIONS:	Returned to you with this report.

Ian R. Pontifex
PONTIFEX & ASSOCIATES PTY LTD

COMMENTS

The six samples submitted are described from thin section; each rock is given a name, and comments are made in the descriptions on genesis and comparisons within the suite as appropriate.

Meaningful comments on the suite as a whole are difficult without some knowledge of the field setting. However, the petrography suggests:

1. The dark green rocks 1164120 and 1164142 appear to have a similar genesis of metamorphosed fine basic igneous rocks (? microdolerite), uralitically altered during or after metamorphism, partly along microfractures, and more advanced in 1164120 than in 1164142.

2. Sampling 1164119 is a microadamellite, weakly to moderately metamorphically recrystallised; 116145 is a coarser 'adamellite' with advance sericite + lesser fine chlorite alteration of plagioclase and quartz; also partly recrystallised.

3. Sample 1194112 is a muscovite-'adamellite', with minor fluorite but not metamorphically deformed. Sample 1194130 is a biotite-aplite, with accessory ?cordierite, also essentially undeformed. These rocks may be post-metamorphism; their accessory phases suggests that they are not genuine primary-igneous granitoids.

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1164119 Low-grade breccia (regionally) metamorphosed, and moderately recrystallised micro-adamellite.

This is a homogeneous pinkish quartzo-felspathic rock, with a weakly metamorphically layered, granoblastic texture. The layering is due largely to a common direction of elongation of the quartz grains, rather than a discernible compositional layering.

This metamorphic mosaic is inequigranular (0.1mm to 2mm maximum dimension), and consists of intricately intergrown:

	approx % abundance
quartz	35 - 40
plagioclase	30 - 35
k-spar	30 - 35
biotite	3 - 5
zircon	<1

The quartz tends to be coarser, in elongated grains, compared with relatively more granular, but quite coarse plagioclase; and finer k-spar which may also be granular, varying to more or less intergranular, partly as recrystallised micromosaic. (The distribution and abundance of k-spar is highlighted on the offcut, stained yellow by sodium coblaltinitrite).

The felspars show only incipient alteration, to sparse extremely fine clay-sericite. Biotite is localised as small flakes, along possible micro shears or fissures, and altered to clays.

The rock is interpreted as an original micro adamellite moderately metamorphically recrystallised probably under low regional stress conditions.

1164120

Stressed, micro dolerite; complete uralitic alteration of original pyroxene, also veins and stringers of uralite along abundant sub-parallel micro fractures.

This rock has an essentially massive granular aggregate texture, grain size about 1mm, but superimposed upon by a set of parallel, closely spaced stringers-veins apparently along micro fractures. The components are:

	Approx % abundance
plagioclase	35 - 40
uralitic-hornblende (replacing pyroxene?)	30 - 35
uralitic hornblende in veins	15 - 20
disseminated opaque oxides	2 - 3
clay sericite and colourless chlorite	3 - 5

Plagioclase forms a compact aggregate with the uralitic-hornblende replicas probably after original pyroxene crystals, all basically equigranular, but with a weak (relict) ophitic texture. The plagioclase crystals are stressed but not recrystallised, and show minor alteration to clay-sericite $\pm$ rare chlorite.

The subparallel veins and stringers of 'uralite' vary from veins 6mm wide, to braided stringers cutting through plagioclase and merging with the replicas after clinopyroxene. As noted above, these appear to fill fractures rathe than shear planes or true metamorphic foliae, because the plagioclase and altered pyroxene remains basically granulose, rather than attenuated. Also subsidiary veins of uralite occur at random to the prevailing parallel set.

1164122 Medium grained, muscovite adamellite; with minor fluorite.

This rock has a primary igneous texture, an hypidiomorphic granular aggregate, rather inequigranular with a grain size range of 0.5mm to 5mm, and composed of:

	Approx % abundance
quartz	30
plagioclase (some antiperthitic)	25 - 30
k-spar (some perthitic)	30 - 35
muscovite	5 - 7
fluorite	1 - 2
opaque oxides (or oxidised pyrite?)	1 - 2
zircon, apatite	<1

Quartz is the coarsest component in scattered allotriomorphic grains as incipient phenocrysts. K-spar is also quite coarse as subhedral crystals, with fairly complex albitic intergrowths; also with small quartz inclusions fairly common. Plagioclase generally occurs as smaller, subhedral crystals, These felspars show only very incipient alteration, to clay-sericite.

Muscovite occurs as scattered flakes to 2mm size, more or less interstitial to the quartz felspar; it is quite green, partly oxidised and sometimes contains inclusions of fine fluorite. Several small fluorite crystals also occur independently, interstitial. The opaque grains are scattered but locally accompany muscovite and/or fluorite.

The rock is classified as a medium grained muscovite adamellite, possibly of so-called A-type (anorogenic); the lack of metamorphic fabric suggests that it post dates the metamorphism which has effected 1164119, 120 and 142.

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1164130 Massive, leucocratic 'aplite' with minor scattered biotite, accessory very small ?cordierite crystals.

This is a homogeneous, massive, fine grained (<1mm) essentially leucocratic rock, but with scattered dark biotite. The texture is more or less 'aplitic'; intricately micro-sutured intergranular boundaries may be primary, or may represent an incipient recrystallisation, but there is no clear evidence of a genuine metamorphic fabric. The components are:

	Approx % abundance
quartz	40
plagioclase	25
k-spar (microdine and perthitic)	35
biotite	5 - 7
cordierite ?	1 - 2

The quartz and felspars form a microscopically very irregular 'aplitic' aggregate; quartz and (perthitic) k-spar tend to be coarser and more allotriomorphic/subhedral than plagioclase.

Biotite (a brownish to greenish colour) is scattered as flakes or small clusters to 1.5mm, commonly irregular and intergranular to quartz-felspar mosaic. The apparent cordierite occurs as sparse scattered crystals, generally about 0.1mm in size rarely to 0.6mm; the identity of these is difficult to confirm by optics alone.

The presence of probable cordierite suggests that biotite-aplite, has an excess of aluminium, due to incorporation of argillaceous host rock; and indeed the rock may have an anatectic genesis. The apparent lack of a metamorphic fabric suggests that it postdates 1164119, 120, 142.

1164142 Weakly layered, very fine granular 'amphibolite', possible meta-micro-dolerite, broad networks and oblique micro fracture zones, invaded by green fine uralitic alteration.

This compact dark green rock is seen in thin section to have a moderately developed lenticular metamorphic layering and combined, fine schistose/granulose texture. The mineralogy is:

	Approx % abundance
plagioclase	45 - 50
brownish meta-hornblende	20
green uralitic-hornblende	25 - 30
opaque oxides	2 - 3
sericite	5 - 7

About two thirds of the rock consists of lenses of a moderately layered granular aggregate of plagioclase, and brownish-hornblende, which is variably altered to pale green uralite. Grain size is about 0.3mm. Accessory opaque oxides are scattered.

These domains are interpreted as metamorphosed fine grained basic igenous rock, possibly a microdolerite.

These lenses tend to be separated by quite broad networks of relatively concentrated, greenish uralitic material; including an oblique, uralitised zone of thin closely spaced micro-fractures. The uralite alteration permeates from these oblique zones along the layering, partly replacing the brown meta-hornblende.

This rock appears to have a very similar genesis to 1164120; it is finer grained however, and there is more extensive uralitic alteration in 1164120 (and this may have completely replaced an intermediate metamorphic phase of brown hornblende which no longer exists in 1164120.)

1164145

Massive, medium grained 'adamellite'; extensive alteration of plagioclase to extremely fine sericite + chlorite; quartz partly recrystallised.

This rock has a massive original allotriomorphic granular texture, with an average grain size of about 3mm.

Original quartz (35%), appears to be partly recrystallised into subgrain mosaics. Original plagioclase (25%), as individual grains and as (perthitic) intergrowths in k-spar shows extensive alteration to sericite, generally with rare fine chlorite. The k-spar (35%) is only very weakly altered to clays (and clearly highlighted by yellow stain on the offcut).

Minor very small clusters of fine chlorite (3%) appear to represent original biotite, and are accompanied by rare, clouded, titaniferous grains. Rare grains of zircon and of lesser apatite are scattered.

Pontifex & Associates Pty. Ltd.

TEL. (08) 332 6744
A.H. (08) 31 3816
FAX (08) 332 5062

26 KENSINGTON ROAD, ROSE PARK
SOUTH AUSTRALIA

P.O. BOX 91, NORWOOD
SOUTH AUSTRALIA 5067

MINERALOGICAL REPORT NO. 5268

24th June, 1988

TO: S.P. Sugden, W.H. Johnston
CRA Exploration Pty Ltd
31 Osmond Terrace
NORWOOD SA 5067

COPY TO : CRA Exploration Pty Ltd
31 Osmond Terrace
NORWOOD SA 5067
Attention : L.D. Kennedy

Chief Geologist, Information Services
CRA Exploration Pty Ltd
PO, Box 656
FYSWICK ACT 2609

YOUR REFERENCE : DPO No 37593

MATERIAL : Rock Samples

IDENTIFICATION : 919866 to 919874

WORK REQUESTED : Thin section preparation, description, comments as requested.

SAMPLES & SECTIONS : Returned to you with this report.

Ian R. Pontifex

919866

Massive, medium grained (primary) hornblendite, minor intergranular (postcumulus) biotite chloritised; accessory very fine opaque oxides.

This core sample consists essentially of a homogeneous, massive and quite compact aggregate of ragged, anhedral to subhedral hornblende crystals apparently primary, with an optical colour of very pale green, and weakly anisotropic. The size of these crystals ranges from 0.3 mm to 3 mm with a vague layering of relatively coarser and finer domains, and accessory, extremely fine, random opaque oxide inclusions (probably magnetite) occur in some layers.

Finer biotite or phlogopite flakes originally formed about 8% of the aggregate, randomly intergranular to the hornblende, and now completely altered to green chlorite clouded with leucoxenitic dust.

The rock appears to be a primary hornblendite-ultra mafic, conceivably part of a layered sill with the original intergranular biotite/phlogopite being postcumulus.

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919867 Potassic-basalt (ie with fine k-spar throughout the groundmass); micro-porphyritic in clinopyroxene, vesicles occupied by quartz and carbonate.

This is seen in handspecimen as a vesicular and microporphyritic basalt. In thin section, the groundmass is seen as a mass of randomly interlocking micro-laths of plagioclase and of actinolitic-hornblende, also of minor to subordinate k-spar (up to 7% of the rock, highlighted, stained yellow on the offcut stained with sodium cobaltinitrite). Minor basaltic glass altered to chlorite (?palagonite) and very small grains of sphene are also disseminated. The groundmass plagioclase is weakly sericitised.

Phenocrysts range in size from 0.5mm to 3 mm in individual size, locally in coarser clumps, almost all consist of clinopyroxene with variably minor to complete alteration to uralitic-clays. These form up to 15% of the rock.

Vesicles up to 6 mm size (7-10%) are occupied mostly by quartz, partly spherulitic, and in some, the quartz encloses primary calcite crystals. Fine k-spar is commonly relatively concentrated around vesicle boundaries.

A vein of supergene carbonate cuts the rock.

919868

Medium to coarse ultramafic, with irregular cumulus/postcumulus textures indicative of a differentiated layered intrusion (?sill); partly altered but may have been a pyroxenite or a peridotite.

This rock consits of a texturally rather heterogeneous inequigranular aggregate of mafic/ultramafic minerals. Some phases are seen as extensive (6 mm) ragged, poikilitic crystals, probably post-cumulus (in a differentiated sill), and these incorporate and are intergranular to more equant subhedral smaller crystals, loosely aggregated and probably of cumulus origin.

The coarse poikilitic (post-cumulus) mineral is very pale green, with inclined optical extinction, and usually unaltered. It appears to be mostly clino-pyroxene, but minor phlogopite also has this mode of occurrence.

The smaller, equant cumulus crystals are clearer and also appear to be a pyroxene (but a different species). In addition, numerous serpentine pseudomorphs after probable olivine have this same mode of occurrence. Iron oxide dust tends to selectively occur in the cumulus pyroxene crystals, around their boundaries and along cleavages.

The serpentine pseudomorphs may be after olivine or orthopyroxene. Minor fine granular magnetite and lesser pyrite occur along microshears.

The bulk mineralogy indicates an original pyroxenite, or seemingly more likely, a peridotite.

919869

Potassic (trachy) andesite, micro-porphrytic in plagioclase and lesser hornblende; (may be an extrusive or a dykerock, and the k-spar may be secondary.)

Phenocrysts randomly scattered throughout this rock, rarely in clusters, range in size from 0.3 mm to 1.5 mm. These consist mostly of euhedral plagioclase crystals (15-20% of the whole rock), with rarer crystals of primary green hornblende (10%).

The groundmass is very poorly defined because it is so very fine crystalline, but staining the offcut with sodium cobaltinitrite indicate ubiquitous k-spar as an essential component, (and is seen to be virtually cryptocrystalline).

Other groundmass minerals are microlites of plagioclase, and actinolitic-hornblende, lesser biotite, trace apatite and opaque oxide. Trace extremely fine quartz grains are scattered.

Some plagioclase is dusted with sericite $\pm$ trace epidote.

The bulk mineralogy and texture indicates a potassic (trachy) andesite but it is not certain if the k-spar in the groundmass is genuinely primary, (or possibly secondary.)

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919870

Massive, very fine k-spar/albite, hornblende/biotite rock, probably lamprophyre, or lamprophyric-basalt related; minor secondary carbonate, pyrite, trace quartz and epidote.

This rock is rather distinctive within the suite, particularly manifest as abundant, random, small (0.15 mm x 1.5 mm), spicule-like prisms of dark green hornblende (10-12%) and flakes of biotite (10-12%), variably abundant in different parts of the rock.

These occur within a finer groundmass of diffuse microfeathery to almost cryptocrystalline felspar, which optics and staining of the offcut, indicate to be k-spar and albite in variable, patchy abundance.

Carbonate (10-15%) is randomly scattered in poorly defined patches and grains to 1 mm across, and in rare veins carrying fine epidote. Also, very fine epidote (3%) occurs locally in some relative concentrations of biotite (which is partly altered to chloritic-clays). Rare quartz is present and like the carboante and epidote, appears to be 'secondary'.

Abundant euhedral crystals of pyrite (3-5%), 0.3 mm to 1 mm in size are disseminated and there are abundant, random needles of apatite.

The texture and composition of this rock objectively suggests that it is a lamprophyre but the subequal amount of biotite/amphibole and K-spar/albite does not allow a precise sub-classification within the lamprophyre family. However, this rock also has a very similar gross composition as the potassic basalt 919871, and may be an intrusive eqivalent of it.

919871

Vesicular basalt, groundmass particularly rich in k-spar and biotite, probably due to late magmatic potassic enrichment/ alteration (related to 919870)

This is a homogeneous vesicular basalt, and staining of the section offcut with sodium cobaltinitrite indicates extremely fine k-spar as an essential component throughout the groundmass.

Other essential minerals forming this microcrystalline groundmass are : abundant fine biotite ± chloritic clays which appear to very largely replace basaltic-actinolitic-hornblende; (only very rare amphibole remains); also albite; extremely fine needles of apatite; and dispersed minute grains of opaque oxide.

Rare small mafic phenocrysts are replaced by massive, extremely fine, decussate green biotite ± chloritic clays and epidote spots. Accessory pyrite crystals are scattered.

Vesicles form about 12% of the rock; they range in size from fine (0.3 mm) interstitial fillings in the groundmass to ovoid bodies 4 mm across. They are filled mostly by carbonate, rarer quartz and albite and extremely fine decussate green biotite.

This rock is identified basically as a vesicular basalt (which texturally and primarily may relate to 919867). Its composition however, compares more closely with 919870 and there is little doubt that it is related to that rock. In both rocks the extensive biotite and probably the k-spar appear to be due to late metasomatic potash enrichment, together with the late stage carbonate, chloritic-clays and pyrite.

919872

Altered phlogopite-bearing peridotite, with a cumulus/post-cumulus texture, representing a differentiated, layered ultramafic intrusion; abundant fine magnetite (cf. 919868).

This is the same rock type as 919868. It consists of a very irregular, patchy, inequigranular aggregate of :

1. subrounded to elongated 'patches' of extremely fine serpentine, individually 1 mm to 5 mm across and locally grouped as pseudomorphs after probable olivine crystals.....30%

2. subhedral prismatic crystals with a similar size range of apparent original pyroxene, but now largely altered to amphibole and quite densely clouded by extremely fine magnetite. These prisms form patchy loose packed aggregates ± the serpentine pseudomorphs....50%

Both of these components appear to represent cumulus crystals in an ultramafic layered intrusion.

3. Irregular, skeletal, poikilitic patches of dull pale green apparent clino pyroxene and lesser phlogopite occur sporadically between the components (1) and (2) above, as postcumulus phases.....15%

Fine magnetite occurs in irregular clusters in some of the serpentine pseudomorphs, and slightly coarser magnetite, with pyrite and/or pyrrhotite occurs within several carbonate veins filling shears.

919873

Cumulate-textured pyroxenite, almost completely altered to amphibole with extremely fine magnetite; rare pyroxene, also primary postcumulus/intergranular hornblende and phlogopite.

This rock consists very largely of a massive aggregate of (optically) colourless to extremely pale green amphibole. The majority of the crystals are clouded with ultrafine grains of opaque oxide (magnetite) which tends to define a pre-existing pyroxene crystal, which the amphibole now replaces. Some amphibole crystals in fact retain sparse microskeletal relict cores of original (clino)-pyroxene, and there are rare, virtually complete crystals of pyroxene.

The pre-exisiting and rare remaining crystals of pyroxene formed a loose packed granular aggregate, apparently as cumulate crystals.

Post cumulus phases, or skeletal/intergranular/poikilitic crystals are poorly defined. They make-up about 20% of the rock and consist of dull pale greenish (primary) hornblende, and pale phlogopite.

A local shear consists of colourless amphibole, without magnetite dust, and a poorly defined carbonate vein cuts the rock.

This is also an untramafic, apparently an original cumulate pyroxenite, representing a differentiated layer within a intrusive ?sill.

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919874

Breccia of very fine crystalline; amphibole, k-spar-albite lamprophyre-related rock (like 919870), or possible potassic basalt breccia; permeated by deuteric epidote-chlorite matrix.

This thin section, viewed macroscopically, is seen to have a breccia texture, composed of a random very loose packed aggregate of subrounded and corroded-looking pinkish clasts, about 10 mm in size. Extremely fine crystalline greenish material occurs between the clasts.

The clasts have the same composition as the lamprophyre-related rock 919870, but slightly finer crystalline. They consist of abundant spicule-like crystals of biotite and amphibole, randomly disposed through an extremely fine, feathery groundmass of k-spar and albite. Minor very small mafic phenocrysts are replaced by chloritic-clays and there is sparse scattered epidote and leucoxene.

The 'matrix' between the clasts is dominated by fine prismatic and partly micro spherulitic epidote, with interstitial chlorite, apparently as a late-stage, deuteric permeation through the breccia. Objectively, this rock may be interpreted as :

1. a lamprophyre-related rock (like 919870), brecciated, possibly in a breccia-pipe; permeated by deuteric epidote-chlorite; or

2. an unusual potash-felspar-biotite-rich basalt (like 919871), possibly as a flow-breccia, with a deuteric-alteration matrix.

SUMMARY COMMENTS

The nine core samples are described from thin section; quite detailed comments on genesis, comparisons within the suite were justified and are included in most descriptions. A brief summary of these comments follows :

1. Four of the samples are ultramafics, variably altered, but existing and relict cumulus and post cumulus textures indicates that they probably represent various differentiated layers within an ultramafic intrusive (such as a sill). Most of these contain extremely fine magnetite (largely secondary), which renders them distinctly magnetic. Minor iron-sulphides are also present. These four samples and their interpreted genesis are:

   919866 primary hornblendite, minor intergranular (?postcumulus) phlogopite-biotite altered to chlorite.

   919868 peridotite-cumulate; aggregate of granular cumulus grains of pyroxene, and lesser? olivine altered to serpentine ; intergranular/post cumulus phase also pyroxene with lesser phlogopite.

   919872 peridotite cumulate very similar to 919868, but more serpentine (? after olivine).

   919873 pyroxenite cumulate; pyroxene largely altered to amphibole.

2. A second group of apparently related, fine crystalline rocks consist of variable amounts of amphibole, biotite, k-spar, albite.

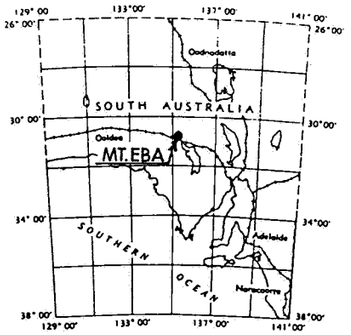
   919870 is the most distinctive of these and is regarded as lamprophyre-related.

   919874 is a fine scale breccia of the 919870 rock type, (possibly a breccia pipe), with a matrix of ?deuteric, fine epidote and chlorite.

   919871 is a vesicular 'basalt', but with a gross composition (but not particularly the same texture) as the lamprophyre-like rocks. It may be a basalt, pervasively altered by the 'lamprophyre' intrusive.

3. Sample 919867 is a vesicular and augite-microporhyritic basalt. Sample 919869 is a potassic (?trachy) andesite, but the extremely fine k-spar throughout the groundmass may be secondary.

LOCALITY



CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 — S.A.
LOCALITY PLAN

REF.	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15		
SCALE	1 : 250000		
AUTHOR	D.C.P.	REPORT	15225
DATE	June '88	PLAN No	SAa 3552

5 0 5 10 15 20 25 Kilometres

1230

0238

CRA EXPLORATION PTY LIMITED

MT. EBA E.L. 1315 — S.A.
LAKE LABYRINTH WEST GRID
GEOLOGY WITH
DRILLHOLE LOCATION - DD87ME1

REF.	KINGOONYA SH 53-11
SCALE	1: 10000
AUTHOR	D.C.P.
DATE	June '88
REPORT	15225
PLAN No	SAa 4450

m 200 100 0 100 200 300 400 500 600 700 800 900 1000m

Salt lake

Salt encrusted sand

Scrub

• DD87ME1 DD88ME2 CRAE DRILLHOLES

660700 mN
660680 mN
660630 mN
660600 mN
660880 mN
660900 mN
660930 mN

503400 mE
503200 mE
503000 mE
502800 mE
502600 mE
502400 mE
502200 mE
502000 mE
501800 mE
501600 mE
501400 mE

DD87ME1
DD88ME2

Salt Lake

AMG North

485000mE
490000mE
495000mE
500000mE
505000mE
30°45'
30°50'
30°55'
31°00'
134°55'
135°00'
6594000mN
6590000mN
6585000mN
6580000mN
6575000mN
6571000mN
6586000mN
6584000mN
496000mE
498000mE
500000mE
494000mE
TARCOOLA 29Km
KINGOONYA 26·5 Km
VERMIN PROOF FENCE
TRANS AUSTRALIAN RAILWAY
Carters Well
Tank (disused)
Earea Dam
Kenella Well
approx. position
approx position
HOPEFUL HILL
SOUTH LAKE
4734
ML 5354
ML 5361
salt
salt lakes

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

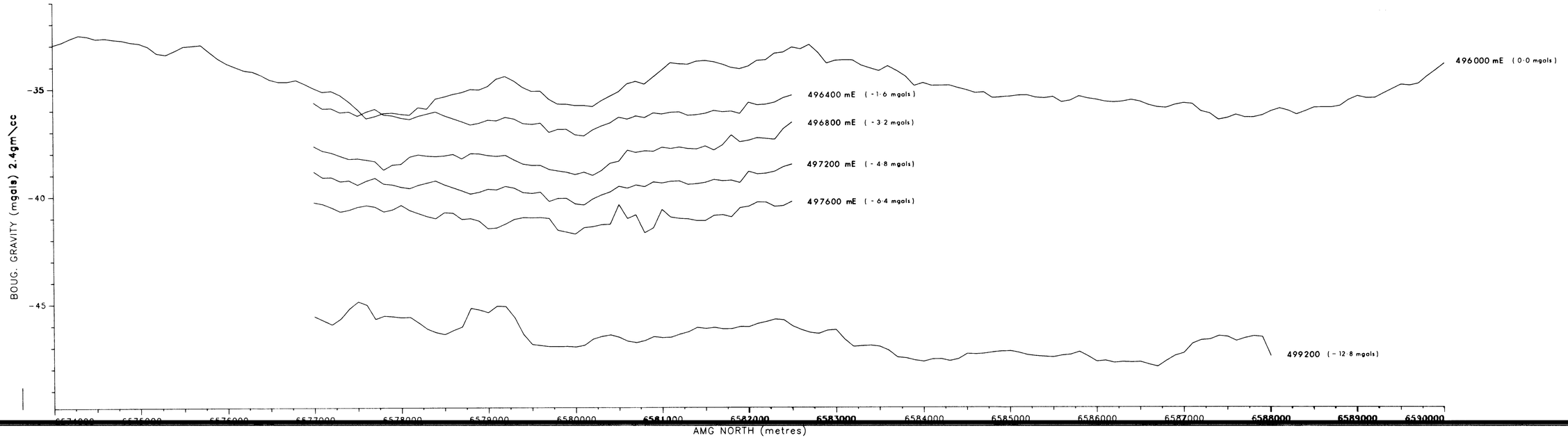
0 5km 10km
1:50 000

6532-19

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT
GRID LOCATION

REF.	TARCOOLA SH 53-10		
SCALE	1:50 000	DRAWN	F.R.
AUTHOR	G.L.M.	REPORT	15225
DATE	June '88	PLAN NO.	SAa 4762



6532-20

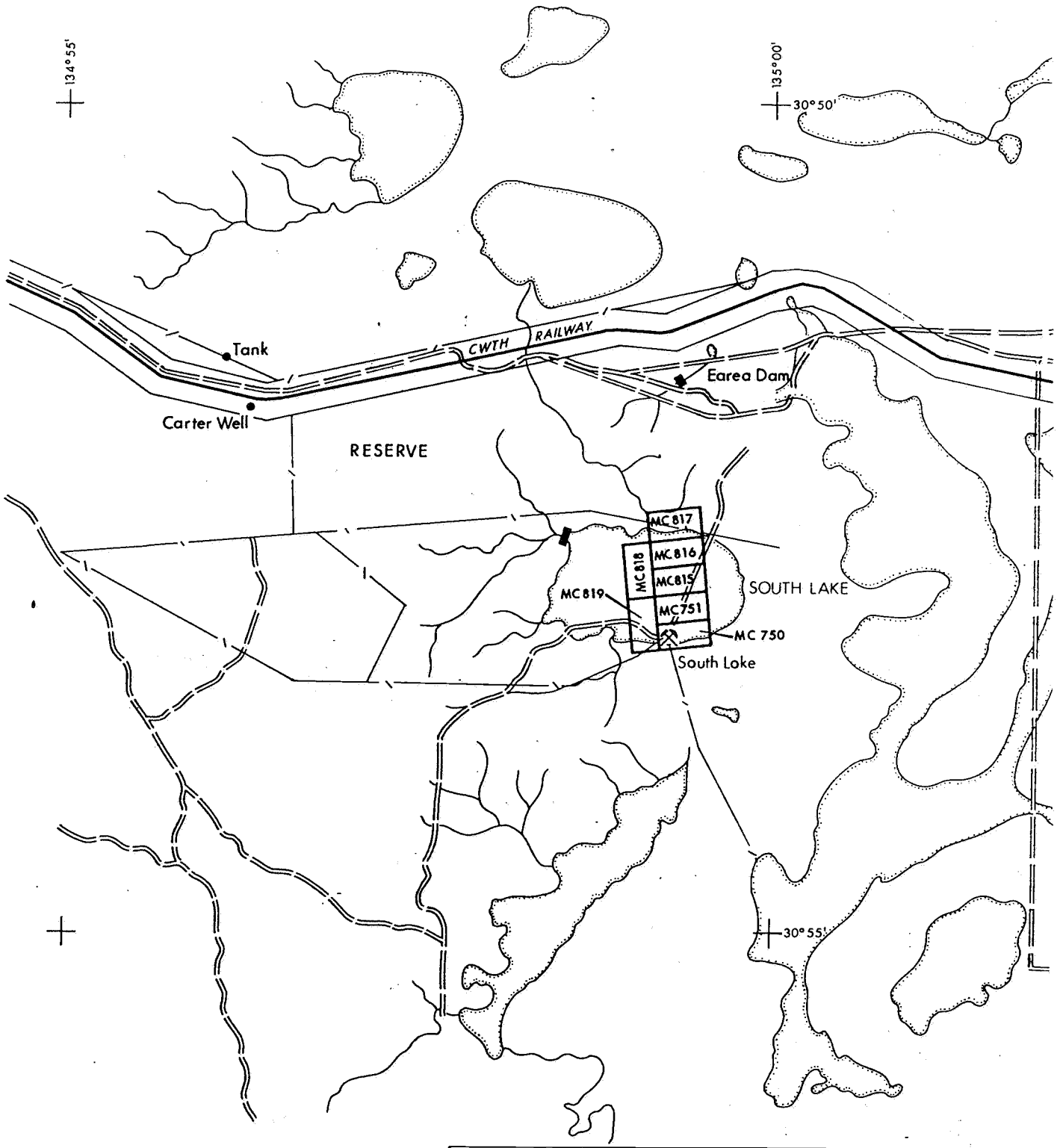
CRA EXPLORATION PTY LTD

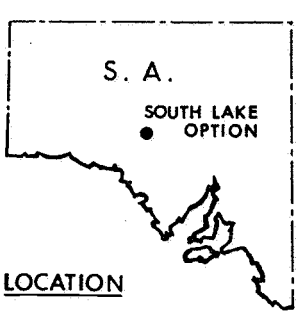
MT EBA E.L. 1315 – S.A.

SOUTH LAKE PROSPECT

STACKED GRAVITY PROFILES

REFERENCE TARCOOLA SH 53-10	
SCALE 1:25000	DRAWN AGMW
AUTHOR AGMW	REPORT 15225
DATE 13 APR 88	PLAN No SAa 4898





C.R.A. EXPLORATION PTY. LIMITED

FIRST SCHEDULE EXPLORATION AREA

SOUTH LAKE OPTION

(C.R.A.E./ PHILIP-HARBUTT)

WILGENA AREA — SOUTH AUSTRALIA

Report No 15225

Ref. TARCOOLA SH 53-10	Scale 1 : 63 360 (1" = 1 mile)
Date 20—7—1977	Plan No SA 385

Sample Number	Sn	W	Mo	Pb	Zn	Cu	Ni	Co	Cr	Mn	Ag	Au
⊙698138	<4	<10	<4	12	5	4	2	1	10	10	<1	<0.008
⊙698139	6	<10	<4	13	87	33	11	5	40	70	<1	<0.008
⊙698140	<4	<10	<4	17	7	11	4	6	10	70	<1	<0.008
⊙698141	<4	<10	<4	9	72	51	46	21	180	70	<1	<0.008
⊙698142	<4	<10	<4	12	39	52	41	18	100	110	<1	<0.008
⊙698143	<4	<10	<4	9	62	28	37	18	80	190	<1	<0.008
⊙698144	6	<10	<4	10	13	42	9	6	<10	80	<1	<0.008
⊙698145	<4	<10	<4	27	67	51	54	27	140	870	<1	<0.008
⊙698146	<4	<10	<4	7	17	14	16	2	10	70	<1	<0.008
⊙698147	14	<10	<4	9	19	13	9	3	10	130	<1	<0.008
⊙698148	8	<10	<4	12	20	19	10	5	10	160	<1	<0.008
⊙698149	26	<10	<4	4	17	29	8	3	40	100	<1	<0.008
⊙698150	10	<10	4	12	15	11	14	4	10	100	<1	<0.008
⊙698151	410	10	6	14	22	18	11	10	50	190	<1	<0.008
⊙698152	6	<10	<4	14	7	8	5	1	10	50	<1	<0.008
⊙698153	560	<10	10	14	15	13	7	4	50	70	<1	<0.008
⊙698154	4	<10	8	12	32	17	14	6	40	130	<1	<0.008
⊙698155	10	<10	4	7	17	10	5	2	20	50	<1	<0.008
⊙698156	<4	<10	<4	25	112	78	88	29	160	270	<1	<0.008
⊙698157	<4	<10	33	59	130	33	29	60	900	<1	<0.008	
⊙698158	<4	<10	<4	12	28	30	13	8	90	110	<1	<0.008
⊙698159	4	<10	<4	17	59	110	31	20	30	180	<1	<0.008
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⊙698163	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
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⊙698184	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698185	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698186	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698187	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698188	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698189	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698190	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698191	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698192	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698193	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698194	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
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⊙698196	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698197	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698198	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698199	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008
⊙698200	4	<10	<4	7	13	11	6	3	10	70	<1	<0.008

No. 2 — Costean number and sample direction.

0 20 40 60 80 100 200 300 m

6532-21

C.R.A. EXPLORATION PTY LIMITED.

SOUTH LAKE AREA. PLAN SHOWING COSTEAN LOCATION AND WEATHERED ROCK SAMPLE LOCATION AND RESULTS.

Geologist: G.D.K.	Scale: 1:2000	Drawn: C.McL.
Report No. 15225	Date: June '88	Plan No.: SAa 118

6590000 mN

490000 mE

495000 mE

500000 mE

505000 mE

MT. EBA E.L. 1315

30° 50'

salt

TRANS AUSTRALIAN RAILWAY

Carters Well

Tank (disused)

Earea Dam

498000 mE

VERMIN FENCE

6586000 mN

4734

ML 5361

ML 5324

6585000 mN

1164144

1164145

6584000 mN

500000 mE

Enlarged Grid See Plan SAa 118

SOUTH LAKE

TIN MINE

1164141 - 1164143

1164139 - 1164140

1164138

AUST. DEV RAB HOLES

1164137

1164119 - 1164120

1164136

1164134 - 1164135

1164133

6580000 mN

30°55'

1164121

1164131

1164132

1164127

1164128

1164123

1164124

1164125

1164126

1164130

1164129

1164122

approx. position

Kenella Well

494000 mE

498000 mE

HOPEFUL HILL

6575000 mN

salt lakes

134°55'

135°00'

31°00'

0 500m 1 2 3 4 5 Km.

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

6532-22

CRA EXPLORATION PTY LIMITED.

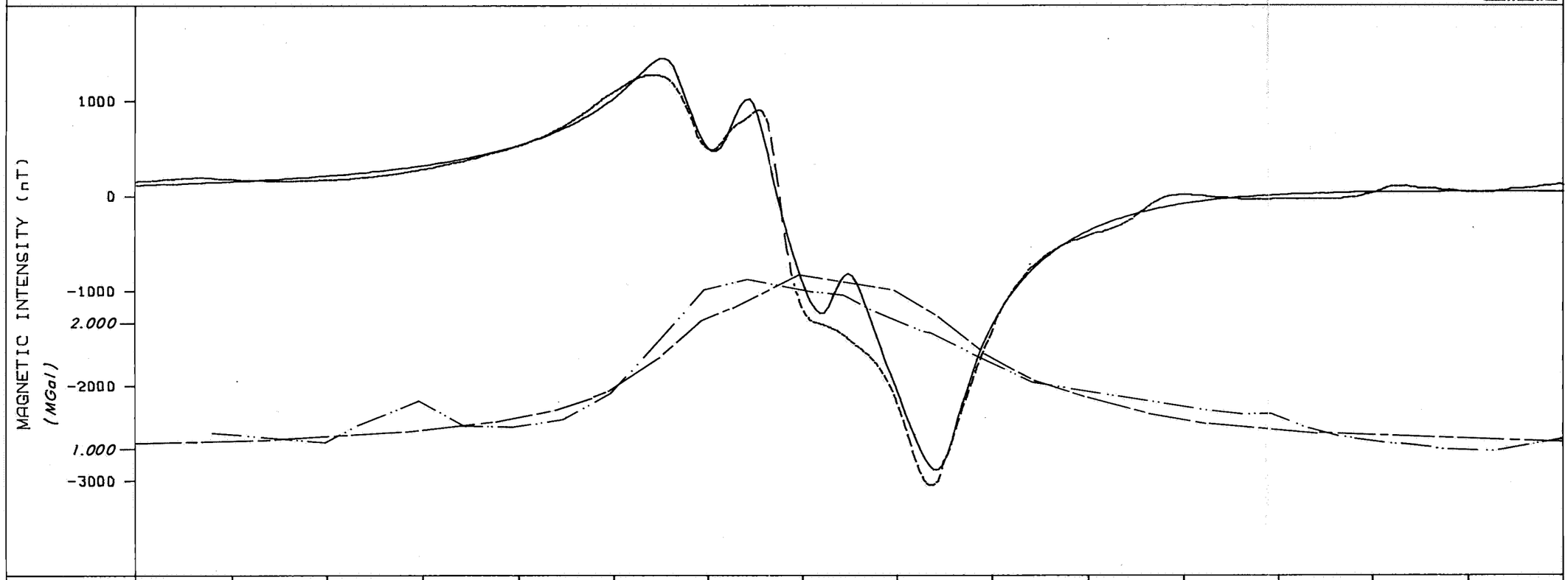
MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT

ROCK SAMPLE LOCATION PLAN

Ref :	TARCOOLA SH 53-10		
Scale	1 : 25000	Drawn	
Author	D.C.P	Report No.	15225
Date	June '88	Plan No	SAa 4894

MT EBA E.L. : Lake Labyrinth Prospect, Line 502200mE

MODEL
OBSERVED



CRA EXPLORATION PTY LIMITED

MT. EBA EL 1315 - S.A.

GRAVITY AND MAGNETIC MODEL
LINE 502200 m E

REF. KINGOONYA SH 53-11	
SCALE 1:10 000	
AUTHOR G.L.M.	REPORT 15225
DATE June '88	PLAN No 4755

OF 20

CRA EXPLORATION PTY. LIMITED

ELEVENTH QUARTERLY REPORT FOR MOUNT EBA EL 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH OCTOBER, 1988

AUTHOR: D.C. PALMER

COPIES TO: SADME
CIS CANBERRA

DATE: 10TH OCTOBER, 1988

SUBMITTED BY: S. C. Mackie

ACCEPTED BY:

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15445

RECEIVED
17 OCT 1988
DEPT. OF MINES AND ENERGY SECURITY

CONTENTS

PAGE

LIST OF PLANS
LIST OF TABLES
LIST OF APPENDICES

1. SUMMARY 1

2. CONCLUSIONS AND RECOMMENDATIONS 1

3. INTRODUCTION 1

4. PREVIOUS WORK 2

5. WORK CARRIED OUT 4

5.1 Lake Labyrinth Prospect 4

5.2 South Lake Prospect 5

EXPENDITURE 7

REFERENCES 8

LOCATION 8

KEYWORDS 8

CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba EL 1315, S.A. - Locality Plan	1:250 000
SAa 4450	Mt. Eba EL 1315, S.A. - Lake Labyrinth West Grid, Geology and Drill Hole Locations	1:100 000
SAa 5004	Mt. Eba EL 1315, S.A. - Lake Labyrinth West Prospect DD88ME2 Drill Hole Logs	1: 500
SAa 4762	Mt. Eba EL 1315, S.A. - South Lake Prospect Grid Location and Extensions	1: 50 000
SAa 4860	Mt. Eba EL 1315, S.A. - South Lake Prospect Grid Ground Magnetics Stacked Profiles	1: 50 000

LIST OF TABLES

Table 1 Summary of Work Completed on Mt. Eba EL 1315

LIST OF APPENDICES

Appendix I Drill Hole Log/Geochemical Assays - DD88ME2

CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED.

1. SUMMARY

During the quarter 6.0 line km of infill magnetics and 8.0 line km of gravity was completed at the South Lake Prospect grid, with the magnetics and gravity data in the process of reduction. Additionally, 4.5 km of SIROTEM traversing was completed over three traverses.

A blockage at 72.0m prevented geophysical logging of drill hole DD88ME2 at Lake Labyrinth Prospect. Geochemical assay results for 116 samples of DD88ME2 drill core grindings were disappointing. Negligible Au, Pd values were returned and no Pt was recorded. A maximum Cu value of 792 ppm was returned from a chloritic/carbonate altered peridotite over 176.00-177.30m. Anomalous Ba, Ce and La values were returned from potassic/carbonate altered basalt related rock types over the intervals 144.65-158.10m and 167.3-172.75m. A significant Cr, Co, Ni and Cu element depletion exists within the two intervals.

2. CONCLUSIONS/RECOMMENDATIONS

A sufficient volume of peridotite was intersected in drill hole DD88ME2 to account for the source of the coincident magnetic/gravity anomaly at Lake Labyrinth West Prospect.

No significant base or precious metal values were returned from DD88ME2 drill core grindings samples, with assay results generally reflecting lithologies encountered. No further work appears warranted at Lake Labyrinth West Prospect.

Recommendations for further work on the South Lake/Kenella Rock Prospects await reduction and interpretation of the magnetic/gravity/TEM data.

3. INTRODUCTION

Mt. Eba EL 1315 is located on the Kingoonya 1:250 000 sheet and adjoining parts of the Tarcoola, Childara and Gairdner 1:250 000 sheets (plan SAa 3552). The licence was granted to CRA Exploration Pty. Limited on 9th January, 1986 for a period of one year, with the latest renewal on 9th January, 1988 for a one year period.

This report details work carried out on Mt. Eba EL 1315 during the eleventh quarter.

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4. PREVIOUS WORK

Past exploration within the immediate area of the EL, by other companies, is summarised in the first quarterly report for Mt. Eba EL 1315 (Sugden, S.P.).

Exploration activity conducted by CRA Exploration on Mt. Eba EL 1315 up to and including the eleventh quarter is summarised in Table 1.

TABLE 1

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1986	Literature Search	SADME Open File	Compilation of previous exploration	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	27 Samples Assayed (19 elements)		1st Qtly Rpt on Mt. Eba EL 1315
1986	145.1 km Ground Magnetics	20 m stations, MP-3 Magneto-meter	Wallabyng Range Prospect	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	33 Samples Assayed (20 elements)	Wallabyng Range	2nd Qtly Rpt on Mt. Eba EL 1315
1986	Detailed Airborne Magnetic/Radio-metric Survey	300 m N/S lines, 80 m terrain clearance	Geoterrex P/L (Contractors)	3rd/4th Qtly Rpt on Mt. Eba EL 1315
1986	Compilation Plans - Outcrop Geology - Radiometrics Anomalies	1:100 000 (SADME Mapping)		3rd Qtly Rpt on Mt. Eba EL 1315
1986	26 km Ground Magnetics	10 m stations, Scintrex MP-3 Magnetometer	Lake Labyrinth West Prospect	4th Qtly Rpt on Mt. Eba EL 1315
1987	Compilation Plan of all Aeromag-netic Surveys	1:100 000		4th Qtly Rpt on Mt. Eba EL 1315
1987	Rock Chip Sampling	11 Samples Assayed	Glenloth Prospect	7th Qtly Rpt on Mt. Eba EL 1315
1987	3 km Gravity	100 m stations; LaCoste & Romberg gravimeter	Lake Labyrinth West Prospect	7th Qtly Rpt on Mt. Eba EL 1315

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TABLE 1

Cont...

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1987	107 km Ground Magnetics	10 m stations; Scintrex MP-3 Magnetometer	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
	65 km Gravity	100 m stations; Lacoste & Romberg gravimeter	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
1987	DD87ME1	Total depth 51.0 m HW tricone chips	Kingoonya Drilling P/L Lake Labyrinth West Prospect	8th Qtly Rpt on Mt. Eba EL 1315
1988	Ground Magnetics Profiles	1:25 000	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Rock Sampling	Petrology (Pontifex & Assoc.)	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	60 Samples Assayed for Au	Reassaying of Bedrock Samples CRAE 1977 South Lake Grid	9th Qtly Rpt on Mt. Eba EL 1315
1988	Stacked Gravity Profiles	1:25 000	South Lake Prospect	10th Qtly Rpt on Mt. Eba EL 1315
1988	DD88ME2	502200mE 6607768mN -60°S Total Depth 302.5 m	Mathews Drilling Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315
	DD88ME2	Petrology (Pontifex & Assoc.) 7 samples	Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	DD88ME2 core grindings 116 samples	Lake Labyrinth West Prospect	11th Qtly Rpt on Mt. Eba EL 1315

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TABLE 1

Cont...

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1988	6.0 km Gravity	3.0km, 50m stns 3.0km, 100m stns LaCoste & Romberg gravimeter	South Lake Prospect Grid	11th Qtly Rpt on Mt. Eba EL 1315
	6.0 km Ground Magnetics	10 m stations Scintrex MP-3 Magnetometer	South Lake Prospect	11th Qtly Rpt on Mt. Eba EL 1315
1988	TEM Survey	4.5km, 3 lines 100m, in-loop RVR SIROTEM	South Lake Prospect/ Kenella Rock	11th Qtly Rpt on Mt. Eba EL 1315

5. WORK CARRIED OUT

5.1 Lake Labyrinth Prospect

The coincident magnetic/gravity anomaly at the Lake Labyrinth West Prospect (plan SAa 4450), was targetted as a possible igneous intrusion or carbonatite.

During the previous quarter, drill hole DD88ME2 collared at 6607768mN on line 502200mE and directed -60° to grid south, was completed at 302.50m (CRAE Report No. 15225). A summary lithological log of drill hole DD88ME2 is as follows:

0	- 72	m	Cover sediments
72	- 94.9	m	Interlayered andesite & peridotite with rare pegmatite bands.
94.9	- 112.88	m	Interlayered peridotite, pyroxenite & basalt with rare felsic pegmatite bands.
112.88	- 134.1	m	Porphyritic andesite with dolerite bands.
134.1	- 146.2	m	Interlayered porphyritic andesite & peridotite.
146.2	- 156.1	m	Carbonate altered porphyritic andesitic basalt.
156.1	- 158.1	m	Andesite.
158.1	- 167.3	m	Carbonate altered peridotite.
167.3	- 170.7	m	Carbonate altered andesitic basalt with gneiss xenoliths.
170.7	- 182.2	m	Carbonate altered peridotite with pegmatite bands.
182.2	- 199.3	m	Chlorite altered peridotite with felsic pegmatite bands.
199.3	- 302.5	m	Peridotite with felsic pegmatite bands, and rare dolerite.

Total Depth 302.50 m

A blockage at 72.0m prevented geophysical logging of drill hole DD88ME2.

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One hundred and sixteen samples of DD88ME2 drill core grindings were assayed for a range of twenty three elements including Au, Pt and Pd. One sample (1234565) was despatched for whole rock oxide analysis. Final assay results for all samples were received during the eleventh quarter and these results are tabulated together with a detailed lithological log in Appendix 1. Assay results are summarised below and a geochemical histogram plot of selected elements appears on plan SAa 5004.

Detectable Au (>0.005 ppm) was recorded in various samples, with a maximum of 0.038 ppm returned from a pyroxenite over the interval 112.00-112.88m. No Pt was detected in any samples (0.005 ppm det.) however, occasional Pd values above 0.001 ppm (max. 0.004 ppm) were recorded.

Elevated Cr, Co and Ni values were returned from all peridotite and pyroxenite intervals sampled, with the assay magnitudes of these elements reflecting the average crustal abundance for ultramafic rock types. Slightly elevated Cu was also noted in the ultramafic rock types sampled, with a maximum Cu value of 792 ppm returned from a chloritic/carbonate altered periodite (176.00-177.30m) contianing trace chalcopyrite.

Anomalous Ba, Ce and La values were recorded from variably potassic and carbonate altered basalt-related rocks over the intervals 144.65-158.10m and 167.3-170.70m. Whole rock oxide analysis completed on a sample from the interval 168.38-168.44m confirmed the rock types basic origin. A significant Cr, Co, Ni and Cu depletion exists in these two basalt-related units. A breccia/shear zone at the base of the carbonate/potassic altered basic (170.70-172.75m) also exhibits the Ba-Ce-La and Cr-Co-Ni-Cu antipathetic relationship.

5.2 South Lake Prospect

A high amplitude (10,000nT) linear magnetic anomaly located in the south eastern portion of the South Lake grid (plan SAa 4860) was selected for further follow-up work.

The South Lake grid was extended by 6.0 line km (plan SAa 4762) and infill ground magnetics and gravity surveying has been completed as detailed below, viz.....

LINE	FROM	TO	GRAVITY	MAGNETICS	GRIDDING
498800mE	6578000mN	658000mN	2.0 km	-	-
499000mE	6578000mN	658000mN	2.0 km	2.0 km	2.0 km
499400mE	6578000mN	658000mN	2.0 km	2.0 km	2.0 km
499600mE	6578000mN	658000mN	2.0 km	-	-
499800mE	6578000mN	658000mN	-	2.0 km	2.0 km
		TOTAL	8.0 km	6.0 km	6.0 km

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Gravity readings were conducted at 50m station spacings between 6578500mN-6579500mN, and 100m station spacings for the other line kilometer on the extended grid lines. All infill lines were optically levelled. Total magnetic field and vertical gradient was read at 10m station intervals using an MP-3 magnetometer.

Additionally, three traverses of 100 metre, in-loop RVR SIROTEM were completed to test for the presence of massive iron/base metals in both the above area and the nearby Kenella Rock area where elevated lead/zinc chemistry was reported in drill holes completed by Abadon (Sugden, First Quarterly Report).

The TEM magnetics and gravity data is in the process of reduction and plotting and will be presented in the next quarterly report.

J. C. Mackie
for

DAVID C. PALMER

DCP/dp

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EXPENDITURE

Expenditure for the three month period ending 30th September, 1988, the nearest accounting period was $10,222.00, as detailed below.

	$
Payroll	4 216
Supplies	915
Travel	11
Rent	62
Contractors	100
Laboratory	2 735
Sundry	1 000
Overhead	1 183
TOTAL	10 222

REFERENCES

Sugden, S.P., 1986 First Quarterly Report For Mt. Eba EL 1315, South Australia, For The Period Ending 9th April, 1986. (CRAE Report No. 13885)

Palmer, D.C., 1988 Tenth Quarterly Report For Mt. Eba EL 1315, South Australia, For The Period Ending 9th July, 1988. (CRAE Report No. 15225)

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geochemistry, Drill - Diamond, Geophys-EM, Geophys Gravity, Geophys Magnetics, Ultrabasic

APPENDIX I

DRILL HOLE LOG/GEOCHEMICAL ASSAYS - DD88ME2

CRA EXPLORATION PTY LIMITED

DD88ME2 DRILL LOG

PROJECT LABYRINTH PROSPECT, MT EBA EL 1315

CRA EXPLORATION PTY LIMITED

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA E.L.1315

CO-ORDINATES 50.200mE 660.768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 305.5m | HOLE No. | SAMPLE Nos | DPO Nos 37535

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-22 HW 60-75 HQ | DPO Nos [illegible] | DEPTH FROM 74.5 TO 75.55 | LABS ANALABS

HOLE No. DD88ME2

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS SUSC. x10⁻³ SI
0	69		Rotary		COVER SEQUENCE					
			HW		0 - 3.0 Claystone: Yellow to olive green with minor angular gypsum, angular to subrounded quartz fragments and calcrete					
					3.0- 9.0 Sandstone/Claystone: Pale yellow to yellow brown quartzose sandstone comprising subangular to subrounded quartz, angular gypsum, minor clays					
					9.0-30.0 Sandstone: White to pale yellow quartzose sandstone comprising medium to fine grained quartz (subangular to subrounded) iron stained, rare quartzite and minor fine grains of ironstone 15.0-21.0m medium to coarse grained.					
					30.0-51.0 Sandstone: As above with abundant fine ironstone grains					
					51.0-69.0 Sandstone: Pale brown, medium to coarse grained quartzose sandstone with subrounded quartz dominant, minor ironstone, quartzite chips, trace carbonaceous fragments, minor clay, rare green chlorite? after pyroxene					
69.0	72.0				WEATHERED BASEMENT/SANDSTONE					80
					Pale brown quartzose sandstone as for 51.0 69.0 with common to abundant chlorite fragments to 7mm fine grained black rock fragments (mafics?), minor biotite (altered) with an increase in siderite and mafic content from 71.5m					
72.0	74.5		NQ		PORPHYRITIC DACITE/RHYODACITE					30
					Brown to grey weathered porphyritic acid (intermediate?) volcanic, dacite? consisting of euhedral phenocrysts of plagioclase (25%), and subordinate k-feldspar (15%) to 2mm with fine laths of hornblende and biotite (15% combined) distributed throughout. A fine crystalline quartz dominant ground mass. Numerous cross cutting chlorite-serpentinite veinlets with minor iron oxide and micro brecciation/fracturing. Core very broken.					
					72.1-72.9 Core loss					
					74.4 K-feldspar xenocryst - surrounded with chloritic altered margins. Lower contact 10-40° LCA (approx.)					
74.5	94.9				PERIDOTITE WITH INTERLAYERED DACITE/RHYODACITE AND DISCORDANT PEGMATITE AND RARE DOLERITE					
					Rock weathered to 81.0m. Core very broken and fragmented obscuring structure	1161801	74.5	75.55		
					74.5 -75.55 Peridotite Dark green to grey, weathered, massive medium crystalline peridotite comprising of altered plagioclase and olivine? (40%), euhedral amphibole (25%), disseminated magnetite (10-15%) and scattered phenocrysts of euhedral biotite (10-15%). Possible pyroxene (10%). Numerous iron oxide and chlorite veining at 0-5° LCA. Trace disseminated pyrite and chalcopyrite. Lower boundary 45° LCA (approx.).				74.8m	1500

Au	Pd	Pt	As	Bi	Sn	Ag	Pb	Zn	Mn	Cr	Ni	Co	Cu	La	Ce	Nb	U	Th	Fe%	P	Mo	Mg
<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	75	22	420	317	81	1320	<5	<15		<3	<10	6.20	<100	1260	<20
5ppm FIRE ASSAY	5ppm FIRE ASSAY	1ppm ICP	2ppm XRF (40T)	20ppm XRF (40T)	3ppm XRF (40T)	5ppm ICP (20T)	5ppm XRF (40T)	5ppm ICP (20T)	5ppm ICP (20T)	5ppm ICP (20T)	10ppm ICP (20T)	5ppm ICP (20T)	10ppm ICP (20T)	5ppm ICP (20T)	15ppm ICP (20T)		3ppm XRF (40T)	10ppm ICP (20T)	0.01% ICP (20T)	100ppm ICP (20T)	15ppm ICP (20T)	20ppm ICP (20T)

SUMMARY:

LOGGED BY D.G. PALMER

SHEET 1 OF 8

DATE 27/04/88

6532-23 Sheet 1 of 8

SAn 4187a

Plan No SAo 4187b

CRA EXPLORATION PTY LIMITED.

DD88ME2 DRILL LOG

PROJECT LABYRINTH PROSPECT, MT. EBA EL 1315

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1815

CO-ORDINATES 502200mE 6607268mN

RL COLLAR

AZIMUTH Grid South

INCLINATION -60°

DRILLERS MATHEWS DRILLING

DRILL TYPE LONGYEAR 44

COMMENCED 19/04/88

COMPLETED 27/05/88

DEPTH 302.5m

CASING LEFT 0-72 HW 60-75 HQ

HOLE No.

DPO Nos 37534, 37539, 37540, 37545

SAMPLE Nos 1161802-1161817

DEPTH FROM 76.55 m TO 94.90 m

DPO Nos 37535

LABS ANALABS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1815

HOLE No. DD88ME2

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻³ SI	GEOPHYSICS S.G g/cc
			NQ		75.55-76.3 Porphyritic Dacite Brown to grey dacite as for 72.00-74.5m with k-feldspar-quartz (biotite) pegmatite at 76.4-76.5m and chlorite and iron oxide lined fractures. Lower boundary 90° LCA (approx.)	1161802	75.55	76.3			
					76.3 -84.12 Peridotite? Dark green to grey weathered massive medium crystalline diorite comprising plagioclase (40%) and an interlocking mass of euhedral amphibole (25-30%), magnetite (10-15%), pyroxene? (5-10%) and biotite (10-15%) minor irregular quartz and calcite veinlets. Trace pyrite and chalcopyrite disseminated through rock.	1161803	76.3	78.0			
						1161804	78.0	79.5			
						1161805	79.5	81.0			2.81
					Discordant. K-feldspar-quartz-amphibole pegmatite from 81.0-81.30 at 55° LCA	1161806	81.0	81.3			
						1161807	81.3	84.12			
					84.12-84.8 Rhyodacite Possibly discordant, comprising medium crystalline phenocrysts of plagioclase (25%) and k-feldspar (45%) which may be rotated (flow banding?) and subordinate quartz (20%). Minor amphibole and biotite. Well orientated chlorite between feldspathic phenocrysts. Core loss between 84.35-84.8.						
					84.8 -85.28 Dolerite? Weathered discordant? Plagioclase-amphibole-k-feldspar-biotite dolerite, rock very friable.	1161808	84.8	85.28			
					85.28-87.0 Peridotite As for 76.5-84.12m with thin (1-2mm) siderite? and quartz veinlets. Trace pyrite and chalcopyrite with veins. Minor clay coatings on some fracture surfaces				86.0	15000	
						1161809	85.28	87.0			
					87.0 -87.3 Pegmatite Quartz-k-feldspar-plagioclase-(biotite-chlorite) pegmatite. Medium to coarse crystalline, frequently fractured. Upper boundary 60° LCA.	1161810	87.0	87.3			
					87.3 -88.45 Peridotite As for 85.28-87.0m. Trace pyrite and chalcopyrite.				88.0	5000	
						1161811	87.3	88.45			
					88.45-88.9 Pegmatite Very coarsely crystalline, quartz (80%), k-feldspar (15%) and biotite (5%) Trace chlorite. Unit discordant with lower boundary 30° LCA	1161812	88.45	88.90			
					88.9 -89.7 Peridotite As for 85.28-87.0m	1161813	88.90	89.70			
					89.7 -90.0 Core Loss						
					90.0 -90.4 Pegmatite As for 87.0-87.3m	1161814	89.7	91.0			2.67
					90.4 -90.0 Core Loss						
					91.0 -94.9 Peridotite As for 74.5-75.5 with discordant quartz vein (55° LCA) at 94.2m and from 94.4m chloritic/serpentinitic alteration of plagioclase and olivene? within the peridotite	1161815	91.0	92.5	92.4	8500	
						1161816	92.5	94.0			
						1161817	94.0	94.9			
94.9	112.88				INTERLAYERED ULTRAMAFICS AND BASALT WITH DISCORDANT PEGMATITE BANDS Unit is a series of interlayed basic volcanics with discordant pegmatite bands. The basic volcanics are altered to hornblendites near the pegmatite bands. Rock very fractured and broken with quartz plagioclase veining and minor siderite veinlets.						

	Ag	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe %	P	Mn	Mo
	<0.005	<0.005	<0.001	<2	85	6	<5	6	140	948	209	177	40	462	40	68		<3	13	3.82	497	582	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	85	39	429	495	107	1210	<5	<15		<3	<10	7.69	<100	1360	<20
	<0.005	<0.005	<0.001	15	<20	<3	<5	5	73	50	337	429	82	1210	<5	<15		<3	<10	7.32	<100	1290	<20
	<0.005	<0.005	<0.001	<2	<20	4	<5	<5	83	84	380	323	64	1070	<5	15		4	<10	5.98	<100	1290	<20
	<0.005	<0.005	<0.001	<2	100	6	<5	<5	112	892	110	44	21	140	87	149		<3	22	1.18	277	303	<20
	<0.005	<0.005	<0.001	<2	<20	3	<5	<5	75	66	207	459	92	1350	<5	<15		<3	<10	6.16	<100	1250	<20
	<0.005	<0.005	<0.001	<2	<20	5	<5	<5	121	1180	131	95	49	240	56	141		3	41	6.33	1650	1360	<20
	0.016	<0.005	<0.001	<2	<20	<3	<5	<5	89	102	211	573	102	1640	<5	17		<3	<10	7.08	<100	1430	<20
	0.012	<0.005	<0.001	5	110	<3	<5	20	118	1630	122	47	20	248	59	102		<3	24	1.57	320	318	<20
	<0.005	<0.005	<0.001	3	<20	8	<5	<5	83	104	216	473	104	1280	<5	<15		<3	<10	6.44	<100	1310	<20
	<0.005	<0.005	<0.001	<2	320	5	<5	<5	284	283	375	234	70	539	5	<15		<3	<10	3.18	<100	628	<20
	<0.005	<0.005	<0.001	2	<20	8	<5	<5	109	50	385	465	88	1280	<5	<15		3	<10	6.18	<100	1490	<20
	<0.005	<0.005	<0.001	<2	70	<3	<5	10	110	1300	139	73	25	205	46	78		<3	54	1.83	691	398	<20
	<0.005	<0.005	<0.001	<2	<20	10	<5	40	103	103	179	430	103	1270	<5	21		3	<10	8.27	124	1540	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	20	73	101	240	469	100	1270	9	20		<3	<10	6.44	119	1210	<20
	<0.005	<0.005	<0.001	<2	<20	8	<5	7	83	25	156	495	113	1210	<5	<15		<3	<10	5.90	119	1240	<20
	0.005ppm Fire/ICP/MS	0.005ppm Fire/ICP/MS	0.001ppm Fire/ICP/MS	2ppm XRF	20ppm XRF	3ppm XRF	5ppm ICP	5ppm XRF	5ppm ICP	5ppm ICP	5ppm ICP	10ppm ICP	5ppm ICP	10ppm ICP	5ppm ICP	15ppm ICP		3ppm XRF	10ppm ICP	0.01% ICP	100ppm ICP	15ppm ICP	20ppm ICP
	CANMET 337			(401)	(401)	(201)	(401)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)		(401)	(201)	(201)	(201)	(201)	(201)

SUMMARY:

LOGGED BY DC PALMER/SP SUGDEN DATE 27/04/88

SHEET 2 OF 8

SAo 4187

6532-24 Sheet 2 of 8

Plan No SAo 41875

CRA EXPLORATION PTY. LIMITED.

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL [illegible]

DD88ME2 DRILL LOG

CO-ORDINATES 502200mE 6607768mN

RL COLLAR

AZIMUTH Grid South

INCLINATION -60°

DRILLERS MATHEWS DRILLING

DRILL TYPE LONGYEAR 44

COMMENCED 19/04/88

COMPLETED 27/05/88

DEPTH 302.5m

CASING LEFT 0-72 HW, 60-75 HQ

HOLE No.

DPO Nos 37534, 37539, 37540, 37535

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

SAMPLE Nos 1161818 - 1161835

DEPTH FROM 94.90m TO 112.88m

DPO Nos 37535, 37593

LABS ANALABS (geochem), Pontifex & Assoc (petrology)

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL[illegible]

HOLE No. DD88ME2

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻⁵SI	GEOPHYSICS S.G. g/cc
			NQ		94.90-95.45 Hornblendite with Pegmatite Dark to light green medium to coarse crystalline massive amphibole, altered rock, comprising euhedral amphibole 45% and biotite (25%)				95.2	80	
					with fine grained altered plagioclase. This appears to be an alteration halo to small discordant irregular k-feldspar-quartz pegmatite bands (contacts 40-80° LCA) at 97.05-97.14, 95.27-95.30 and 95.45-95.5m. Minor siderite and quartz veining with traces pyrite	1161818	94.9	95.45			
						919866	95.25	95.3	(PET)		
					95.45-95.8 Peridotite As for 76.5-84.12. Lower contact 60° LCA (v.approx.)	1161819	95.45	95.80	95.7	5000	
					95.8 -97.4 Vesicular/Amgdalyoidal Basalt Dark green-grey massive fine grained rock with groundmass of mafic minerals and plagioclase. Irregularly scattered vesicules 1-3mm in diameter which may be quartz or carbonate filled. Trace pyrite and chalcopyrite (97.10m). Minor irregular quartz veining (20-60° LCA) Trace pyrite and chalcopyrite on fracture planes. Lower contact 60° LCA.	1161820	95.80	97.40			
						919867	96.5	96.55	(PET)		
					97.4 -98.8 Peridotite As for 76.5-84.12 with moderate quartz/carbonate?? veining (carbonate doesn't react with acid). Small pegmatite band at 40° LCA from 98.3-98.4m	1161821	97.40	98.80	97.8	10000	
					98.8 -99.2 Pegmatite As above	1161822	98.80	99.20			
					99.2 -99.68 Peridotite As above with thin pyrite veins at 15° LCA and minor carbonate at 99.5m	1161823	99.20	99.86			
					99.68-99.86 Hornblendite Similar to 94.9-95.45 with k-feldspar (20%) forming medium sized grains in ground mass with amphibole (50%) biotite 15% and minor plag <5%. Minor chalcopyrite and pyrite (approx. 1%) as fine disseminated grains. Lower contact 17° LCA. Interpreted as alteration contact to pegmatite below.				99.8	4000	
						919868	107.2	107.25	(PET)		
					99.86-100.23 Pegmatite K-feldspar-quartz-biotite rock with thin amphibolitic margins	1161824	99.86	100.23			
					100.23-100.85 Peridotite Weakly amphibolitic altered with carbonate veining	1161825	100.23	100.85			
						1161826	100.85	101.35			
					100.85-101.35 Hornblendite As for 99.68-99.86						
					101.63-106.45 Pegmatite Coarse crystalline felsic pegmatite consisting of quartz 35%, k-feldspar 25%, microcline? 35%, and minor biotite 5%, with minor amphibolitic xenoliths and carbonate/clay veining. Minor amphibole-biotite-k-feldspar veining	1161827	101.35	103.00	102.0	20	
						1161828	103.00	104.50			
						1161829	104.50	105.60	105.00		3.07
						1161830	105.60	106.45			
					[illegible]				107.1	7500	
					crystalline pyroxenite comprising plagioclase (35-40%). Pyroxene 25-30%, Magnetite 10-15% and biotite 10-15%. Trace disseminated pyrite and minor chalcopyrite. Abundant carbonate?? and quartz veining (some with clay) at irregular orientations, and serpentine.	1161831	106.45	108.00	112.1	11000	
						1161832	108.00	109.45			
						1161833	109.45	111.00			
						1161834	111.00	112.00			
1.2.88	134.10				PORPHYRITIC ANDESITE WITH MINOR DISCORDANT DOLERITE? BANDS	1161835	112.00	112.88	114.0	35	
					Dark grey to grey green porphyritic andesite comprising of subhedral plagioclase phenocrysts to 2mm in size (30%) weakly orientated biotite laths (25%) and minor hornblende (5-10%) in a finely crystalline plagioclase groundmass. Rare disseminated pyrite and chalcopyrite. Minor mafic bands. Lower contact 55° LCA. Core now competent.				115.00		3.00

Ag	As	Au	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cu	Fe%	Ga	Hf	In	K%	La	Li	Mg%	Mn	Mo	Na%	Nb	Ni	P	Pb	Rb	S%	Sb	Sc	Sn	Sr	Ta	Th	Ti%	U	V	W	Y	Zn	Zr
<5	<2	<0.005	1130	<1	<5	1.39	<0.5	46	49	444	66	4.12	<5	<5	<5	0.08	23	<10	0.73	1070	<2	0.01		212	146	85	<10	<0.01	<5	16	<5	353	<5	16	0.29	3	118	<5	15	136	<5
<5	<2	<0.005	495	<1	<5	1.15	<0.5	<15	47	386	159	4.50	<5	<5	<5	0.03	<5	<10	0.61	889	<2	0.01		413	119	15	<10	<0.01	<5	<10	<5	450	<5	<10	0.29	<3	118	<5	<15	83	<5
<5	4	<0.005	896	<1	<5	1.15	<0.5	57	47	329	135	6.60	<5	<5	<5	0.03	28	<10	0.61	1300	<2	0.01		67	140	25	<10	<0.01	<5	<10	<5	660	<5	<10	0.29	<3	118	<5	<15	120	<5
<5	<2	<0.005	225	<1	<5	0.73	<0.5	<15	22	1130	113	5.91	<5	<5	<5	0.03	<5	<10	0.61	1140	<2	0.01		444	121	50	<10	<0.01	<5	<10	<5	591	<5	<10	0.29	<3	118	<5	<15	81	<5
5	2	<0.005	53	<1	<5	0.73	<0.5	291	22	234	99	1.92	<5	<5	<5	0.03	170	<10	0.61	664	<2	0.01		53	313	10	<10	<0.01	<5	<10	<5	192	<5	53	0.29	3	118	<5	291	1200	<5
<5	<2	<0.005	706	<1	<5	0.73	<0.5	79	42	984	207	6.31	<5	<5	<5	0.03	42	<10	0.61	676	<2	0.01		425	350	10	<10	<0.01	<5	<10	<5	631	<5	<10	0.29	<3	118	<5	79	113	<5
7	4	0.012	1040	<1	<5	1.39	<0.5	164	83	266	45	4.11	<5	<5	<5	0.08	96	<10	0.73	1000	<2	0.01		124	606	109	<10	<0.01	<5	57	<5	411	<5	57	0.29	3	118	<5	164	109	<5
5	5	0.006	88	<1	<5	0.73	<0.5	<15	22	1270	369	6.62	<5	<5	<5	0.03	5	<10	0.61	1210	<2	0.01		481	<100	72	<10	<0.01	<5	<10	<5	662	<5	<10	0.29	<3	118	<5	<15	77	<5
20	2	<0.005	701	<1	<5	1.39	<0.5	52	52	534	174	6.05	<5	<5	<5	0.08	25	<10	0.73	1200	<2	0.01		208	570	139	<10	<0.01	<5	<10	<5	605	<5	<10	0.29	<3	118	<5	52	139	<5
10	2	<0.005	1050	<1	<5	1.39	<0.5	44	83	295	148	5.94	<5	<5	<5	0.08	24	<10	0.73	1630	<2	0.01		96	330	150	<10	<0.01	<5	23	<5	203	<5	23	0.29	<3	118	<5	44	150	<5
10	2	<0.005	1250	<1	<5	1.39	<0.5	63	83	338	119	5.94	<5	<5	<5	0.08	32	<10	0.73	1630	<2	0.01		85	330	124	<10	<0.01	<5	<10	<5	594	<5	<10	0.29	<3	118	<5	63	124	<5
10	<2	<0.005	1180	<1	<5	1.39	<0.5	23	83	267	152	1.08	<5	<5	<5	0.08	16	<10	0.73	119	<2	0.01		48	232	139	18	<0.01	<5	18	<5	108	<5	18	0.29	<3	118	<5	23	139	<5
15	5	<0.005	1190	<1	<5	1.39	<0.5	11	83	290	94	1.63	<5	<5	<5	0.08	11	<10	0.73	148	<2	0.01		46	262	99	10	<0.01	<5	10	<5	163	<5	10	0.29	<3	118	<5	19	99	<5
15	<2	<0.005	1180	<1	<5	1.39	<0.5	<15	83	280	486	6.04	<5	<5	<5	0.08	<5	<10	0.73	1160	<2	0.01		470	1190	74	<10	<0.01	<5	<10	<5	604	<5	<10	0.29	<3	118	<5	<15	74	<5
15	<2	<0.005	1180	<1	<5	1.39	<0.5	<15	83	250	448	6.31	<5	<5	<5	0.08	<5	<10	0.73	1190	<2	0.01		482	<100	71	<10	<0.01	<5	<10	<5	631	<5	<10	0.29	<3	118	<5	<15	53	<5
15	3	<0.005	1220	<1	<5	1.39	<0.5	<15	83	242	500	6.94	<5	<5	<5	0.08	<5	<10	0.73	1210	<2	0.01		492	<100	81	<10	<0.01	<5	<10	<5	694	<5	<10	0.29	<3	118	<5	<15	77	<5
15	<2	<0.005	1260	<1	<5	1.39	<0.5	<15	83	228	509	7.02	<5	<5	<5	0.08	<5	<10	0.73	1150	<2	0.01		495	<100	89	<10	<0.01	<5	<10	<5	702	<5	<10	0.29	<3	118	<5	<15	64	<5
15	5	0.038	1290	<1	<5	1.39	<0.5	<15	83	280	541	6.86	<5	<5	<5	0.08	<5	<10	0.73	1260	<2	0.01		500	<100	86	<10	<0.01	<5	<10	<5	686	<5	<10	0.29	<3	118	<5	<15	64	<5

Ag ppm	As ppm	Au ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hf ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm	Rb ppm	S %	Sb ppm	Sc ppm	Sn ppm	Sr ppm	Ta ppm	Th ppm	Ti %	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
FUSE (239)	CARBON (239)	FUSE	XRF (204)	XRF (200)	XRF (200)	XRF (200)	ICP (201)	XRF (200)	ICP (201)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)		ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)	ICP (200)

SUMMARY

LOGGED BY DC PALMER/SP SUGDEN DATE 1/05/88

SHEET 3 OF 8

6532-25 Sheet 3 of 8

Plan No SAe 4187b

SAe 4187

CRA EXPLORATION PTY. LIMITED

DD88ME2 DRILL LOG

PROJECT LABYRINTH PROSPECT, MT. EBA EL 1315

CRA EXPLORATION PTY. LIMITED

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL815

HOLE No. DD88ME2

CO-ORDINATES 502200mE 6607768mN

RL COLLAR

AZIMUTH Grid South

INCLINATION -60°

DRILLERS MATHEWS DRILLING

DRILL TYPE LONGYEAR 44

COMMENCED 19/04/88

COMPLETED 27/05/88

DEPTH 302.5m

CASING LEFT 0-72 HW 60-75 HQ

HOLE No.

DPO Nos 37534, 37535, 37539, 37540

SAMPLE Nos 1161836 - 1161847

DEPTH FROM 118.47 TO 150.43m

DPO Nos 37535, 37539, 37593.

LABS ANALABS (geochem), Rumpffex & Assoc (petrology)

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻⁵	GEOPHYSICS S.G. g/cc
			NQ								
					118.47-119.10 Hornblendite as for 94.9-95.45. Possibly an alteration halo to a pegmatite band near hole. Indistinct contacts	1161836	118.47	119.10			
						919869	119.7	119.75 (PET)			
					122.85-123.8 Medium grained k-feldspar-hornblende-biotite-plagioclase with distinct amphibole needles. Possibly lamprophyric-basalt related. Traces pyrite and chalcopyrite	1161837	122.85	123.80	123.0	40	
						919870	123.5	123.75 (PET)			
									125.00		2.30
134.1	146.2				INTERBANDED PORPHYRITIC ANDESITE AND PERIDOTITE WITH MINOR DOLERITE? BANDS						
					134.1 -136.4 Peridotite Grey green medium grained plagioclase-amphibole-biotite, with traces very fine grained pyrite and chalcopyrite, thin irregular anastamosing				135.0	11000	2.96
						1161838	134.10	135.50			
					chlorite/serpentinite veinlets and minor irregular carbonate? veinlets.	1161839	135.50	136.40			
					134.5 -134.65 Pegmatite band with chloritic or amphibolitic alteration halo and traces chalcopyrite and pyrite						
					136.4 -140.87 Porphyritic Andesite Dark green to grey fine grained dacite with plagioclase and rare k-feldspar phenocrysts and small biotite laths in a very fine grained quartzose ground mass. Rock fractured by very thin carbonate? veinlets. Lower contact is distinct with a chilled amphibolitic margin at 30° LCA				137.5	25	
					140.87-144.65 Peridotite Grey green to grey medium grained plagioclase-amphibole-biotite,				142.0	11000	
					Diorite containing rare traces fine grained disseminated pyrite. Minor thin	1161840	140.87	142.0			
					carbonate? veinlets (60° LCA) and chlorite veinlets (30° LCA). Minor chloritic	1161841	142.0	142.85			
					alteration, possibly related to Dolerite? Dykes.						
					142.85-143.1 Discordant Hornblendite unit. Amphibole-chlorite-plagioclase-biotite rock, possibly altered, as 118.47-119.1 with upper contact 60° LCA and lower 120° LCA. Minor k-feldspar pegmatite remnant in centre, contacts gradational	1161842	142.85	144.65			
					144.65-145.06 Andesite As for 136.4-140.8m	1161843	144.65	145.06	145.5	30	2.75
					145.06-146.21 Alkali Dolerite?? Medium grained plagioclase-k-feldspar-amphibole-pyroxene-biotite rock with amphibole forming distinct needles. K-feldspar usually forms	1161844	145.06	146.21			
					in dominant sections. Altered pegmatite or alkali dolerite? Rare pyrite as fine disseminated euhedral grains. Distinct chilled upper contact at 70° LCA.						
146.21	156.10				CARBONATE ALTERED PORPHYRITIC ANDESITIC ALKALI BASALT						
					Fine grained dark green-grey with small phenocrysts of k-feldspar and plagioclase often altered	1161845	146.21	148.00	147.3	3400	
					to calcite 1-3mm in size and elongate forming a weak foliation at 30-40° LCA. Ground mass	1161846	148.00	149.59			
					very fine grained mafic minerals and minor biotite. Lower contact chilled, irregular with angle	919871	147.7	147.9 (PET)			
					approximately 30° LCA.						
					149.59-150.43 Medium grained doleritic band with k-feldspar veinlets and xenoliths	1161847	149.59	150.43	150.4	37	

Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe%	P	Mn	Mo
0.006	<0.005	<0.001	<2	45	<3	<5	10	120	1300	120	109	42	336	36	73		<3	10	6.03	1850	1300	<20
<0.005	<0.005	<0.001	<2	30	<3	<5	10	126	1550	123	63	38	306	37	75		<3	<10	6.09	2000	1350	<20
<0.005	<0.005	<0.001	<2	45	5	<5	6	106	494	157	369	66	781	13	30		<3	<10	5.73	460	1240	<20
<0.005	<0.005	<0.001	<2	<20	5	<5	<5	90	37	149	453	78	1260	<5	<15		<3	<10	6.23	144	1850	<20
<0.005	<0.005	<0.001	2	<20	6	<5	360	419	139	309	437	83	1220	<5	15		<3	<10	6.04	253	1290	<20
0.009	<0.005	0.002	<2	<20	<3	<5	20	92	399	218	384	82	1140	12	23	<10	<3	<10	6.88	715	1200	<20
0.006	<0.005	<0.001	<2	<20	<3	<5	7	78	110	182	453	89	1480	5	<15	<10	<3	<10	6.51	2744	1116	<20
<0.005	<0.005	<0.001	<2	55	<3	<5	8	83	1400	75	40	17	126	53	85	12	8	11	2.64	848	563	<20
<0.005	<0.005	0.004	<2	35	<3	<5	15	123	1590	115	62	43	308	39	80	12	4	11	6.26	2580	1210	<20
<0.005	<0.005	<0.001	<2	35	<3	<5	20	146	3870	70	135	39	192	222	420	81	<3	17	7.58	8370	1440	<20
<0.005	<0.005	<0.001	<2	25	<3	<5	10	134	4010	59	122	36	157	220	429	16	<3	14	7.36	6870	1470	<20
<0.005	<0.005	0.004	<2	20	<3	<5	<5	112	1720	126	44	38	263	44	87	13	<3	11	6.27	2720	1200	<20
5ppm	10ppm	5ppm	5ppm	20ppm	3ppm	5ppm	5ppm	5ppm	5ppm	5ppm	5ppm	10ppm	5ppm	10ppm	5ppm	15ppm	3ppm	10ppm	0.01%	10ppm	15ppm	20ppm
Fire	CARBON	Rep	XRF	XRF	XRF	ICP	XRF	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	XRF	XRF	ICP	ICP	ICP	ICP	ICP
(38g)			(40l)	(40l)	(40l)	(20l)	(40l)	(20l)	(20g)	(20l)	(20l)	(20l)	(20l)	(20g)	(20l)	(30l)	(40l)	(20l)	(20g)	(20l)	(20l)	(20l)

SUMMARY:

LOGGED BY S.P. SUGDEN DATE 5/5/88

SHEET 4 OF 8

6532-26 Sheet 4 of 8

SAo 4187a

Plan No SAo 4187b

CRA EXPLORATION PTY. LIMITED.

PROJECT LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN

RL COLLAR

AZIMUTH Grid South

INCLINATION -60°

DRILL LOG DD88ME2

DRILLERS MATHEWS DRILLING

DRILL TYPE LONGYEAR 44

COMMENCED 19/04/88

COMPLETED 27/05/88

DEPTH 302.5m

CASING LEFT 0-72 HW 60-75 HQ

HOLE No.

DPO Nos 37534, 37539, 37540, 37535

SUMMARY:

LOGGED BY S.P. SUGDEN

DATE 8/5/88

SHEET 5 OF 8

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10⁻⁵	GEOPHYSICS S.G. g/cc
			NQ								
					150.43-153.4 More andesitic interval with angular k-feldspar quartz gneiss and peridotite xenoliths rare thin carbonate veins	1161848	150.43	152.00			
						1161849	152.00	153.40			
						1161850	153.40	155.00	154.5	3000	
						1161851	155.00	156.16			
156.16	158.1				ANDESITE						
					Fine grained light grey with k-feldspar and plagioclase phenocrysts and rare biotite laths, in a quartzose ground mass. Rare thin chlorite veining core fractured with indistinct lower contact	1161852	156.16	158.10	157.2	20	
158.1	167.3				CARBONATE ALTERED PERIDOTITE						
					Medium grained, Dark green-grey diorite consisting of equigranular mass of plagioclase, olivene? and laths of biotite with traces of very fine grained disseminated euhedral chalcopyrite, variably altered by carbonate (calcite) replacing plagioclase within rock and numerous thin veinlets which may contain chalcopyrite. Vein orientations of 0°, 30° and 50° LCA						
					158.1 -159.35 Peridotite contains extensive chlorite veining	1161853	158.10	159.35			
					159.35-159.5 Thin pegmatitic band with chloritic or amphibolitic alteration halo of surrounding peridotite	1161854	159.35	160.00			
						1161855	160.00	161.50	161.0	9500	
					163.75-165.0 Moderately carbonate altered section	1161856	161.50	163.00			
					165.0 -167.3 Strongly carbonate altered section	1161857	163.00	163.75			
						1161858	163.75	165.00			
						1161859	165.00	166.00	165.00	/	2.95
						1161860	166.00	167.30	166.6	8000	
167.3	170.7				CARBONATE ALTERED PORPHYRITIC ANDESITIC BASALT WITH GNEISS XENOLITHS	919872	162.1	162.3	(PET)		
					Dark grey very fine grained andesitic basalt with small phenocrysts to 1mm of carbonate (after plagioclase) in a mafic ground mass. Minor traces disseminated pyrite and chalcopyrite. Thin carbonate veinlets throughout. Phenocrysts form a vague lineation of 10° LCA. In parts the basalt contains xenoliths of k-feldspar-quartz gneiss	1161861	167.30	169.00			
						1161862	169.00	170.25			
						1161863	170.25	171.46			
					170.25-171.7 Xenolith? of medium to fine grained well foliated quartz-k-feldspar-biotite-amphibole gneiss?? with coarse grained k-feldspar-quartz segregations, wisps and bands parallel to foliation. Traces pyrite and at 170.8-170.9 carbonate altered dolorite with chilled margins. Irregular contact.	1234565	168.38	168.44	(WHOLE ROCK)		
170.7	172.75				BRECCIA/SHEAR ZONE	1161864	171.46	172.75	171.0	150	
					Complex disrupted texture with carbonate and chloritic clasts (after diorite??) within a similar matrix. Minor quartz and quartz-k-feldspar veinlets. Lower contact 55° LCA.						

SAo 4187a

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

SAMPLE Nos 1161848-1161864, 1234565

DEPTH FROM 150.43m TO 172.75m

DPO Nos 37539, 37534, 37593, 37594

LABS ANALABS (Goodsell), Pontifex & Assoc (Johnsey)

PROJECT LAKE LABYRINTH PROSPECT, MT EBA EL1315

HOLE No. DD88ME2

Au	Pt	Pd	Ag	W	Sn	As	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe%	P	Mn	Mo
<0.005	<0.005	0.001	<2	40	<3	<5	20	115	2680	72	89	35	407	120	232	19	<3	11	0.02	5740	1150	<20
<0.005	<0.005	<0.001	<2	60	4	<5	10	139	3570	74	122	38	182	184	359	23	<3	16	0.75	7390	1290	<20
<0.005	<0.005	<0.001	<2	30	7	<5	15	198	4280	68	130	40	185	225	439	29	3	17	2.48	8120	1470	<20
<0.005	<0.005	<0.001	<2	20	6	<5	25	147	4250	62	122	37	184	242	446	28	<3	13	2.89	8790	1580	<20
<0.005	<0.005	<0.001	<2	45	5	<5	6	83	1890	79	39	19	141	69	114	16	5	14	3.05	1430	475	<20
<0.005	<0.005	<0.001	<2	<20	<3	<5	7	96	633	162	386	71	901	80	51	11	4	<10	5.53	642	992	<20
<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	127	78	163	489	89	1310	16	29	10	<3	<10	7.21	223	1620	<20
<0.005	<0.005	<0.001	<2	<20	<3	<5	8	74	49	197	478	94	1380	<5	<15	<10	<3	<10	6.75	135	1210	<20
0.009	<0.005	<0.001	<2	<20	<3	<5	<5	75	125	222	486	95	1380	7	<15	<10	<3	<10	6.85	165	1140	<20
<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	71	95	216	525	104	1580	5	<15	<10	3	<10	7.20	220	1210	<20
<0.005	<0.005	0.001	<2	<20	<3	<5	7	73	194	194	450	90	1660	5	<15	<10	<3	<10	6.92	231	1160	<20
<0.005	<0.005	<0.001	<2	<20	<3	<5	10	70	51	190	465	91	1610	<5	<15	<10	<3	<10	6.64	121	1120	<20
<0.005	<0.005	0.001	<2	<20	<3	<5	<5	69	53	199	470	96	1630	<5	<15	<10	<3	<10	6.61	174	1220	<20
<0.005	<0.005	<0.001	<2	<20	<3	<5	20	129	2820	63	179	41	311	193	376	21	<3	13	2.21	1330	1260	<20
<0.005	<0.005	<0.001	<2	<20	<3	<5	15	111	3390	51	199	39	212	213	440	22	<3	15	2.59	1340	1060	<20
<0.005	<0.005	<0.001	<2	<20	5	<5	10	111	1100	110	87	44	254	70	128	19	<3	10	2.39	2070	1030	<20
									3300		136	32	228			32		43				
<0.005	<0.005	<0.001	<2	<20	<3	<5	7	100	296	21	137	39	359	35	68	<10	<3	<10	5.58	1470	984	<20
5ppb	5ppb	1ppb	2ppm	20ppm	3ppm	5ppm	5ppm	5ppm	5ppm	5ppm	1ppm	5ppm	1ppm	5ppm	15ppm	1ppm	3ppm	1ppm	0.01%	100ppm	5ppm	2ppm
Fire/GARDEN		ROCK	XRF	XRF	XRF	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	XRF	ICP	ICP	ICP	ICP	ICP
(327)			(100)	(201)	(100)	(201)	(400)	(201)	(201)	(201)	(201)	(204)	(201)	(201)	(201)	(201)	(401)	(201)	(201)	(201)	(201)	(201)	(201)

Zr	Na	Mg%	Si%	Ti%	Ca%	K%	Fe%	Mn%	Na%	Fe%	LOI
✓	-	-	✓	-	-	✓	-	✓	-		
329	206	12.9%	46.57	2.32	8.38	2.35	10.50	0.19	2.72	2.18	7.00
ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP
(201)	(204)	(204)	(204)	(204)	(204)	(204)	(204)	(204)	(204)	(204)	(204)

6532-27

Sheet 5 of 8

Plan No SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No. | SAMPLE Nos 1161865-1161884

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW 60-75 HQ | DPO Nos 37534, 37535, 37539, 37540 | DEPTH FROM 172.75 TO 199.3m | DPO Nos 37539, | LABS ANALABS

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10⁻⁵ SI	GEOPHYSICS S.G. g/cc
172.75	182.2		NQ		CARBONATE ALTERED PERIDOTITE						
					Grey to grey green medium grained peridotite weak to strongly carbonate altered with carbonate						
					replacing plagioclase grains, shattered in parts by fine networks of calcite veinlets. Rare						
					k-feldspar-quartz-amphibole pegmatite bands to 15cm thick with distinct chloritised peridotite						
					margins to 15cm wide. Rare traces pyrite and chalcopyrite as disseminated grains						
					172.75-173.7 Strongly carbonate altered and veined interval	1161865	172.75	173.7			
					175.05-176.0 Strongly carbonate altered section	1161866	173.7	175.05			
					176.0 -176.15 Pegmatite band with traces of pyrite and chloritic altered peridotite margins	1161867	175.05	176.0	175.00		2.92
						1161868	176.0	177.3	176.4	150	
					176.15-177.3 Strongly chlorite and amphibolitic? altered section with minor biotite and	1161869	177.3	178.0			
					chalcopyrite	1161870	178.0	180.2			
					179.15 Thin carbonate veinlet with pyrite and pyrrhotite blebs	1161871	180.2	182.2	182.0	4500	
					178.0 -180.2 Less altered peridotite						
					180.2 -180.55 Carbonate and chlorite altered peridotite with chlorite veinlets						
182.2	199.3				CHLORITE ALTERED PERIDOTITE						
					Medium grained grey green biotite, plagioclase, amphibole, chlorite peridotite with rare pyrite,						
					chalcopyrite and pyrrhotite as disseminated grains throughout. Minor talc coated joints of 30°						
					LCA. Peridotite variably chloritically (or amphibolitic?) altered throughout. Minor k-feldspar						
					quartz pegmatite bands with intensely chloritised halos.						
					182.2 -185.1 Strongly to toally chloritised section with carbonate veinlets and amphibole rich	1161872	182.2	184.0	183.0	7	
					sections. Minor talc, with fractured and brecciated quartz vein from 183.0-	1161873	184.0	185.1	186.0	5000	3.45
					183.5m	1161874	185.1	186.5			
					187.7 -187.8 Thin k-feldspar/quartz bands with chloritic alteration halos	1161875	186.5	188.0			
					188.7 -189.6 Very strongly chloritic and talc altered sections	1161876	188.0	190.0			
					190 -191.15 Very strongly chloritic section	1161877	190.0	191.15	190.5	4000	
					191.15-191.75 K-feldspar-quartz pegmatite band	1161878	191.15	191.75			
					191.75-193.3 Strongly chloritic and carbonate altered peridotite with thin carbonate veinlets	1161879	191.75	193.3			
						1161880	193.3	193.7			
					193.3 -193.7 Pegmatite band upper contact 40° LCA	1161881	193.7	195.0			
					193.7 -196.3 Moderate to strong chloritic altered and moderate carbonate altered peridotite,	1161882	195.0	196.3	194.6	5000	3.05
					rare traces chalcopyrite and moderate thin carbonate veinlets	1161883	196.3	198.0			
						1161884	198.0	199.3			
					196.3 -199.3 Weakly chloritically altered peridotite						

	Au ppb	Pt ppb	Pd ppb	As ppm	W ppm	Sn ppm	Ag ppm	Pb ppm	Zn ppm	Ba ppm	Cu ppm	Ni ppm	Co ppm	Cr ppm	La ppm	Ce ppm	Nb ppm	U ppm	Th ppm	Fe %	P ppm	Mn ppm	Mo ppm
	0.006	<0.005	0.001	<2	<20	<3	<5	<5	63	63	199	454	91	1560	<5	<15	<10	<3	<10	6.68	199	1250	<20
	0.007	<0.005	<0.001	<2	<20	<3	<5	5	58	49	204	477	93	1610	<5	<15	<10	<3	<10	6.80	169	1230	<20
	0.007	<0.005	<0.001	10	<20	<3	<5	10	72	190	95	401	72	1050	<5	<15	<10	<3	<10	5.18	238	1230	<20
	0.005	<0.005	0.003	15	<20	<3	<5	25	142	464	792	369	88	1280	24	48	<10	3	<10	7.67	923	1550	<20
	0.005	<0.005	0.002	8	<20	<3	<5	35	93	262	258	401	75	1260	25	41	<10	<3	<10	6.22	714	1380	<20
	0.005	<0.005	0.001	<2	<20	<3	<5	<5	59	47	190	469	90	1550	<5	<15	<10	<3	<10	6.38	116	1490	<20
	0.007	<0.005	<0.001	5	<20	<3	<5	5	66	40	185	490	92	1660	<5	<15	<10	<3	<10	6.56	<100	1220	<20
	<0.005	<0.005	<0.001	5	<20	<3	<5	40	78	75	64	213	51	775	11	21	<10	<3	<10	6.36	<100	1190	<20
	<0.005	<0.005	<0.001	<2	<20	6	<5	<5	120	34	134	412	87	1000	6	<15	<10	<3	<10	7.65	116	2100	<20
	<0.005	<0.005	0.001	<2	<20	<3	<5	<5	78	46	185	485	90	1740	<5	<15	<10	<3	<10	6.87	126	1390	<20
	0.008	<0.005	<0.001	<2	<20	<3	<5	<5	68	109	244	507	96	1570	<5	<15	<10	<3	<10	7.15	155	1330	<20
	0.007	<0.005	0.001	<2	<20	<3	<5	6	76	43	223	482	92	1580	<5	<15	<10	<3	<10	6.96	<100	1410	<20
	0.016	<0.005	0.001	<2	<20	<3	<5	<5	72	44	225	488	90	1630	<5	<15	<10	<3	<10	6.59	128	1220	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	70	46	624	52	55	16	110	20	36	15	20	69	1.43	208	323	<20
	0.007	<0.005	<0.001	<2	<20	<3	<5	<10	66	47	223	454	85	1310	8	<15	<10	<3	62	5.94	143	1150	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	20	104	1650	378	74	36	213	40	66	18	7	155	5.15	1000	1110	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	<10	77	41	288	449	90	1180	8	<15	<10	<3	67	6.07	218	1260	<20
	0.009	<0.005	<0.001	<2	<20	7	<5	10	90	307	225	367	73	839	26	41	10	<3	95	5.65	532	1230	<20
	0.007	<0.005	<0.001	<2	<20	<3	<5	<10	70	90	257	489	96	1250	9	<15	<10	<3	64	6.53	174	1210	<20
	0.008	<0.005	0.002	<2	<20	<3	<5	<10	67	64	325	534	100	1220	7	<15	<10	<3	62	6.90	137	1240	<20
Detn Limit	0.005	0.005	0.001	2ppm	20ppm	3ppm	5ppm	10ppm	5ppm	5ppm	5ppm	10ppm	5ppm	10ppm	5ppm	15ppm	10ppm	3ppm	10ppm	0.01%	100ppm	15ppm	20ppm
Fire/Acid			Rep	XRF	XRF	XRF	ICP	XRF	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	INAA	ICP	ICP	ICP	ICP	ICP
	(337)			(401)	(401)	(401)	(201)	(401)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(401)	(201)	(201)	(201)	(201)	(201)

SUMMARY:

LOGGED BY S.P. SUGDEN DATE 8/5/88

SHEET 6 OF 8

6532-28 Sheet 6 of 8

SAo 4187a

Plan No. SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT LABYRINTH PROSPECT, MT. EBA EL 1315

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | INCLINATION -60° | DRILLERS MATHEWS DRILLING | DRILL TYPE LONGYEAR 44 | COMMENCED 19/04/88 | COMPLETED 27/05/88 | DEPTH 302.5m | CASING LEFT 0-72 HW, 60-75 HQ | HOLE No. | DPO Nos 37534, 37535, 37539, 37540

SAMPLE Nos 1161885-1161900, 949180-949184 | DEPTH FROM 199.30 TO 249.0m | DPO Nos 37540, | LABS ANALABS.

HOLE No. DD88ME2

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS 10^{-5}SI	GEOPHYSICS S.G g/cc
199.3	302.50				PERIDOTITE WITH K-FELDSPAR-QUARTZ PEGMATITE BANDS AND RARE DOLERITE						
					Medium grained drak grey to grey green amphibole-biotite-plagioclase. Peridotite weakly	1161885	199.3	200.2	199.5	9000	
					chloritically and carbonate altered in parts. Traces disseminated chalcopyrite and pyrite	919873	204.85	204.95	(PET)		
					throughout. Minor to moderate, thin irregular carbonate veinlets. Minor talc on joint facings.	1161886	203.5	205.3			
					Peridotite fractured and altered by k-feldspar-quartz pegmatite bands. Peridotite next to	1161887	205.3	206.6			
					pegmatite bands intensely chloritised. Very rare xenoliths of quartz-k-feldspar porphyry and	1161888	209.6	211.0			
					k-feldspar-quartz-biotite gneiss	1161889	211.0	212.3			
					203.5 -205.3 Chloritic altered section with discontinuous pegmatite bands to 20cm thick				204.5	2500	2.96
					205.3 -206.4 Chloritic altered section with thin carbonate veinlets						
					206.4 -206.7 As 203.5-205.3m						
					206.7 -209.6 Peridotite						
					209.6 -212.3 Intensely chloritised section with discontinuous wisps and bands to 50cm of quartz-k-feldspar-biotite-chlorite porphyry. Porphyroblasts of k-feldspar to 4mm. Biotite forms a crude foliation which maybe contorted in parts.				210.0	6000	
					212.3 -220.2 Peridotite	1161890	212.3	213.8	215.0	2500	3.68
					220.2 -220.7 Chloritised peridotite with pegmatite bands containing talc				220.0	2500	
						1161891	216.0	218.0			
					221.1 Quartz-talc band at 90° LCA						
					222.3 -223.8 Chloritised peridotite with irregular pegmatite bands. Minor talc	1161892	220.2	220.7			
					223.8 -227.8 Peridotite with chloritically altered sections surrounding pegmatite bands to 30cm thick	1161893	222.3	223.8	225.0	4000	3.30
						1161894	223.8	225.0			
					230.15-230.35 Pegmatite band with chlorite halo at 30° LCA	1161895	225.0	227.8	230.0	1500	
					231.0 -231.3 As above	1161896	227.8	229.2			
					231.75-231.9 As above	1161897	229.2	231.0			
					232.9 -233.6 As above, contact at 30° LCA	1161898	231.0	231.9	233.0	3000	
					234.4 Thin pegmatite band				233.0		3.00
					235.6 Thin pegmatite band at 45° LCA						
					236.9 -239.8 Peridotite chloritically and carbonate altered in parts with pegmatite bands at	1161899	236.9	238.5	238.0	4000	
					240.7 -240.75 Pegmatite band with chlorite alteration haloes						
					241.7 -241.85 As above				242.0	3700	
					242.1 -242.3 As above						
					244.3 -244.7 As above	949180	244.3	244.7			
					245.0 -245.15 As above	949181	244.7	246.2	246.0		2.25
					245.75-246.2 As above	949182	246.2	247.8			
					246.2 0247.8 Weak to moderate carbonate altered peridotite with thin carbonate veinlets containing traces chalcopyrite	949183	247.8	248.1	248.0	700	
						949184	248.1	249.0			

	Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	V	Th	Fe %	P	Mn	Mo
	0.010	<0.005	<0.001	10	20	<3	<5	10	63	72	248	402	77	1300	7	<15	<10	<3	72	5.80	150	1140	<20
	0.008	<0.005	<0.001	<2	<20	<3	<5	<10	77	388	119	285	57	900	25	35	11	<3	81	4.59	102	1110	<20
	0.009	<0.005	0.001	<2	<20	<3	<5	<10	61	47	278	442	85	1480	8	<15	<10	<3	69	5.84	<100	1150	<20
	0.006	<0.005	0.001	<2	<20	<3	<5	<10	100	299	146	326	65	1170	29	51	13	<3	82	5.31	371	1290	24
	<0.005	<0.005	<0.001	<2	<20	<3	<5	<10	117	704	112	167	39	503	150	39	17	<3	127	4.12	1060	1030	<20
	0.008	<0.005	<0.001	<2	<20	<3	<5	<10	59	48	313	431	76	650	7	<15	<10	<3	74	5.39	103	1100	<20
	0.010	<0.005	0.001	<2	<20	<3	<5	<10	57	53	257	410	79	1800	5	<15	<10	<3	79	5.62	152	1180	<20
	0.009	<0.005	0.001	<2	<20	4	<5	<10	96	292	138	334	62	1200	20	33	10	5	80	4.84	352	1200	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	35	74	772	149	229	49	711	41	74	14	<3	99	3.63	2.75	867	<20
	0.010	<0.005	0.001	<2	<20	4	<5	<10	59	53	234	426	85	1780	6	<15	<10	<3	77	5.79	<100	1190	<20
	0.007	<0.005	0.001	9	<20	<3	<5	<10	77	34	216	396	75	1610	7	15	<10	<3	77	5.39	142	1210	<20
	<0.005	<0.005	0.001	<2	<20	<3	<5	25	109	146	179	332	61	1410	61	108	13	<3	107	5.23	202	1460	<20
	0.010	<0.005	<0.001	<2	<20	<3	<5	10	73	99	242	342	64	1660	48	80	10	<3	91	5.03	156	1190	<20
	<0.005	<0.005	0.001	<2	<20	<3	<5	<10	93	85	182	324	61	1750	8	<15	<10	<3	70	4.92	<100	1300	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	10	82	203	210	341	67	1500	11	17	<10	<3	74	4.73	160	1050	<20
	0.005	<0.005	0.001	<2	30	<3	<5	<10	85	44	274	349	78	1680	<5	15	<10	<3	<10	5.82	88	1190	<20
	<0.005	<0.005	0.001	<2	<20	8	<5	<10	69	191	183	304	64	983	13	19	<10	4	72	5.14	111	1280	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	<10	78	296	131	339	68	1260	18	33	11	<3	91	5.44	578	1160	<20
	<0.005	<0.005	0.001	<2	<20	<3	<5	<10	67	24	184	375	64	1250	7	<15	<10	<3	57	5.05	<100	1110	<20
	<0.005	<0.005	0.001	<2	<20	<3	<5	10	96	356	148	177	49	604	31	55	10	<3	137	5.80	535	1270	<20
	0.006	<0.005	<0.001	<2	<20	<3	<5	<10	89	64	181	398	74	1590	19	27	12	<3	73	5.54	162	1210	<20
	0.005ppm	0.005ppm	0.001ppm	2ppm	20ppm	3ppm	5ppm	10ppm	5ppm	5ppm	5ppm	10ppm	5ppm	10ppm	5ppm	15ppm	10ppm	3ppm	10ppm	0.01%	100ppm	15ppm	20ppm
	FIRE ASSAY (35g)	FIRE ASSAY (35g)	Rad	XRF (40)	XRF (40)	XRF (40)	ICP (2m)	XRF (40)	ICP (20)	ICP (20)	ICP (20)	ICP (20)	ICP (20)	ICP (20)	ICP (20)	ICP (20)	XRF (20)	ICP (20)	XRF (40)	ICP (20)	ICP (20)	ICP (20)	ICP (20)	ICP (20)

SUMMARY

LOGGED BY SP SUGDEN

SHEET 7 OF 8

DATE 26/05/88

SAo 4187

6532-29 Sheet 7 of 8

Plan No SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA El. 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW 60-75 HQ | DPO Nos 37514, 37515, 37516, 37540

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻⁵SI	GEOPHYSICS g/cc
			NQ		247.8 -248.1 Distinct fine grained mafic band with chloritised garnets?? Lower contact 10° LCA	949185	249.0	250.75			
						949186	250.75	252.2	251.9	800	
					248.1 -249.0 Carbonate altered peridotite	949874	247.8	247.90	(PET)		
					249.0 -250.75 Dolerite? Medium-fine grained green grey feldspar-biotite-pyroxene rock with clasts of k-feldspar quartz-biotite gneiss. From 250.0m amphibole phenocrysts. Upper contact 80° LCA.						
					250.75-252.5 Strongly chloritically and variably carbonate altered peridotite with clasts and wisps of k-feldspar-quartz gneiss						
					252.5 -257.5 Peridotite				255.00		2.89
					257.5 -257.6 Fractured quartz chlorite vein or band				258.0	3000	
					259.75-260.0 Pegmatite band	949187	259.75	260.6			
					260.0 -260.6 Chlorite altered peridotite	949188	260.6	262.0			
					260.6 -269.05 Periodotite				264.0	5000	3.00
					269.05-269.1 Quartz-plagioclase-amphibole-chlorite pegmatite band				267.3	4400	
					269.1 -270.6 Peridotite						
					270.6 -270.7 Amphibole-plagioclase-quartz-carbonate pegmatite band at 50° LCA				270.3	6800	
					270.7 -279.9 Peridotite				273.3	5000	
					279.9 -282.3 Very weakly chloritically altered peridotite with chlorite-plagioclase vein at 280.9-281.1m	949189	279.9	280.9	275.00		2.39
						949190	280.9	282.3	276.5	6500	
					282.3 -285.4 Peridotite				279.6	7200	
					285.4 -287.0 Core fractured with weak carbonate alteration and veining	949191	285.4	287.0	282.7	7500	
									285.3	2000	2.58
					287.0 -292.55 Peridotite with fine wispy carbonate veins				288.6	5000	
					292.55-294.6 Peridotite with rare thin chloritic shear zones and weakly chloritic altered				291.1	3800	
					294.6 -295.9 Peridotite	949192	294.6	295.9	295.00		2.57
					295.9 -296.4 K-feldspar quartz pegmatite band	949193	295.9	296.4	296.0	10	
					296.4 -300.3 Peridotite						
					300.3 -301.1 Carbonate altered peridotite	949194	300.3	301.1			
					301.1 -302.5 Peridotite	949195	301.1	302.5	302.2	2000	3.27
					E.O.H. 302.5m						

SUMMARY :

LOGGED BY S.P. SUGDEN DATE 26/05/88

SHEET 8 OF 8

SAo 4187

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

SAMPLE Nos 149185-949195 | DPO Nos 37540, 37541

DEPTH FROM 249.00m TO 302.50m | LABS ANALABS

Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe%	P	Mn	Mo
0.005	<0.005	<0.001	<2	120	<3	<5	10	131	878	145	98	44	218	39	69	16	<3	146	4.76	1620	986	<20
0.006	<0.005	<0.001	<2	40	<3	<5	<10	110	571	100	283	59	878	28	51	14	<3	93	5.05	462	210	<20
0.010	<0.005	<0.001	<2	<20	<3	<5	15	61	289	224	340	66	1380	11	18	<10	<3	78	4.96	198	1050	32
0.009	<0.005	<0.001	<2	35	<3	<5	<10	74	84	247	455	84	1910	9	16	<10	<3	74	5.63	184	1130	<20
0.013	<0.005	0.004	<2	<20	<3	<5	<10	74	34	285	479	84	1510	<5	<15	<10	<3	<10	5.68	141	1100	<20
0.010	<0.005	0.002	<2	<20	<3	<5	<10	79	112	230	433	76	1410	<5	<15	<10	<3	<10	5.95	<100	1310	<20
0.009	<0.005	0.001	10	<20	<3	<5	<10	78	13	238	445	79	1540	6	<15	<10	<3	10	5.85	198	1230	<20
0.009	<0.005	<0.001	<2	20	<3	<5	<10	101	20	193	341	69	1140	5	<15	<10	<3	<10	6.22	<100	1370	<20
0.005	<0.005	<0.001	<2	70	<3	<5	15	100	1250	76	146	39	339	76	157	14	7	79	3.22	704	886	22
0.014	<0.005	0.001	<2	<20	<3	<5	<10	114	19	126	304	67	1040	11	22	<10	<3	16	6.72	148	1970	<20
0.008	<0.005	0.003	<2	30	<3	<5	<10	88	29	145	323	88	1440	<5	<15	<10	<3	<10	5.18	146	1250	<20
0.005ppm FIRE/CARBON (38g)	0.005ppm Pt	0.001ppm Pd	2ppm XRF (40g)	20ppm XRF (40g)	3ppm XRF (40g)	5ppm ICP (20g)	10ppm ICP (20g)	5ppm ICP (20g)	5ppm ICP (20g)	1ppm ICP (20g)	5ppm ICP (20g)	1ppm ICP (20g)	5ppm ICP (20g)	5ppm ICP (20g)	15ppm ICP (20g)	10ppm ICP (20g)	3ppm XRF (40g)	10ppm ICP (20g)	0.01% ICP (20g)	100ppm ICP (20g)	5ppm ICP (20g)	10ppm ICP (20g)

6532-30 Sheet 8 of 8

Plan No SAo 4187b

LOCALITY

SOUTH AUSTRALIA

MT. EBA

SOUTHERN OCEAN

Adelaide

Normanton

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 — S.A.
LOCALITY PLAN

REF.	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15		
SCALE	1 : 250000		
AUTHOR	D.C.P.	REPORT	15445
DATE	June '88	PLAN No	SAa 3552

5 0 5 10 15 20 25 Kilometres

503400 mE
503200 mE
503000 mE
502800 mE
502600 mE
502400 mE
502200 mE
502000 mE
501800 mE
501600 mE
501400 mE

6609300 mN
6609000 mN
6608800 mN
6608000 mN
6607000 mN
6606800 mN
6606300 mN

Lake
Salt
Lake
Salt

DD88ME2
DD87ME1

1000m 900 800 700 600 500 400 300 200 100 0 100 200 m

AMG North

Salt Lake
Salt encrusted sand
Scrub
DD87ME1 CRAE DRILLHOLES
DD88ME2

CRA EXPLORATION PTY LIMITED

MT. EBA E.L. 1315 — S.A.
LAKE LABYRINTH WEST GRID
GEOLOGY WITH DRILLHOLE LOCATIONS

REF.	KINGOONYA SH 53-11		
SCALE	1 : 10000		
AUTHOR	D.C.P.	REPORT	15445
DATE	June '88	PLAN No	SAa 4450

MAG SUS (SIx10−5) 0 15000

SPEC GRAV (GM/CC) 2 3 4

Lithology

0 m 10 20 30 40 50 60 UNCONFORMITY 70

Felsic Pegmatite Veining

Py Cpy 80 Py Cpy 90 Py Cpy HORNBLENDITE Py Cpy CARB. VEINING 100 HORNBLENDITE Py Cpy 110 Py Cpy CARB. QTZ. VEINING HORNBLENDITE 120 LAMPROPHYRE Py Cpy 130 Cpy Py CARB. VEINING 140

CARBONATE ALTERATION

30° LCA 70° LCA Py 150 30° LCA 160 CHLORITE VEINING Cpy 170 Sz Sz Py Cpy 180 CHLORITE VEINING

CHLORITIC ALTERATION

190 CARB. VEINING Cpy Po Py 200 Ch Ch C C Ch 210 220 Ch C C 230 Cpy 80° LCA 240 C C 250 Ch 260 270 Ch Ch C 280 Ch 290 Ch 300

TD 302·5m

Au ppm 0 0.025 0.05 0.075 0.1

Cr ppm 0 1000 2000 3000 4000

Co ppm 0 50 100 150 200

Ni ppm 0 250 500 750 1000

Cu ppm 0 250 500 750 1000

Ba ppm 0 1250 2500 3750 5000

Ce ppm 0 125 250 375 500

La ppm 0 125 250 375 500

* HOLE BLOCKAGE AT 72·0m PREVENTED DOWNHOLE LOGGING.

MESOZOIC
- CLAYSTONE
- SANDSTONE

UNCONFORMITY

PROTEROZOIC?
- WEATHERED BASEMENT
- PYROXENITE
- PERIDOTITE

- ACID INTRUSIVES (Dacites)
- BASALT (Vesicular)
- TRACHYANDESITE
- K-FELDSPAR-QUARTZ PEGMATITE
- BRECCIA

Ch Chloritic Alteration
C Carbonate Alteration

Cpy Chalcopyrite
Po Pyrrhotite
Py Pyrite
Qtz Quartz

VEINING
SZ Shear Zone

* WHOLE ROCK ANALYSIS
- SiO_2% - 45·5
- Al_2O_3% - 12·4
- CaO% - 8·4
- K_2O % - 3·5
- Fe_2O_3% - 10·5
- MgO% - 5·8
- Na_2O% - 2·2
- TiO_2% - 2·3
- MnO % - 0·13
- P_2O_5% - 2·2
- LOI % - 7·00

(168·38 - 168·44m)

6532-31

CRA EXPLORATION PTY LIMITED

MT EBA E.L. 1315
LAKE LABYRINTH WEST PROSPECT
DD88ME2 DRILL LOGS

REFERENCE KINGOONYA SH53-11	
SCALE 1:500	DRAWN DCP
AUTHOR DCP	REPORT 15445
DATE 6 SEP 88	PLAN No SAa 5004

485000mE
490000mE
495000mE
500000mE
505000mE
30°45'
30°50'
30°55'
31°00'
134°55'
135°00'
6594000mN
6590000mN
6585000mN
6580000mN
6575000mN
6571000mN
6586000mN
6584000mN
6578000mN
496000mE
498000mE
500000mE
494000mE
499400mE
499800mE
499200mE
Warna Rockhole
TARCOOLA 29Km
VERMIN PROOF FENCE
TRANS AUSTRALIAN RAILWAY
Carters Well
Tank (disused)
Earea Dam
4734
MT 5961
MT 5962
KINGOONYA 26·5 Km
SOUTH LAKE
approx. position
approx. position
Kenella Well
HOPEFUL HILL
salt
salt lakes

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

0 5km 10km
1:50 000

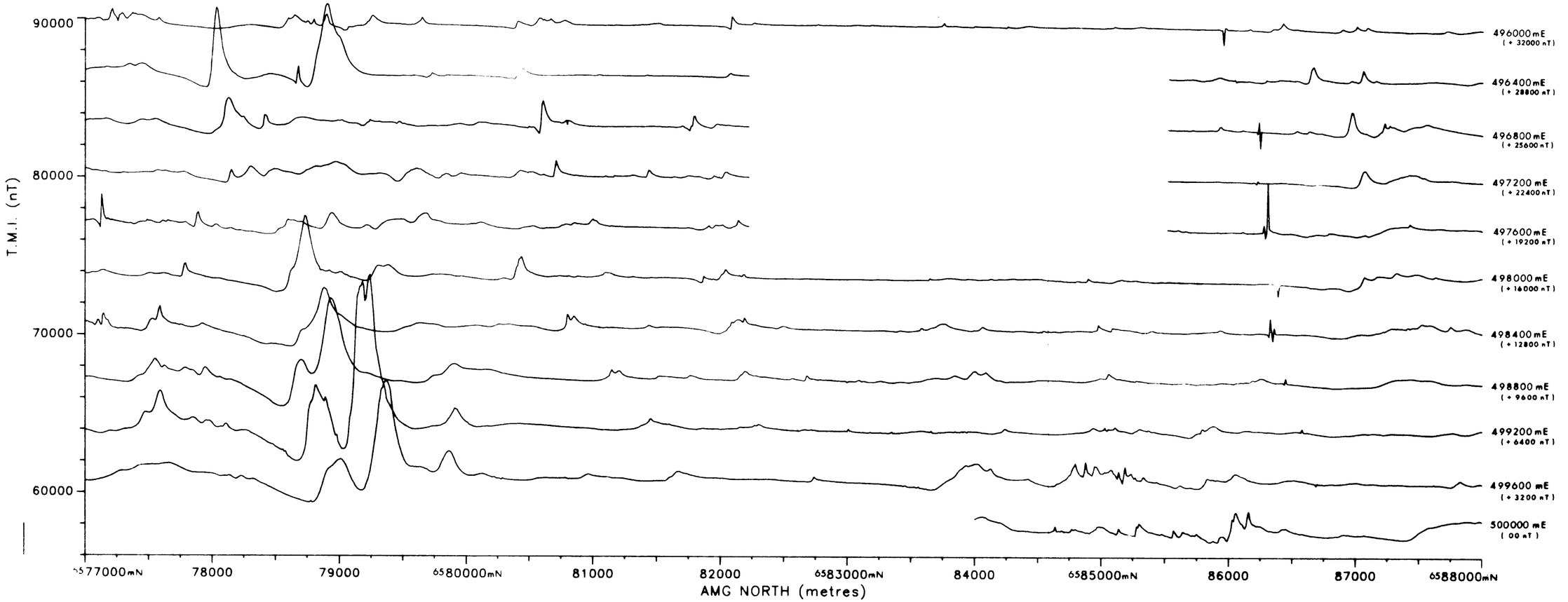
Proposed Grid Infill

6532-32

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT
GRID LOCATION
& PROPOSED GRID INFILL

REF.	TARCOOLA SH 53-10		
SCALE	1:50 000	DRAWN	F.R.
AUTHOR	G.L.M.	REPORT	15445
DATE	June '88	PLAN NO.	SAa 4762



6532-33

CRA EXPLORATION PTY LTD

MT EBA E.L. 1315 – S.A.

SOUTH LAKE PROSPECT

STACKED MAGNETIC PROFILES

REFERENCE TARCOOLA SH 53–10	
SCALE 1:25000	DRAWN GLM
AUTHOR GLM	REPORT 15445
DATE 28 JAN 88	PLAN No SAa 4860

CRA EXPLORATION PTY. LIMITED

TWELFTH QUARTERLY REPORT FOR MOUNT EBA EL 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH JANUARY, 1989

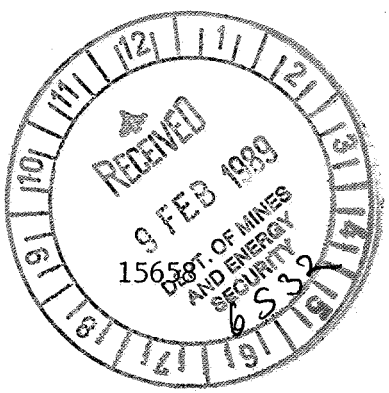
AUTHOR: D.C. PALMER/G.L. MACKEE

COPIES TO: SADME
CIS CANBERRA

DATE: 31ST JANUARY, 1989

SUBMITTED BY: D.C. Palmer . G.L. Mackee

ACCEPTED BY:



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CONTENTS

	PAGE
LIST OF PLANS	
LIST OF TABLES	
LIST OF APPENDICES	
1. SUMMARY	1
2. INTRODUCTION	1
3. PREVIOUS WORK	1
4. WORK CARRIED OUT	4
4.1 Geophysics - South Lake Prospect	4
4.2 Geochemistry - Lake Labyrinth West Prospect	5
EXPENDITURE	7
REFERENCES	8
LOCATION	8
KEYWORDS	8

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba EL 1315, S.A. - Locality Plan	1:250 000
SAa 4762	Mt. Eba EL 1315, S.A. - South Lake Prospect Grid Location	1: 50 000
SAa 5028	Mt. Eba EL 1315, S.A. - South Lake Prospect Bouguer Gravity and Magnetic Profiles	1: 10 000
SAa 5048	Mt. Eba EL 1315, S.A. - South Lake Prospect SIROTEM Profile, Line 496000mE	1: 5 000
SAa 5049	Mt. Eba EL 1315, S.A. - South Lake Prospect SIROTEM Profile, Line 496400mE	1: 5 000
SAa 5050	Mt. Eba EL 1315, S.A. - South Lake Prospect SIROTEM Profile, Line 499200mE	1: 5 000
SAa 5004	Mt. Eba EL 1315, S.A. - Lake Labyrinth West Prospect DD88ME2 Drill Hole Logs	1: 500

LIST OF TABLES

Table 1 Summary of Work Completed on Mt. Eba EL 1315

LIST OF APPENDICES

Appendix I Drill Hole DD88ME2 Geological Logs & Geochemical Assays

1. SUMMARY

No field work was completed during the quarter. Assessment of the infill ground magnetics, gravity and SIROTEM completed on the South Lake Prospect during the eleventh quarter indicates the need for further infill geophysics to fully define drill targets in the Kenella Rock area.

Samples of drill core from DD88ME2 submitted for REE assays returned elevated Nd assays (max. 206 ppm) from intervals of carbonate altered andesitic alkali-basalt between 146.21 m and 170.25 m.

Application was made, and approval given, to reduce the area of the EL to 1440 square kilometres.

2. INTRODUCTION

Mt. Eba EL 1315 is located on the Kingoonya, Tarcoola, Childara and Gairdner 1:250 000 sheets. The licence was granted to CRA Exploration Pty. Limited on 9th January, 1986 for a period of one year and subsequently renewed for a further one year period from 9th January, 1988.

Application has been made, and approval granted, for a further one year renewal over a reduced area (plan SAa 3552).

This report details work carried out on Mt. Eba EL 1315 during the twelfth quarter.

3. PREVIOUS WORK

Past exploration within the immediate area of the EL, by other companies, is summarised in the first quarterly report for Mt. Eba EL 1315 (Sugden, S.P.).

Exploration activity conducted by CRA Exploration on Mt. Eba EL 1315 up to and including the eleventh quarter is summarised in Table 1.

TABLE 1

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1986	Literature Search	SADME Open File	Compilation of previous exploration	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	27 Samples Assayed (19 elements)		1st Qtly Rpt on Mt. Eba EL 1315
1986	145.1 km Ground Magnetics	20 m stations, MP-3 Magneto-meter	Wallabyng Range Prospect	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	33 Samples Assayed (20 elements)	Wallabyng Range	2nd Qtly Rpt on Mt. Eba EL 1315
1986	Detailed Airborne Magnetic/Radio-metric Survey	300 m N/S lines, 80 m terrain clearance	Geoterrex P/L (Contractors)	3rd/4th Qtly Rpt on Mt. Eba EL 1315
1986	Compilation Plans - Outcrop Geology - Radiometrics Anomalies	1:100 000 (SADME Mapping)		3rd Qtly Rpt on Mt. Eba EL 1315
1986	26 km Ground Magnetics	10 m stations, Scintrex MP-3 Magnetometer	Lake Labyrinth West Prospect	4th Qtly Rpt on Mt. Eba EL 1315
1987	Compilation Plan of all Aeromag-netic Surveys	1:100 000		4th Qtly Rpt on Mt. Eba EL 1315
1987	Rock Chip Sampling	11 Samples Assayed	Glenloth Prospect	7th Qtly Rpt on Mt. Eba EL 1315
1987	3 km Gravity	100 m stations; LaCoste & Romberg gravimeter	Lake Labyrinth West Prospect	7th Qtly Rpt on Mt. Eba EL 1315

1987	107 km Ground Magnetics	10 m stations; Scintrex MP-3 Magnetometer	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
	65 km Gravity	100 m stations; Lacoste & Romberg gravimeter	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
1987	DD87ME1	Total depth 51.0 m HW tricone chips	Kingoonya Drilling P/L Lake Labyrinth West Prospect	8th Qtly Rpt on Mt. Eba EL 1315
1988	Ground Magnetics Profiles	1:25 000	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Rock Sampling	Petrology (Pontifex & Assoc.)	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	60 Samples Assayed for Au	Reassaying of Bedrock Samples CRAE 1977 South Lake Grid	9th Qtly Rpt on Mt. Eba EL 1315
1988	Stacked Gravity Profiles	1:25 000	South Lake Prospect	10th Qtly Rpt on Mt. Eba EL 1315
1988	DD88ME2	502200mE 6607768mN -60°S Total Depth 302.5 m	Mathews Drilling Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315
	DD88ME2	Petrology (Pontifex & Assoc.) 7 samples	Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	DD88ME2 core grindings 116 samples	Lake Labyrinth West Prospect	11th Qtly Rpt on Mt. Eba EL 1315

1988	6.0 km Gravity	3.0km, 50m stns 3.0km, 100m stns LaCoste & Romberg gravimeter	South Lake Prospect Grid	11th Qtly Rpt on Mt. Eba EL 1315
	6.0 km Ground Magnetics	10 m stations Scintrex MP-3 Magnetometer	South Lake Prospect	11th Qtly Rpt on Mt. Eba EL 1315
1988	TEM Survey	4.5km, 3 lines 100m, in-loop RVR SIROTEM	South Lake Prospect/ Kenella Rock	11th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	DD88ME2 core 12 samples REE assays	Lake Labyrinth West Prospect	12th Qtly Rpt on Mt. Eba EL 1315

4. WORK CARRIED OUT

4.1 Geophysics - South Lake Prospect

No field work was completed during the quarter. The infill ground magnetics and gravity completed on the South Lake Prospect during the eleventh quarter was reduced and merged with the existing adjacent data (plan SAa 5028). Final profile plots of the SIROTEM response were received from the contractor (plans SAa 5048 to SAa 5050). Actual traverse locations are shown on plan SAa 4860.

The SIROTEM traverse along line 499200mE has not detected any significant conductive responses associated with either of the coincident magnetic/gravity anomalies at 6578800mN and 6579200mN. Modelling of the magnetic anomalies on this line shows depth to source of 30 metres, with depth increasing to 50 metres on lines 498800mE and 499800mE. Although the TEM response negates the possible presence of massive sulphides, the magnetic response coupled with the 2mgal bouguer gravity signature suggests the most likely source is iron formation, and does not rule out the possible presence of gold mineralisation.

The SIROTEM traverse along line 499200mE did not extend sufficiently far to the south to test a coincident magnetic/gravity anomaly (2000nT/1.5 mgal) which appears as a thickening of an interpreted shear zone running through the Kenella Rock area.

In the Kenella Rock area of the South Lake Grid, the two short SIROTEM traverses both indicate anomalous responses, but analysis of the voltage decay time constants using TEMPEST software, and the shape of the voltage profiles suggest that the anomaly source is a thin, shallow conductive layer with a conductivity*thickness product of 25 mhos - i.e. the salt lake surface which is partially traversed by line 496400mE and has thin sand cover in the vicinity of line 490000mE. This layer is masking any possible response from deeper basement sources.

The area to the west of the Pb/Zn mineralisation intersected by Abadon Holdings on line 490000mE remains untested, and is not affected by salt lake cover.

4.2 Geochemistry - Lake Labyrinth West Prospect

Drill hole 88DDME2 completed during the tenth quarter, successfully tested the source of a 4000 nT reversely polarized magnetic and coincident 2-8 mgal gravity anomaly at Lake Labyrinth West Prospect.

A summary lithological log of drill hole DD88ME2 is detailed as follows:

0	- 72	m	Cover sediments
72	- 94.9	m	Interlayered andesite & peridotite with rare pegmatite bands.
94.9	- 112.88	m	Interlayered peridotite, pyroxenite & basalt with rare felsic pegmatite bands.
112.88	- 134.1	m	Porphyritic andesite with dolerite bands.
134.1	- 146.2	m	Interlayered porphyritic andesite & peridotite.
146.2	- 156.1	m	Carbonate altered porphyritic andesitic basalt.
156.1	- 158.1	m	Andesite.
158.1	- 167.3	m	Carbonate altered peridotite.
167.3	- 170.7	m	Carbonate altered andesitic basalt with gneiss xenoliths.
170.7	- 182.2	m	Carbonate altered peridotite with pegmatite bands.
182.2	- 199.3	m	Chlorite altered peridotite with felsic pegmatite bands.
199.3	- 302.5	m	Peridotite with felsic pegmatite bands, and rare dolerite.

Total Depth 302.50 m

Assay results for seventy eight samples from drill hole DD88ME2 generally reflected the ultramafic rock types intersected (refer CRAE Rpt. 15445).

During the twelfth quarter, twelve intervals of DD88ME2 drill core which returned high phosphorus values (>0.1%) and corresponding elevated Ce and La values were submitted for full REE suite assay.

Assay results reported highly elevated Nd values from the following intervals of carbonate-altered andesitic alkali-basalt viz...

146.21 - 149.59 m	av. 206 ppm Nd
150.43 - 156.16 m	av. 177 ppm Nd
167.30 - 170.25 m	av. 191 ppm Nd

A probable source of Nd exists within the REE phosphate minerals monazite and bastnaesite. Accessory apatite was noted in petrological samples from the above intervals.

An updated geochemistry histogram plot is presented in plan SAa 5004. A detailed lithological log and full assay data appear in Appendix I.

D.C. PALMER & G.L. MACKEE

DCP&GLM/pq

EXPENDITURE

Expenditure for the three month period ending 31st December, 1988, the nearest accounting period was $16 836, as detailed below.

	$
Drilling	162
Payroll	4 990
Supplies	1 243
Vehicle	3 107
Travel	1 448
Rent	1 791
Contractors	2 394
Laboratory	225
Sundry	200
Overheads	1 276
Total	$16 836

REFERENCES

Sugden, S.P., 1986	First Quarterly Report For Mt. Eba EL 1315, South Australia, For The Period Ending 9th April, 1986. (CRAE Report No. 13885)
Palmer, D.C., 1988	Eleventh Quarterly Report For Mt. Eba EL 1315, South Australia, For The Period Ending 9th October, 1988. (CRAE Report No. 15445)

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geophys-EM, Geophys Gravity, Geophys Magnetics, Geochemistry

APPENDIX I

DRILL HOLE DD88ME2 GEOLOGICAL LOGS & GEOCHEMICAL ASSAYS

CRA EXPLORATION PTY. LIMITED.

DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

DD88ME2

CO-ORDINATES 502200mE 6607768mN

RL COLLAR

AZIMUTH Grid South

INCLINATION -60°

DRILLERS MATHEWS DRILLING

DRILL TYPE LONGYEAR 44

COMMENCED 19/04/88

COMPLETED 27/05/88

DEPTH 302.5m

CASING LEFT 0-72 HW, 60-75 HQ

HOLE No.

DPO Nos 37534, 37539, 37540, 37535

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS SUSC. x10⁻⁵ SI
0	69		Rotary HW		COVER SEQUENCE					
					0 - 3.0 Claystone: Yellow to olive green with minor angular gypsum, angular to subrounded quartz fragments and calcrete					
					3.0- 9.0 Sandstone/Claystone: Pale yellow to yellow brown quartzose sandstone comprising subangular to subrounded quartz, angular gypsum, minor clays					
					9.0-30.0 Sandstone: White to pale yellow quartzose sandstone comprising medium to fine grained quartz (subangular to subrounded), iron stained, rare quartzite and minor fine grains of ironstone 15.0-21.0m medium to coarse grained.					
					30.0-51.0 Sandstone: As above with abundant fine ironstone grains					
					51.0-69.0 Sandstone: Pale brown, medium to coarse grained quartzose sandstone with subrounded quartz dominant, minor ironstone, quartzite chips, trace carbonaceous fragments, minor clay, rare green chlorite? after pyroxene					
69.0	72.0				WEATHERED BASEMENT/SANDSTONE					80
					Dark brown quartzose sandstone as for 51.0-59.0 with common to abundant chlorite fragments to 2mm, fine grained black rock fragments (mafics?), minor biotite (altered) with an increase in chlorite and mafic content from 69.5m					
72.0	74.5		NQ		PORPHYRITIC DACITE/RHYODACITE					30
					Brown to grey weathered porphyritic acid (intermediate?) volcanic, dacite? consisting of euhedral phenocrysts of plagioclase (25%), and subordinate k-feldspar (15%) to 2mm with fine laths of hornblende and biotite (15% combined) distributed throughout. A fine crystalline quartz dominant ground mass. Numerous cross cutting chlorite-serpentinite veinlets with minor iron oxide and micro brecciation/fracturing. Core very broken.					
					72.1-72.8 Core loss					
					74.4 K-feldspar xenocryst - surrounded with chloritic altered margins. Lower contact 10-40° LCA (approx.)					
74.5	94.9				PERIDOTITE WITH INTERLAYERED DACITE/RHYODACITE AND DISCORDANT PEGMATITES AND RARE DOLERITE					
					Rock weathered to 81.0m. Core very broken and fragmented obscuring structure	1161801	74.5	75.55		
					74.5 -75.55 Peridotite Dark green to grey, weathered, massive medium crystalline peridotite comprising of altered plagioclase and olivene? (40%), euhedral amphibole (25%), disseminated magnetite (10-15%) and scattered phenocrysts of euhedral biotite (10-15%). Possible pyroxene (10%). Numerous iron oxide and chlorite veining at 0-5° LCA. Trace disseminated pyrite and chalcopyrite. Lower boundary 45° LCA (approx.).				74.8m	1500

Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe₂O₃	P	Mn	Mo
0.005 FIRE (ppm)	0.005 KARIUS (ppm)	0.001 ppm ROD	2ppm XRF (ppm)	10ppm XRF (ppm)	3ppm XRF (ppm)	5ppm ICP (ppm)	5ppm ICP (ppm)	5ppm ICP (ppm)	5ppm ICP (ppm)	5ppm ICP (ppm)	10ppm ICP (ppm)	5ppm ICP (ppm)	10ppm ICP (ppm)	5ppm ICP (ppm)	10ppm ICP (ppm)		3ppm XRF (ppm)	10ppm ICP (ppm)	0.01% ICP (ppm)	100ppm ICP (ppm)	10ppm ICP (ppm)	20ppm ICP (ppm)
<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	75	22	420	317	81	1320	<5	<15		<3	<10	6.20	<100	1260	<20

SUMMARY:

LOGGED BY D.G. PALMER

SHEET 1 OF 8

DATE 25/04/88

SAo 4187a

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

SAMPLE Nos 1161801

DEPTH FROM 74.50 TO 75.55m

DPO Nos 37535

LABS ANALABS

6532-34

Sheet 1 of 8

Plan No SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT LABYRINTH PROSPECT, MT. EBA EL 1315

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA ELEVE

CO-ORDINATES 502200mE 6607268mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No. | SAMPLE Nos. 116182-116217 | DPO Nos 37535

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW 60-75 HQ | DPO Nos 37534, 37539, 37540, 37535 | DEPTH FROM 76.55 m TO 94.90 m | LABS. AMDEL

HOLE No. DD88ME2

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10⁻⁵ SI	GEOPHYSICS 3.0 g/cc
			NQ		75.55-76.3 Porphyritic Dacite. Brown to grey dacite as for 72.00-74.5m with k-feldspar-quartz (biotite) pegmatite at 76.4-76.5m and chlorite and iron oxide lined fractures. Lower boundary 90° LCA (approx.)	1161802	75.55	76.3		x	
					76.3 -84.12 Peridotite? Dark green to grey weathered massive medium crystalline diprite comprising plagioclase (40%) and an interlocking mass of euhedral amphibole (25-30%), magnetite (10-15%), pyroxene? (5-10%) and biotite (10-15%) minor irregular quartz and calcite veinlets. Trace pyrite and chalcopyrite disseminated through rock.	1161803	76.3	78.0			
						1161804	78.0	79.5			
						1161805	79.5	81.0			2.81
					Discordant. K-feldspar-quartz-amphibole pegmatite from 81.0-81.30 at 55° LCA	1161806	81.0	81.3			
						1161807	81.3	84.12			
					84.12-84.8 Rhyodacite. Possibly discordant, comprising medium crystalline phenocrysts of plagioclase (25%) and k-feldspar (45%) which may be rotated (flow banding?) and subordinate quarts (20%). Minor amphibole and biotite. Well orientated chlorite between feldspathic phenocrysts. Core loss between 84.35-84.8.						
					84.8 -85.28 Dolerite? Weathered discordant? Plagioclase-amphibole-k-feldspar-biotite dolerite, rock very friable.	1161808	84.8	85.28			
					85.28-87.0 Peridotite. As for 76.5-84.12m with thin (1-2mm) siderite? and quartz veinlets. Trace pyrite and chalcopyrite with veins. Minor clay coatings on some fracture surfaces				86.0	15000	
						1161809	85.28	87.0			
					87.0 -87.3 Pegmatite. Quartz-k-feldspar-plagioclase-(biotite-chlorite) pegmatite. Medium to coarse crystalline, frequently fractured. Upper boundary 60° LCA.	1161810	87.0	87.3			
					87.3 -88.45 Peridotite. As for 85.28-87.0m. Trace pyrite and chalcopyrite.				88.0	5000	
						1161811	87.3	88.45			
					88.45-88.9 Pegmatite. Very coarsely crystalline, quartz (80%), k-feldspar (15%) and biotite (5%) Trace chlorite. Unit discordant with lower boundary 30° LCA	1161812	88.45	88.90			
					88.9 -89.7 Peridotite. As for 85.28-87.0m	1161813	88.90	89.70			
					89.7 -90.0 Core Loss						
					90.0 -91.0 Pegmatite. As for 87.0-87.3m	1161814	89.7	91.0			2.67
					90.4 -90.0 Core Loss						
					91.0 -94.9 Peridotite. As for 76.5-75.9 with discordant quartz vein (35° LCA) at 94.2m and from 94.4m chloritic/serpentinitic alteration of plagioclase and olivene? within the peridotite	1161815	91.0	92.5			
									92.4	8500	
						1161816	92.5	94.0			
						1161817	94.0	94.9			
94.9	112.88				INTERLAYERED ULTRAMAFICS AND BASALT WITH DISCORDANT PEGMATITE BANDS Unit is a series of interlayed basic volcanics with discordant pegmatite bands. The basic volcanics are altered to hornblendites near the pegmatite bands. Rock very fractured and broken with quarts plagioclase veining and minor siderite veinlets.						

SAMPLE NUMBER	Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe %	P	Mn	Mo	
	Au ppb	Pt ppb	Pd ppb	As ppm	W ppm	Sn ppm	Ag ppm	Pb ppm	Zn ppm	Ba ppm	Cu ppm	Ni ppm	Co ppm	Cr ppm	La ppm	Ce ppm	Nb ppm	U ppm	Th ppm	Fe %	P ppm	Mn ppm	Mo ppm	
	Fire Assay	Fire Assay	Fire Assay	AAS	AAS	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	
	339			(401)	(401)	(209)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)		(201)	(201)	(201)	(201)	(201)	(201)	
116182	<0.005	<0.005	<0.001	<2	85	6	<5	6	140	948	209	177	40	462	40	68		<3	13	3.82	497	582	<20	*
116183	<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	85	39	429	495	107	1210	<5	<15		<3	<10	7.69	<100	1360	<20	
116184	<0.005	<0.005	<0.001	15	<20	<3	<5	5	73	50	337	429	82	1210	<5	<15		<3	<10	7.32	<100	1290	<20	
116185	<0.005	<0.005	<0.001	<2	<20	4	<5	<5	83	84	380	323	64	1090	<5	15		4	<10	5.98	<100	1290	<20	
116186	<0.005	<0.005	<0.001	<2	100	6	<5	<5	112	892	110	44	21	140	87	109		<3	22	1.18	277	203	<20	*
116187	<0.005	<0.005	<0.001	<2	<20	3	<5	<5	75	66	207	659	92	1350	<5	<15		<3	<10	6.16	<100	1250	<20	
116188	<0.005	<0.005	<0.001	<2	<20	5	<5	<5	121	1180	131	95	49	240	56	101		3	41	6.33	1650	1360	<20	*
116189	0.016	<0.005	<0.001	<2	<20	<3	<5	<5	89	102	211	573	102	1140	<5	17		<3	<10	7.09	<100	1430	<20	
116190	0.012	<0.005	<0.001	5	110	<3	<5	20	118	1630	122	47	20	248	59	102		<3	24	1.57	320	318	<20	*
116191	<0.005	<0.005	<0.001	3	<20	8	<5	<5	83	104	216	473	104	1280	<5	<15		<3	<10	6.84	<100	1310	<20	
116192	<0.005	<0.005	<0.001	<2	320	5	<5	<5	284	283	375	294	70	539	5	<15		<3	<10	3.18	<100	628	<20	
116193	<0.005	<0.005	<0.001	2	<20	8	<5	<5	109	50	385	465	88	1280	<5	<15		3	<10	6.18	<100	1490	<20	
116194	<0.005	<0.005	<0.001	<2	70	<3	<5	10	110	1300	139	73	25	205	46	78		<3	54	1.83	691	398	<20	*
116195	<0.005	<0.005	<0.001	<2	<20	10	<5	40	103	103	179	450	103	1270	<5	21		3	<10	6.71	124	1540	<20	
116196	<0.005	<0.005	<0.001	<2	<20	<3	<5	20	73	101	240	469	100	1270	9	20		<3	<10	6.46	119	1210	<20	
116197	<0.005	<0.005	<0.001	<2	<20	8	<5	7	83	25	156	495	113	1210	<5	<15		<3	<10	5.90	119	1240	<20	

SUMMARY :

LOGGED BY DC PALMER/SP SUGDEN DATE 27/04/88

SHEET 2 OF 8

SAa 4187

6532-35 Sheet 2 of 7

Plan No SAa 4187a

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN

RL COLLAR

AZIMUTH Grid South

INCLINATION -60°

DRILLERS MATHEWS DRILLING

DRILL TYPE LONGYEAR 44

COMMENCED 19/04/88

COMPLETED 27/05/88

DEPTH 302.5m

CASING LEFT 0-72 HW 60-75 HQ

HOLE No.

DPO Nos 37534, 37539, 37540, 37535

SAMPLE Nos 1161818-1161835

DEPTH FROM 94.90m TO 142.88m

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

DPO Nos 29835, 37593

LABS. AMDEL ADL (geochem), Pennwest & Assoc (petrology)

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL 1315

HOLE No. DD88ME2

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	MAG SUS x10-5SI	S.G. g/cc
			NQ		94.90-95.45 Hornblendite with Pegmatite Dark to light green medium to coarse crystalline massive amphibole, altered rock, comprising euhedral amphibole 45% and biotite (25%)				80	
					with fine grained altered plagioclase. This appears to be an alteration halo to small	1161818	94.9	95.45		
					discordant irregular k-feldspar-quartz pegmatite bands (contacts 40-80° LCA) at	919866	95.25	95.3	(PET)	
					97.05-97.14, 95.27-95.30 and 95.45-95.5m. Minor siderite and quartz veining with traces pyrite					
					95.45-95.8 Peridotite As for 76.5-84.12. Lower contact 60° LCA (v.approx.)	1161819	95.45	95.80	5000	
					95.8 -97.4 Vesicular/Amygdaloidal Basalt Dark green-grey massive fine grained rock with	1161820	95.80	97.40		
					groundmass of mafic minerals and plagioclase. Irregularly scattered vesicules 1-3mm	919867	96.5	96.55	(PET)	
					in diameter which may be quartz or carbonate filled. Trace pyrite and chalcopyrite					
					(97.10m). Minor irregular quartz veining (20-60° LCA) Trace pyrite and chalcopyrite					
					on fracture planes. Lower contact 60° LCA.					
					97.4 -98.8 Peridotite As for 76.5-84.12 with moderate quartz/carbonate?? veining (carbonate	1161821	97.40	98.80	10000	
					doesn't react with acid). Small pegmatite band at 40° LCA from 98.3-98.4m					
					98.8 -99.2 Pegmatite As above	1161822	98.80	99.20		
					99.2 -99.68 Peridotite As above with thin pyrite veins at 15° LCA and minor carbonate at 99.5m	1161823	99.20	99.86		
					99.68-99.86 Hornblendite Similar to 94.9-95.45 with k-feldspar (20%) forming medium sized				4000	
					grains in ground mass with amphibole (50%) biotite 15% and minor plag <5%. Minor					
					chalcopyrite and pyrite (approx. 1%) as fine disseminated grains. Lower contact					
					17° LCA. Interpreted as alteration contact to pegmatite below.	919868	107.2	107.25	(PET)	
					99.86-100.23 Pegmatite K-feldspar-quartz-biotite rock with thin amphibolitic margins	1161824	99.86	100.23		
					100.23-100.85 Peridotite Weakly amphibolitic altered with carbonate veining	1161825	100.23	100.85		
					100.85-101.35 Hornblendite As for 99.68-99.86	1161826	100.85	101.35		
					101.63-106.45 Pegmatite Coarse crystalline felsic pegmatite consisting of quartz 35%, k-feldspar	1161827	101.35	103.00	102.0	20
					25%, microcline? 35%, and minor biotite 5%, with minor amphibolitic xenoliths	1161828	103.00	104.50		
					and carbonate/clay veining. Minor amphibole-biotite-k-feldspar veining	1161829	104.50	105.60	105.00	3.07
						1161830	105.60	106.45		
					106.45-112.88 Pyroxenite Dark green to grey massive to very weakly foliated (30° LCA) medium				7500	
					crystalline pyroxenite comprising plagioclase (35-40%), Pyroxene 25-30%, Magnetite	1161831	106.45	108.00	112.1	11000
					10-15% and biotite 10-15%. Trace disseminated pyrite and minor chalcopyrite.	1161832	108.00	109.45		
					Abundant carbonate?? and quartz veining (some with clay) at irregular orientations,	1161833	109.45	111.00		
					and serpentine.	1161834	111.00	112.00		
112.88	134.10				PORPHYRITIC ANDESITE WITH MINOR DISCORDANT DOLERITE? BANDS	1161835	112.00	112.88	114.0	35
					Dark grey to grey green porphyritic andesite comprising of subhedral plagioclase phenocrysts to 2mm					
					in size (30%) weakly orientated biotite laths (25%) and minor hornblende (5-10%) in a finely				110.00	3.00
					crystalline plagioclase groundmass. Rare disseminated pyrite and chalcopyrite. Minor mafic bands					
					Lower contact 55° LCA. Core now competent.					

Au ppb	Pt ppb	Pd ppb	As ppm	W ppm	Sn ppm	Ag ppm	Pb ppm	Zn ppm	Ba ppm	Cu ppm	Ni ppm	Co ppm	Cr ppm	La ppm	Ce ppm	Nb ppm	U ppm	Th ppm	Fe%	P ppm	Mn ppm	Mo ppm	
<0.005	<0.005	<0.001	<2	25	<3	<5	85	136	1130	66	212	49	444	23	46		3	16	3.53	146	1070	<20	
<0.005	<0.005	<0.001	<2	<20	<3	<5	15	83	495	159	413	83	886	<5	<15		<3	<10	4.80	119	889	<20	
<0.005	<0.005	<0.001	4	<20	3	<5	26	120	896	135	67	49	329	28	57		<3	<10	6.60	1030	1300	<20	M
<0.005	<0.005	<0.001	<2	20	7	<5	50	81	113	225	444	98	1130	<5	<15		<3	<10	5.81	121	1140	<20	
<0.005	<0.005	<0.001	<2	90	8	<5	10	99	1200	94	53	22	224	170	291		3	53	1.92	664	313	<20	Y
<0.005	<0.005	<0.001	<2	<20	<3	<5	10	113	706	207	435	80	964	42	79		<3	<10	6.31	676	1350	<20	M
<0.005	<0.005	<0.001	<2	40	4	<5	9	109	1040	48	124	33	266	96	164		3	57	4.11	606	1000	<20	M
<0.005	<0.005	<0.001	<2	<20	5	<5	5	92	88	269	491	32	1270	5	<15		<3	<10	5.62	<100	1210	<20	
<0.005	<0.005	<0.001	<2	<20	<3	<5	20	139	794	174	209	52	534	25	52		<3	<10	6.05	1200	1570	<20	Y
<0.005	<0.005	<0.001	<2	170	<3	<5	10	150	1490	148	96	29	295	29	44		<3	23	2.03	237	978	<20	M
<0.005	<0.005	<0.001	<2	30	<3	<5	10	124	1250	119	85	37	338	32	63		<3	<10	5.99	1630	1330	<20	Y
<0.005	<0.005	<0.001	<2	190	<3	<5	10	139	1180	152	49	20	267	16	23		<3	18	1.08	119	232	<20	
<0.005	<0.005	<0.001	5	110	7	<5	15	99	1190	94	46	19	290	11	19		<3	10	1.63	148	262	<20	
<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	74	75	230	496	90	1280	<5	<15		<3	<10	6.34	112	1140	<20	
<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	71	53	250	498	32	1180	<5	<15		<3	<10	6.31	<100	1190	<20	
<0.005	<0.005	<0.001	3	<20	<3	<5	<5	91	77	242	500	92	1320	<5	<15		<3	<10	6.94	119	1210	<20	
<0.005	<0.005	<0.001	<2	<20	5	<5	<5	99	64	228	509	95	1360	<5	<15		<3	<10	7.02	171	1150	<20	
<0.005	<0.005	<0.001	<2	<20	5	<5	<5	96	64	290	541	100	1290	<5	<15		<3	<10	6.86	185	1260	<20	

Au ppb (FA)	Pt ppm (AAS)	Pd ppm (AAS)	As ppm (XRF)	W ppm (XRF)	Sn ppm (XRF)	Ag ppm (AAS)	Pb ppm (XRF)	Zn ppm (ICP)	Ba ppm (ICP)	Cu ppm (ICP)	Ni ppm (ICP)	Co ppm (ICP)	Cr ppm (ICP)	La ppm (ICP)	Ce ppm (ICP)	Nb ppm	U ppm (XRF)	Th ppm (XRF)	Fe% (ICP)	P ppm (ICP)	Mn ppm (ICP)	Mo ppm (ICP)	
(30)			(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)		(20)	(20)	(20)	(20)	(20)	(20)	

LOGGED BY DC PALMER/SP SUGDEN DATE 4/05/89

SHEET 3 OF 8

SUMMARY:

SAo 4187

6532-36

Sheet 3 of 8

Plan No. SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN

RL COLLAR

AZIMUTH Grid South

INCLINATION -60°

DRILLERS MATHEWS DRILLING

DRILL TYPE LONGYEAR 44

COMMENCED 19/04/88

COMPLETED 27/05/88

DEPTH 302.5m

CASING LEFT 0-72 HW, 60-75 HQ

HOLE No.

DPO Nos 37534, 37535, 37539, 37540

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻⁵	GEOPHYSICS S.G g/cc
			NQ								
					118.47-119.10 Hornblendite as for 94.9-95.45. Possibly an alteration halo to a pegmatite band near hole. Indistinct contacts	1161836	118.47	119.10			
						919869	119.7	119.75 (PET)			
					122.85-123.8 Medium grained k-feldspar-hornblende-biotite-plagioclase with distinct amphibole needles. Possibly lamprophyric-basalt related. Traces pyrite and chalcopyrite	1161837	122.85	123.80	123.0	40	
						919870	123.5	123.75 (PET)			
									125.00		2.80
134.1	146.2				INTERBANDED PORPHYRITIC ANDESITE AND PERIDOTITE WITH MINOR DOLERITE?						
					BANDS						
					134.1 -136.4 Peridotite Grey green medium grained plagioclase-amphibole-biotite, with traces very fine grained pyrite and chalcopyrite, thin irregular anastamosing				135.0	11000	2.96
						1161838	134.10	135.50			
					chlorite/serpentinite veinlets and minor irregular carbonate? veinlets.	1161839	135.50	136.40			
					134.5 -134.65 Pegmatite band with chloritic or amphibolitic alteration halo and traces chalcopyrite and pyrite						
					136.4 -140.87 Porphyritic Andesite Dark green to grey fine grained dacite with plagioclase and rare k-feldspar phenocrysts and small biotite laths in a very fine grained quartzose ground mass. Rock fractured by very thin carbonate? veinlets. Lower contact is distinct with a chilled amphibolitic margin at 30° LCA				137.5	25	
					140.87-144.65 Peridotite Grey green to grey medium grained plagioclase-amphibole-biotite,				142.0	11000	
					Diorite containing rare traces fine grained disseminated pyrite. Minor thin carbonate? veinlets (60° LCA) and chlorite veinlets (30° LCA). Minor chloritic alteration, possibly related to Dolerite? Dykes.	1161840	140.87	142.0			
						1161841	142.0	142.85			
					142.85-143.1 Discordant Hornblendite unit. Amphibole-chlorite-plagioclase-biotite rock, possibly altered, as 118.47-119.1 with upper contact 60° LCA and lower 120° LCA. Minor k-feldspar pegmatite remnant in centre, contacts gradational	1161842	142.85	144.65			
					144.65-145.06 Andesite As for 136.4-140.8m	1161843	144.65	145.06	145.5	30	2.75
					145.06-146.21 Alkali Dolerite?? Medium grained plagioclase-k-feldspar-amphibole-pyroxene-biotite rock with amphibole forming distinct needles. K-feldspar usually forms	1161844	145.06	146.21			
						948276	145.06	146.21		-	
					in dominant sections. Altered pegmatite or alkali dolerite? Rare pyrite as fine	948277	146.21	148.00		-	
					disseminated euhedral grains. Distinct chilled upper contact at 70° LCA.	948278	148.00	149.59		<0.005	
146.21	156.10				CARBONATE ALTERED PORPHYRITIC ANDESITIC ALKALI BASALT						
					Fine grained dark green-grey with small phenocrysts of k-feldspar and plagioclase often altered	1161845	146.21	148.00	147.3	3400	
					to calcite 1-3mm in size and elongate forming a weak foliation at 30-40° LCA. Ground mass	1161846	148.00	149.59			
					very fine grained mafic minerals and minor biotite. Lower contact chilled, irregular with angle	919871	147.7	147.9 (PET)			
					approximately 30° LCA.	948279	149.59	150.43		-	
					149.59-150.43 Medium grained doleritic band with k-feldspar veinlets and xenoliths	1161847	149.59	150.43	150.4	37	

SUMMARY :

LOGGED BY S.P. SUGDEN DATE 5/5/88

SHEET 4 OF 8

SAo 4187a

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

SAMPLE Nos. 116836 - 116847

DEPTH FROM 118.47 TO 150.43m

DPO Nos 37535, 37539, 37593.

LABS. ANALABS (geochem), PLANTFIELD & Assoc (petrology)

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

Au ppb	Pt ppb	Pd ppb	As ppm	W ppm	Sn ppm	Ag ppm	Pb ppm	Zn ppm	Ba ppm	Cu ppm	Ni ppm	Co ppm	Cr ppm	La ppm	Ce ppm	Nb ppm	U ppm	Th ppm	Fe%	P ppm	Mn ppm	Mo ppm	Y ppm	Pr ppm	Nd ppm	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm
Fire (3B)	Fire (3B)	Fire (3B)	XRF (3D)	XRF (3D)	XRF (3D)	ICP (2D)	XRF (3D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	XRF (3D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)	ICP (2D)
0.005	<0.005	<0.001	<2	45	<3	<5	10	120	1300	120	109	42	836	39	73		<3	10	6.03	1850	1600	<20	8											
0.005	<0.005	<0.001	<2	30	<3	<5	10	126	1550	123	63	38	306	37	75		<3	<10	6.09	2000	1350	<20	9											
									125.00		2.30																							
									135.0	11000	2.96																							
0.005	<0.005	<0.001	<2	45	5	<5	6	106	494	157	369	66	781	13	30		<3	<10	5.73	1450	1240	<20												
0.005	<0.005	<0.001	<2	<20	5	<5	<5	90	37	149	453	78	1260	<5	<15		<3	<10	6.23	144	1850	<20												
									137.5	25																								
									142.0	11000																								
0.005	<0.005	<0.001	2	<20	6	<5	360	419	139	369	437	83	1220	<5	15		<3	<10	6.04	263	1290	<20	6											
0.009	<0.005	0.002	<2	<20	<3	<5	20	92	399	218	384	82	1140	12	23	<10	<3	<10	6.88	715	1200	<20	14											
0.006	<0.005	<0.001	<2	<20	<3	<5	7	78	110	182	453	89	1480	5	<15	<10	<3	<10	6.51	274	1110	<20												
0.005	<0.005	<0.001	<2	55	<3	<5	8	83	1400	75	40	17	126	53	85	12	8	11	2.64	848	583	<20	4											
0.005	<0.005	0.004	<2	35	<3	<5	15	123	1590	115	62	43	308	39	80	12	4	11	6.26	2580	1210	<20	8											
																							21	<20	38	8	2	<10	<5	<5	<20	2	<2	2
																							33	51	149	26	6	16	<5	9	<20	3	<2	2
<0.005																							34	53	213	29	6	16	<5	7	<20	3	<2	2
0.005	<0.005	<0.001	<2	35	<3	<5	20	146	3870	70	135	39	192	222	430	31	<3	17	7.58	8370	1440	<20	5											
0.005	<0.005	<0.001	<2	25	<3	<5	10	134	4010	59	122	36	157	220	429	16	<3	14	7.36	6870	1490	<20	7											
																							21	<20	38	8	2	<10	<5	<5	<20	2	<2	2
0.005	<0.005	0.004	<2	20	<3	<5	<5	112	1720	126	44	38	263	44	89	13	<3	11	6.27	2720	1200	<20	8											

Sheet 4 of 8

Plan No SAo 4187b

6532-37

Sheet 4 of 8

Plan No SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT LABYRINTH PROSPECT, MT. ISA EL 1315

CO-ORDINATES 502200mE 6607760mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 102.5m | HOLE No.

RL COLLAR | INCLINATION -68° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-12 HW 60-75 HQ | DPO Nos 37534, 37539, 37540, 37535

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS ×10⁻⁵	GEOPHYSICS DEN g/cc
			NQ								
					150.43-153.4 More andesitic inteseval with angular k-feldspar quartz gneiss and peridotite xenoliths rare thin carbonate veins	1161848	150.43	152.00			
						1161849	152.00	153.40			
						1161850	153.40	155.00	156.5	3080	
						1161851	155.00	156.16			
						919850	156.16	156.60			
156.16	158.1				ANDESITE	919851	156.60	157.00			
					Fine grained light grey with k-feldspar and plagioclase phenocrysts and rare biotite laths, in a quartzose ground mass. Rare thin chlorite veining core fractured with indistinct lower contact	1161852	156.16	158.10	157.2	20	
						919852	158.10	158.60			
						919853	158.60	158.85			
158.1	167.3				CARBONATE ALTERED PERIDOTITE	919854	158.85	159.00			
					Medium grained, Dark green-grey diorite consisting of equigranular mass of plagioclase, olivene? and laths of biotite with traces of very fine grained disseminated subedral chalcopyrite, variably altered by carbonate (calcite) replacing plagioclase within rock and numerous thin veinlets which may contain chalcopyrite. Vein orientations of 8°, 30° and 50° LCA						
					158.1 -159.35 Peridotite contains extensive chlorite veining	1161853	158.10	159.35			
					159.35-159.5 Thin pegmatitic band with chloritic or amphibolitic alteration halo of surrounding peridotite	1161854	159.35	160.00			
						1161855	160.00	161.50	161.0	9500	
					163.75-165.0 Moderately carbonate altered section	1161856	161.50	163.00			
					165.0 -167.3 Strongly carbonate altered section	1161857	163.00	163.75			
						1161858	163.75	165.00			
						1161859	165.00	166.00	165.04	2.95	
						1161860	166.00	167.30	166.6	8000	
167.3	170.7				CARBONATE ALTERED PORPHYRITIC ANDESITIC BASALT WITH GNEISS XENOLITHS	919872	162.1	162.3	(PET)		
					Dark grey very fine grained andesitic basalt with small phenocrysts to 1mm of carbonate (after plagioclase) in a mafic ground mass. Minor traces disseminated pyrite and chalcopyrite. Thin carbonate veinlets throughout. Phenocrysts form a vague lineation of 30° LCA. In parts the	1161861	167.30	169.00			
						1161862	169.00	170.25			
						1161863	170.25	171.46			
					170.25-171.7 Xenolith? of medium to fine grained well foliated quarts-k-feldspar-biotite-amphibole gneiss?? with coarse grained k-feldspar-quarts segregations, wisps and bands parallel to foliation. Traces pyrite and st 170.8-170.9 carbonate altered dolorite with chilled margins. Irregular contact.	1234565	168.38	168.44 (WHOLE ROCK)			
						919873	169.80	169.90			
						919874	169.90	170.25			
						919875	170.25	171.46			
170.7	172.75				BRECCIA/SHEAR ZONE	1161864	171.46	172.75	171.0	150	
					Complex disrupted texture with carbonate and chloritic clasts (after diorite??) within a similar matrix. Minor quarts and quarts-k-feldspar veinlets. Lower contact 55° LCA.						

SUMMARY:

LOGGED BY S.P. SUGDEN DATE 8/5/88

SHEET 5 OF 8

SAa 4187a

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

SAMPLE Nos. 116/1848-116/1864, 1234565 DPO Nos 37539, 37534

DEPTH FROM 150.43m TO 172.75m LABS. Australian (previously), Genalysis & Amdel (previously)

PROJECT LAKE LABYRINTH PROSPECT, MT ISA EL 1315

HOLE No. DD88ME2

Ag	As	Au	B	Ba	Be	Bi	Ca	Cd	Ce	Co	Cr	Cs	Cu	Dy	Er	Eu	F	Fe%	Ga	Gd	Ge	Hf	Ho	In	K%	La	Li	Mg%	Mn	Mo	Na%	Nb	Nd	Ni	P	Pb	Pr	Rb	Sb	Sc	Se	Sm	Sn	Sr	Ta	Tb	Te	Th	Ti%	Tl	Tm	U	V	W	Y	Yb	Zn	Zr
ppm	ppm	ppb	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	%	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm
<0.5	<0.05	20	<2	115	2500	72	28	35	263	110	232	19	<3	11	6.02	5740	1150	<20	L																																							
<0.5	<0.05	<0.01	<2	60	4	<5	10	189	5500	94	122	32	182	184	189	22	<3	16	4.75	7790	1380	<20	L																																		
<0.5	<0.05	<0.01	<2	30	7	<5	15	198	4250	68	180	40	185	885	489	29	3	19	7.48	8220	1970	<20	L																																		
<0.5	<0.05	<0.01	<2	20	6	<5	25	197	2650	62	122	39	184	202	146	22	<3	13	3.89	9780	1870	<20	L																																		
<0.5	<0.05	<0.01	<2	405	5	<5	6	83	1850	79	39	19	194	69	114	16	5	19	2.65	1920	675	<20	L																																		
<0.5	<0.05	<0.01	<2	420	<3	<5	7	96	423	162	286	71	204	80	87	11	4	<10	5.53	642	992	<20	L																																		
<0.5	<0.05	<0.01	<2	420	<3	<5	<5	127	28	162	489	39	1240	16	29	10	<3	<10	7.21	223	1420	<20	M																																		
<0.5	<0.05	<0.01	<2	420	<3	<5	8	74	60	197	478	94	1220	<5	<15	<10	<3	<10	6.25	135	1210	<20																																		
<0.5	<0.05	<0.01	<2	420	<3	<5	<5	135	222	486	96	1220	9	<15	<10	<3	<10	6.85	145	1190	<20																																		
<0.5	<0.05	<0.01	<2	420	<3	<5	<5	21	60	26	206	109	1220	5	<15	<10	3	<10	7.20	220	1210	<20																																		
<0.5	<0.05	<0.01	<2	420	<3	<5	7	73	1100	194	460	90	1250	5	<15	<10	<3	<10	6.92	231	1180	<20																																		
<0.5	<0.05	<0.01	<2	420	<3	<5	10	70	61	190	865	91	1260	<5	<15	<10	<3	<10	6.64	121	1220	<20																																		
<0.5	<0.05	<0.01	<2	420	<3	<5	<5	69	53	199	470	96	1420	<5	<15	<10	<3	<10	6.61	174	1220	<20																																		
<0.5	<0.05	<0.01	<2	420	<3	<5	20	127	2200	63	199	41	211	193	284	21	<3	13	7.21	2320	1260	<20	+																																		
<0.5	<0.05	<0.01	<2	<20	<3	<5	15	111	2290	57	199	39	242	218	240	22	<3	15	7.85	2390	1960	<20	+																																		
<0.5	<0.05	<0.01	<2	<20	5	<5	10	111	1100	110	87	40	257	70	129	19	<3	10	7.89	2070	1830	<20	M																																		
									3300		136	32	228			22		0.93																																											

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW 60-75 HQ | DPO Nos 37534, 37535, 37539, 37540

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10⁻³ SI	GEOPHYSICS S.G. g/cc
172.75	182.2		NQ		CARBONATE ALTERED PERIDOTITE						
					Grey to grey green medium grained peridotite weak to strongly carbonate altered with carbonate replacing plagioclase grains, shattered in parts by fine networks of calcite veinlets. Rare k-feldspar-quartz-amphibole pegmatite bands to 15cm thick with distinct chloritised peridotite margins to 15cm wide. Rare traces pyrite and chalcopyrite as disseminated grains					
					172.75-173.7 Strongly carbonate altered and veined interval	1161865	172.75	173.7			
					175.05-176.0 Strongly carbonate altered section	1161866	173.7	175.05			
					176.0 -176.15 Pegmatite band with traces of pyrite and chloritic altered peridotite margins	1161867	175.05	176.0	176.00		2.92
						1161868	176.0	177.3	176.4	150	
					176.15-177.3 Strongly chlorite and amphibolitic? altered section with minor biotite and chalcopyrite	1161869	177.3	178.0			
						1161870	178.0	180.2			
					179.15 Thin carbonate veinlet with pyrite and pyrrhotite blebs	1161871	180.2	182.2	182.0	4500	
					178.0 -180.2 Less altered peridotite						
					180.2 -180.55 Carbonate and chlorite altered peridotite with chlorite veinlets						
182.2	199.3				CHLORITE ALTERED PERIDOTITE						
					Medium grained grey green biotite, plagioclase, amphibole, chlorite peridotite with rare pyrite, chalcopyrite and pyrrhotite as disseminated grains throughout. Minor talc coated joints of 30° LCA. Peridotite variably chloritically (or amphibolitic?) altered throughout. Minor k-feldspar quartz pegmatite bands with intensely chloritised halos.						
					182.2 -185.1 Strongly to toally chloritised section with carbonate veinlets and amphibole rich sections. Minor talc, with fractured and brecciated quartz vein from 183.0-183.5m	1161872	182.2	184.0	183.0	7	
						1161873	184.0	185.1	186.0	5000	3.45
						1161874	185.1	186.5			
					187.7 -187.8 Thin k-feldspar/quartz bands with chloritic alteration halos	1161875	186.5	188.0			
					188.7 -189.6 Very strongly chloritic and talc altered sections	1161876	188.0	190.0			
					190 -191.15 Very strongly chloritic section	1161877	190.0	191.15	190.5	4000	
					191.15-191.75 K-feldspar-quartz pegmatite band	1161878	191.15	191.75			
					191.75-193.3 Strongly chloritic and carbonate altered peridotite with thin carbonate veinlets	1161879	191.75	193.3			
						1161880	193.3	193.7			
					193.3 -193.7 Pegmatite band upper contact 40° LCA	1161881	193.7	195.0			
					193.7 -196.3 Moderate to strong chloritic altered and moderate carbonate altered peridotite, rare traces chalcopyrite and moderate thin carbonate veinlets	1161882	195.0	196.3	194.6	5000	3.05
						1161883	196.3	198.0			
						1161884	198.0	199.3			
					196.3 -199.3 Weakly chloritically altered peridotite						

SUMMARY :

LOGGED BY S.P. SUGDEN DATE 8/5/88

SHEET 6 OF 8

SAo 4187a

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

SAMPLE Nos. 1161865-1161884 DPO Nos 37539,

DEPTH FROM 172.75 TO 199.3m LABS. AMMDATA

Ag	As	Au	Ba	Bi	Ca %	Cd	Ce	Co	Cr	Cu	Fe %	La	Mn	Mo	Nb	Ni	P	Pb	Sb	Sn	Th	U	W	Zn
0.006	<0.005	0.001	63	<2	6.68	199	1290	<20	1810	63	6.48	<5	<15	<10	<3	<10	199	454	91	<3	<10	<10	<3	177
0.007	<0.005	<0.001	49	<2	6.80	169	1230	<20	1860	52	6.48	<5	<15	<10	<3	<10	169	477	93	<3	<10	<10	<3	204
0.007	<0.005	<0.001	190	10	5.48	238	1280	<20	1850	95	5.48	<5	<15	<10	<3	<10	238	401	72	<3	<10	<10	<3	204
0.008	<0.005	0.003	1110	15	7.97	923	1530	<20	1830	142	7.97	24	49	<10	3	<10	923	469	88	<3	<10	<10	<3	264
0.008	<0.005	0.002	262	8	6.82	714	1380	<20	1260	93	6.82	25	41	<10	<3	<10	714	258	75	<3	<10	<10	<3	169
<0.005	<0.005	0.001	47	<2	6.83	116	890	<20	1550	59	6.83	<5	<15	<10	<3	<10	116	469	70	<3	<10	<10	<3	190
0.007	<0.005	<0.001	40	5	6.56	<100	1220	<20	1660	66	6.56	<5	<15	<10	<3	<10	100	185	92	<3	<10	<10	<3	490
0.006	<0.005	0.001	78	5	6.36	<100	1190	<20	1735	64	6.36	11	21	<10	<3	<10	100	213	51	<3	<10	<10	<3	75
<0.005	<0.005	<0.001	120	<2	7.45	116	2100	<20	1900	134	7.45	6	<15	<10	<3	<10	116	412	87	<3	<10	<10	6	134
<0.005	<0.005	0.001	78	<2	6.87	126	1390	<20	1740	135	6.87	<5	<15	<10	<3	<10	126	485	90	<3	<10	<10	<3	185
0.008	<0.005	<0.001	68	<2	7.45	155	1330	<20	1870	109	7.45	<5	<15	<10	<3	<10	155	507	96	<3	<10	<10	<3	244
0.007	<0.005	0.001	76	<2	6.96	<100	1410	<20	1880	43	6.96	<5	<15	<10	<3	<10	100	223	92	<3	<10	<10	6	492
0.016	<0.005	0.001	72	<2	6.57	127	1220	<20	1570	44	6.57	<5	<15	<10	<3	<10	127	225	90	<3	<10	<10	<3	488
0.005	<0.005	<0.001	70	<2	1.43	208	323	<20	110	46	1.43	20	36	15	20	69	208	624	16	<3	20	<10	<3	52
0.007	<0.005	<0.001	66	<2	5.94	143	1150	<20	1310	47	5.94	8	<15	<10	<3	62	143	223	85	<3	<10	<10	<3	454
<0.005	<0.005	<0.001	20	<2	5.15	1000	1110	<20	213	318	5.15	40	66	18	7	135	1000	1650	36	<3	<10	<10	<3	94
<0.005	<0.005	<0.001	<10	<2	6.07	218	1260	<20	1180	77	6.07	8	<15	<10	<3	67	218	283	90	<3	<10	<10	<3	41
0.009	<0.005	<0.001	10	<2	5.65	532	1230	<20	839	225	5.65	26	41	10	<3	95	532	307	73	<3	<10	<10	<3	367
0.007	<0.005	<0.001	<10	<2	6.53	174	1210	<20	1250	257	6.53	9	<15	<10	<3	64	174	70	96	<3	<10	<10	<3	489
0.008	<0.005	0.002	<10	<2	6.90	137	1240	<20	1220	325	6.90	7	<15	<10	<3	62	137	67	100	<3	<10	<10	<3	534
0.005	0.005	0.001	20	2	0.12	10	15	20	20	5	0.12	5	5	5	5	5	10	5	5	5	5	5	5	5
FIRE	CARBON	ROD	XRF	XRF	XRF	ICP	XRF	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP
(337)			(401)	(401)	(401)	(201)	(401)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)

532-39

Sheet 6 of 8

Plan No SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT LABYRINTH PROSPECT, MT. EBA EL 1315

CRA EXPLORATION PTY. LIMITED

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | INCLINATION -60° | DRILLERS MATHEWS DRILLING | DRILL TYPE LONGYEAR 44 | COMMENCED 19/04/88 | COMPLETED 27/05/88 | DEPTH 302.5m | CASING LEFT 0-72 HW 60-75 HQ | HOLE No. | DPO Nos 37534, 37535, 37539, 37540

SAMPLE Nos. 1161885-1161900, 949180-949184 | DEPTH FROM 199.30 TO 249.0m | DPO Nos 37540, | LABS ANALABS,

HOLE No. DD88ME2

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS ×10⁻⁵SI	GEOPHYSICS g/cc
199.3	302.50				PERIDOTITE WITH K-FELDSPAR-QUARTZ PEGMATITE BANDS AND RARE DOLERITE						
					Medium grained drak grey to grey green amphibole-biotite-plagioclase. Peridotite weakly	1161885	199.3	200.2	199.5	9000	
					chloritically and carbonate altered in parts. Traces disseminated chalcopyrite and pyrite	919873	204.85	204.95	(PET)		
					throughout. Minor to moderate, thin irregular carbonate veinlets. Minor talc on joint facings.	1161886	203.5	205.3			
					Peridotite fractured and altered by k-feldspar-quartz pegmatite bands. Peridotite next to	1161887	205.3	206.6			
					pegmatite bands intensely chloritised. Very rare xenoliths of quartz-k-feldspar porphyry and	1161888	209.6	211.0			
					k-feldspar-quartz-biotite gneiss	1161889	211.0	212.3			
					203.5 -205.3 Chloritic altered section with discontinuous pegmatite bands to 20cm thick				204.5	2500	2.96
					205.3 -206.4 Chloritic altered section with thin carbonate veinlets						
					206.4 -206.7 As 203.5-205.3m						
					206.7 -209.6 Peridotite						
					209.6 -212.3 Intensely chloritised section with discontinuous wisps and bands to 50cm of				210.0	6000	
					quartz-k-feldspar-biotite-chlorite porphyry. Porphyroblasts of k-feldspar to 4mm.						
					Biotite forms a crude foliation which maybe contorted in parts.						
					212.3 -220.2 Peridotite	1161890	212.3	213.8	215.0	2500	3.68
					220.2 -220.7 Chloritised peridotite with pegmatite bands containing talc				220.0	2500	
						1161891	216.0	218.0			
					221.1 Quartz-talc band at 90° LCA						
					222.3 -223.8 Chloritised peridotite with irregular pegmatite bands. Minor talc	1161892	220.2	220.7			
					223.8 -227.8 Peridotite with chloritically altered sections surrounding pegmatite bands to 30cm	1161893	222.3	223.8	225.0	4000	3.30
					thick	1161894	223.8	225.0			
					230.15-230.35 Pegmatite band with chlorite halo at 30° LCA	1161895	225.0	227.8	230.0	1500	
					231.0 -231.3 As above	1161896	227.8	229.2			
					231.75-231.9 As above	1161897	229.2	231.0			
					232.9 -233.6 As above, contact at 30° LCA	1161898	231.0	231.9	233.0	3000	
					234.4 Thin pegmatite band				235.0		3.00
					235.6 Thin pegmatite band at 45° LCA						
					236.9 -239.8 Peridotite chloritically and carbonate altered in parts with pegmatite bands at	1161899	236.9	238.5	238.0	4000	
					237.0-237.1 and 238.25-238.45. Talc with pegmatite bands	1161900	238.5	239.8			
					240.7 -240.75 Pegmatite band with chlorite alteration haloes						
					241.7 -241.85 As above				242.0	3700	
					242.1 -242.3 As above						
					244.3 -244.7 As above	949180	244.3	244.7			
					245.0 -245.15 As above	949181	244.7	246.2	245.0		2.25
					245.75-246.2 As above	949182	246.2	247.8			
					246.2 0247.8 Weak to moderate carbonate altered peridotite with thin carbonate veinlets	949183	247.8	248.1	248.0	700	
					containing traces chalcopyrite	949184	248.1	249.0			

	Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe%	P	Mn	Mo
	0.010	<0.005	<0.001	10	20	<3	<5	10	63	72	248	402	77	1300	7	<15	<10	<3	72	5.80	150	1140	~20
	0.008	<0.005	<0.001	<2	<20	<3	<5	<10	77	388	119	285	57	900	25	35	11	<3	81	4.59	102	1110	<20
	0.009	<0.005	0.001	<2	<20	<3	<5	<10	61	47	278	442	85	1480	8	<15	<10	<3	69	5.84	<100	1150	<20
	0.006	<0.005	0.001	<2	<20	<3	<5	<10	100	299	146	326	65	1170	29	51	13	<3	82	5.31	371	1290	24
	<0.005	<0.005	<0.001	<2	<20	<3	<5	<10	117	704	112	167	39	503	150	39	17	<3	127	4.12	1060	1030	<20
	0.008	<0.005	<0.001	<2	<20	<3	<5	<10	59	48	313	431	76	1650	7	<15	<10	<3	74	5.39	103	1100	<20
	0.010	<0.005	0.001	<2	<20	<3	<5	<10	57	53	257	410	79	1800	5	<15	<10	<3	79	5.62	152	1180	<20
	0.009	<0.005	0.001	<2	<20	4	<5	<10	96	292	138	334	62	1200	20	33	10	5	80	4.84	252	1200	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	35	74	772	149	229	49	711	41	74	14	<3	99	3.63	275	867	<20
	0.010	<0.005	0.001	<2	<20	4	<5	<10	59	53	234	426	85	1780	6	<15	<10	<3	77	5.79	<100	1190	<20
	0.007	<0.005	0.001	9	<20	<3	<5	<10	77	34	216	396	75	1610	7	15	<10	<3	77	5.59	142	1210	<20
	<0.005	<0.005	0.001	<2	<20	<3	<5	25	109	146	179	332	61	1410	61	108	13	<3	107	5.23	202	1460	<20
	0.010	<0.005	<0.001	<2	<20	<3	<5	10	73	99	242	342	64	1660	48	80	10	<3	91	5.03	156	1190	<20
	<0.005	<0.005	0.001	<2	<20	<3	<5	<10	93	85	182	324	61	1750	8	<15	<10	<3	70	4.92	<100	1300	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	10	82	203	210	341	67	1500	11	17	~10	<3	74	4.73	160	1050	<20
	0.018	<0.005	0.007	<2	50	<3	<5	<10	83	77	217	397	78	1360	<5	<15	<10	<3	<10	5.62	188	1190	<20
	<0.005	<0.005	<0.001	<2	<20	8	<5	<10	69	191	193	304	64	983	13	19	<10	4	72	5.14	111	1280	<20
	<0.005	<0.005	<0.001	<2	<20	<3	<5	<10	78	296	181	339	68	1260	18	33	11	<3	91	5.44	578	1160	<20
	<0.005	<0.005	0.001	<2	<20	<3	<5	<10	67	24	184	375	64	1250	7	<15	<10	<3	57	5.05	<100	1110	<20
	<0.005	<0.005	0.001	<2	<20	<3	<5	10	96	356	148	177	49	604	31	55	10	<3	137	5.80	535	1270	<20
	0.006	<0.005	<0.001	<2	<20	<3	<5	<10	89	64	181	398	74	1590	19	27	12	<3	73	5.54	162	1210	<20
	0.005ppm	0.005ppm	0.001ppm	2ppm	20ppm	3ppm	5ppm	10ppm	5ppm	5ppm	5ppm	10ppm	5ppm	10ppm	5ppm	15ppm	10ppm	3ppm	10ppm	0.01%	100ppm	15ppm	20ppm
	FIRE (337)	CARBON	Rock	XRF (401)	XRF (401)	XRF (401)	ICP (201)	XRF (401)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	XRF (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)

SUMMARY

LOGGED BY SP SUGDEN DATE 26/05/88

SHEET 7 OF 8

SAo 4187

6532-40

Sheet 7 of 8

Plan No SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6497768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 NW 60-75 HQ | DPO Nos. 37534, 37535, 37539, 37540

DEPTH From	DEPTH To	CORE SIZE	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻⁵ SI	GEOPHYSICS g/cc
		NQ			247.8 -248.1 Distinct fine grained mafic band with chloritised garnets?? Lower contact 30° LCA	949185	249.0	250.75			
						949186	250.75	252.2	251.9	800	
					248.1 -249.0 Carbonate altered peridotite	949874	247.8	247.90	(Pet)		
					249.0 -250.75 Dolerite? Medium-fine grained green grey feldspar-biotite-pyroxene rock with clasts of k-feldspar quartz-biotite gneiss. From 250.0m amphibole phenocrysts. Upper contact 80° LCA.						
					250.75-252.5 Strongly chloritically and variably carbonate altered peridotite with clasts and wisps of k-feldspar-quartz gneiss						
					252.5 -257.5 Peridotite				255.00		2.89
					257.5 -257.6 Fractured quartz chlorite vein or band				258.0	3000	
					259.75-260.0 Pegmatite band	949187	259.75	260.6			
					260.0 -260.6 Chloritic altered peridotite	949188	260.6	262.0			
					260.6 -269.05 Peridodtite				264.0	5000	3.00
					269.05-269.1 Quartz-plagioclase-amphibole-chlorite pegmatite band				267.3	4400	
					269.1 -270.6 Peridotite						
					270.6 -270.7 Amphibole-plagioclase-quartz-carbonate pegmatite band at 50° LCA				270.3	6800	
					270.7 -279.9 Peridotite				273.3	5000	
					279.9 -282.3 Very weakly chloritically altered peridotite with chlorite-plagioclase vein at 280.9-281.1m	949189	279.9	280.9	278.00		2.89
						949190	280.9	282.3	276.5	6500	
					282.3 -285.4 Peridotite				279.6	7200	
					285.4 -287.0 Core fractured with weak carbonate alteration and veining	949191	285.4	287.0	282.7	7500	
									285.3	2000	2.58
					287.0 -292.55 Peridotite with fine wispy carbonate veins				288.6	5000	
					292.55-294.6 Peridotite with rare thin chloritic shear zones and weakly chloritic altered				291.1	3800	
					294.6 -295.9 Peridotite	949192	294.6	295.9	295.00		2.57
					295.9 -296.4 K-feldspar quartz pegmatite band	949193	295.9	296.4	296.0	10	
					296.4 -300.3 Peridotite						
					300.3 -301.1 Carbonate altered peridotite	949194	300.3	301.1			
					301.1 -302.5 Peridotite	949195	301.1	302.5	302.2	2000	3.21
					E.O.H. 302.5m						

SUMMARY:

LOGGED BY S.P. SIGDEN DATE 26/05/88

SHEET 8 OF 8

SAo 4187

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL 1315

HOLE No. DD88ME2

SAMPLE Nos 949185 - 949195 | DPO Nos 37540, 37541

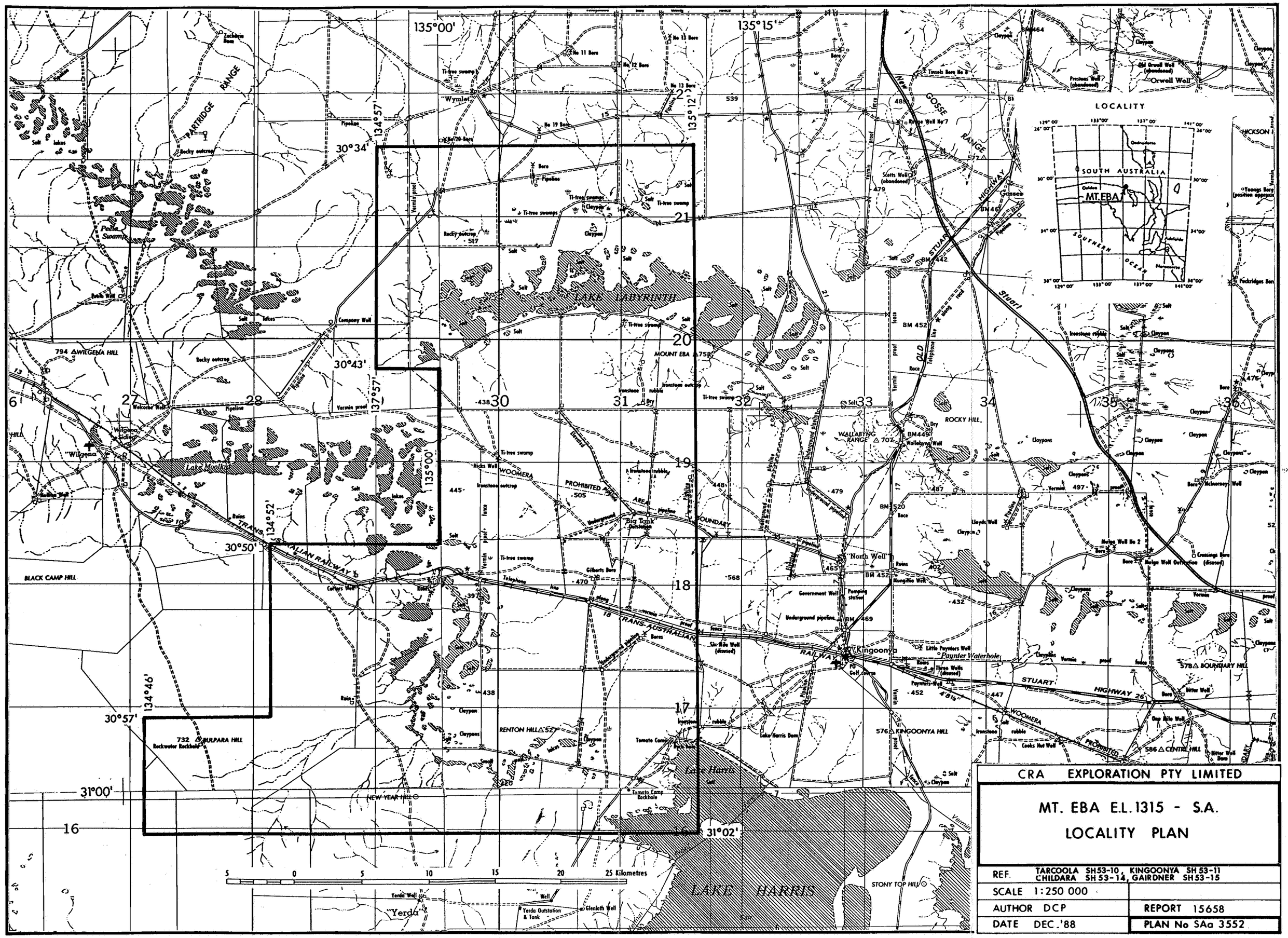
DEPTH FROM 249.00m TO 302.50m | LABS ANALABS

Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe%	P	Mn	Mo	
0.005	<0.005	<0.001	<2	120	<3	<5	10	131	870	145	98	44	218	39	69	16	<3	146	4.76	1620	996	<20	*
0.006	<0.005	<0.001	<2	90	<3	<5	<10	110	571	100	283	59	878	28	51	14	<3	93	5.05	462	210	<20	*
0.010	<0.005	<0.001	<2	<20	<3	<5	15	61	289	224	340	66	1380	11	18	<10	<3	78	4.96	198	1050	32	
0.009	<0.005	<0.001	<2	35	<3	<5	<10	74	84	247	455	84	1910	9	16	<10	<3	74	5.63	184	1130	<20	
0.013	<0.005	0.004	<2	<20	<3	<5	<10	74	34	285	479	84	1510	<5	<15	<10	<3	<10	5.68	141	1100	<20	
0.010	<0.005	0.002	<2	<20	<3	<5	<10	79	112	230	433	76	1440	<5	<15	<10	<3	<10	5.95	<100	1310	<20	
0.009	<0.005	0.001	10	<20	<3	<5	<10	78	13	238	445	79	1500	6	<15	<10	<3	10	5.85	198	1230	<20	
0.009	<0.005	<0.001	<2	20	<3	<5	<10	101	20	193	341	69	1440	5	<15	<10	<3	<10	6.22	<100	1370	<20	
0.005	<0.005	<0.001	<2	70	<3	<5	15	100	1250	76	146	39	289	76	157	14	7	79	3.22	704	886	22	*
0.044	<0.005	0.001	<2	<20	<3	<5	<10	114	19	126	304	67	1040	11	22	<10	<3	16	6.72	148	1970	<20	
0.008	<0.005	0.003	<2	30	<3	<5	<10	98	25	195	323	68	1440	<5	<15	<10	<3	<10	5.18	176	1250	<20	
5ppm Fusion (3g)	0.01ppm AR/BROM	0.001ppm Pod	4ppm XRF (40g)	20ppm XRF (40g)	3ppm XRF (40g)	5ppm ICP (20g)	10ppm ICP (40g)	5ppm ICP (20g)	5ppm ICP (20g)	5ppm ICP (20g)	10ppm ICP (20g)	5ppm ICP (20g)	10ppm ICP (20g)	5ppm ICP (20g)	15ppm ICP (20g)	10ppm ICP (20g)	3ppm XRF (40g)	10ppm ICP (20g)	0.01% ICP	100ppm ICP (20g)	10ppm ICP (20g)	10ppm ICP (20g)	

6532-41

Sheet 8 of 8

Plan No SAo 414



CRA EXPLORATION PTY LIMITED	
MT. EBA E.L.1315 - S.A. LOCALITY PLAN	
REF.	TARCOOLA SH53-10, KINGOONYA SH53-11 CHILDARA SH53-14, GAIRDNER SH53-15
SCALE 1:250 000	
AUTHOR DCP	REPORT 15658
DATE DEC.'88	PLAN No SAa 3552

9320

485000mE 490000mE 495000mE 500000mE 505000mE

6594000mN 6590000mN 6585000mN 6580000mN 6575000mN 6571000mN

30°45' 30°50' 30°55' 31°00'

134°55' 135°00'

Warna Rockhole

TARCOOLA
29km

VERMIN PROOF FENCE

TRANS AUSTRALIAN RAILWAY

Carters Well

Tank (disused)

Espree Dam

4734

Mt Eba

Mt Eba

KINGOONYA
26·5 Km

SOUTH LAKE

HOPEFUL HILL

approx. position

approx. position

Kenella Well

salt

salt lakes

6586000mN 6584000mN 6580000mN 6577000mN

498000mE 500000mE

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

SIROTEM COVERAGE

0 5km 10km

1:50 000

6532-42

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT
GRID LOCATION

REF. TARCOOLA SH 53-10	
SCALE 1:50 000	DRAWN F.R.
AUTHOR G.L.M.	REPORT 15658
DATE OCT. 1987	PLAN NO. SAa 4762

AMG NORTH (m)

6577000 mN 77500 78000 78500 79000 79500 6580000 mN

T.M.I. (nT) 62000 60000 58000 56000

498400 mE

T.M.I. (nT) 62000 60000 58000 56000 — BOUG GRAV (mgal) -31.0 -32.0 -33.0 -34.0 -35.0 ---

498800 mE

499000 mE

499200 mE

499400 mE

499600 mE

499800 mE

AMG NORTH (m)

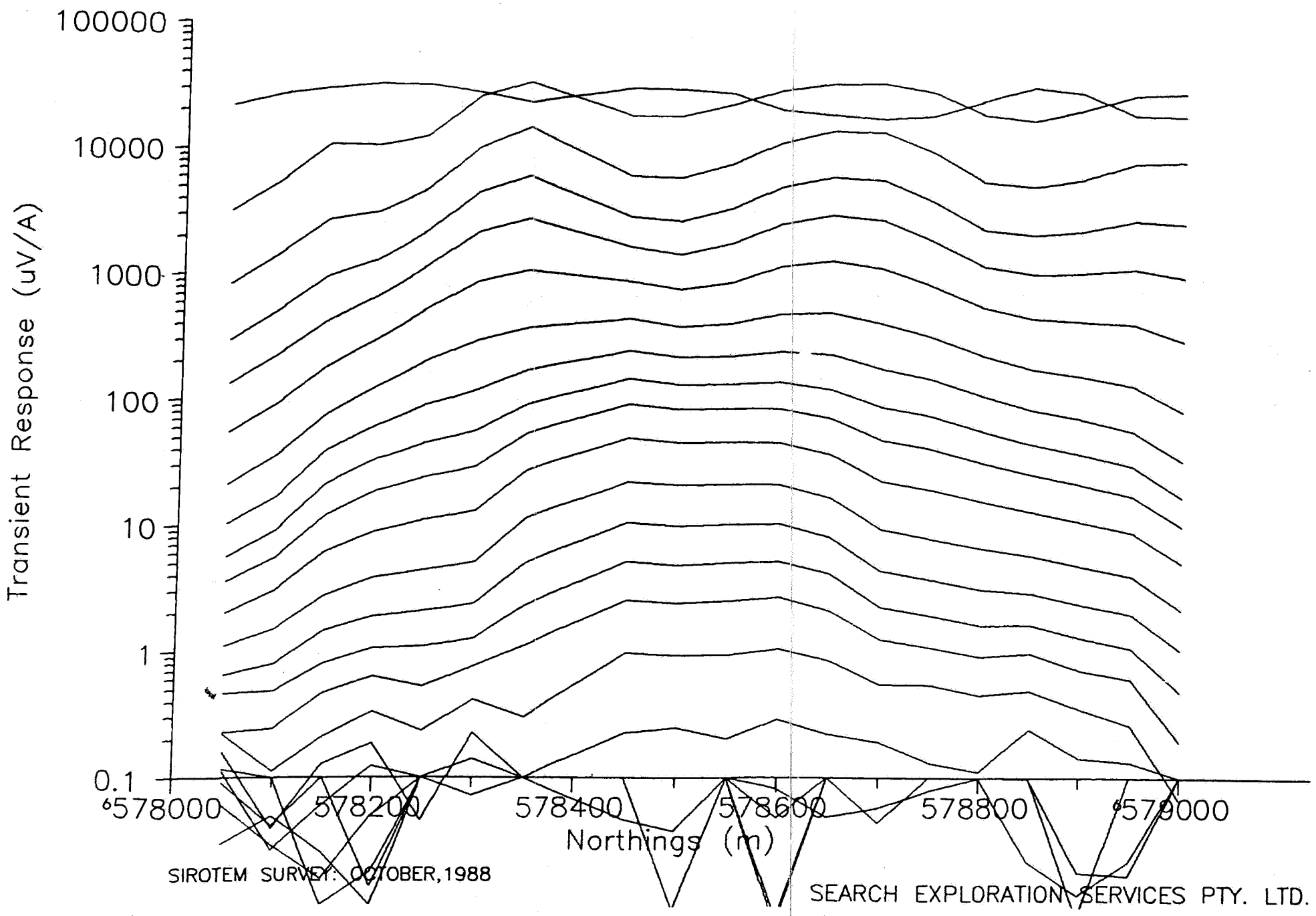
6577000 mN 77500 78000 78500 79000 79500 6580000 mN

0 100 200 300 400 500 600 700 800 900 1000 m.

6532-43

CRA EXPLORATION PTY LTD	
MT EBA E.L. 1315 SOUTH LAKE PROSPECT BOUGUER GRAVITY AND MAGNETIC PROFILES	
REFERENCE TARCOOLA SH 53-10	
SCALE 1:10,000	DRAWN GLM
AUTHOR GLM	REPORT 15658
DATE 26 OCT 88	PLAN No SAs 5028

LINE 496000E SOUTH LAKE PROSPECT, S.A..

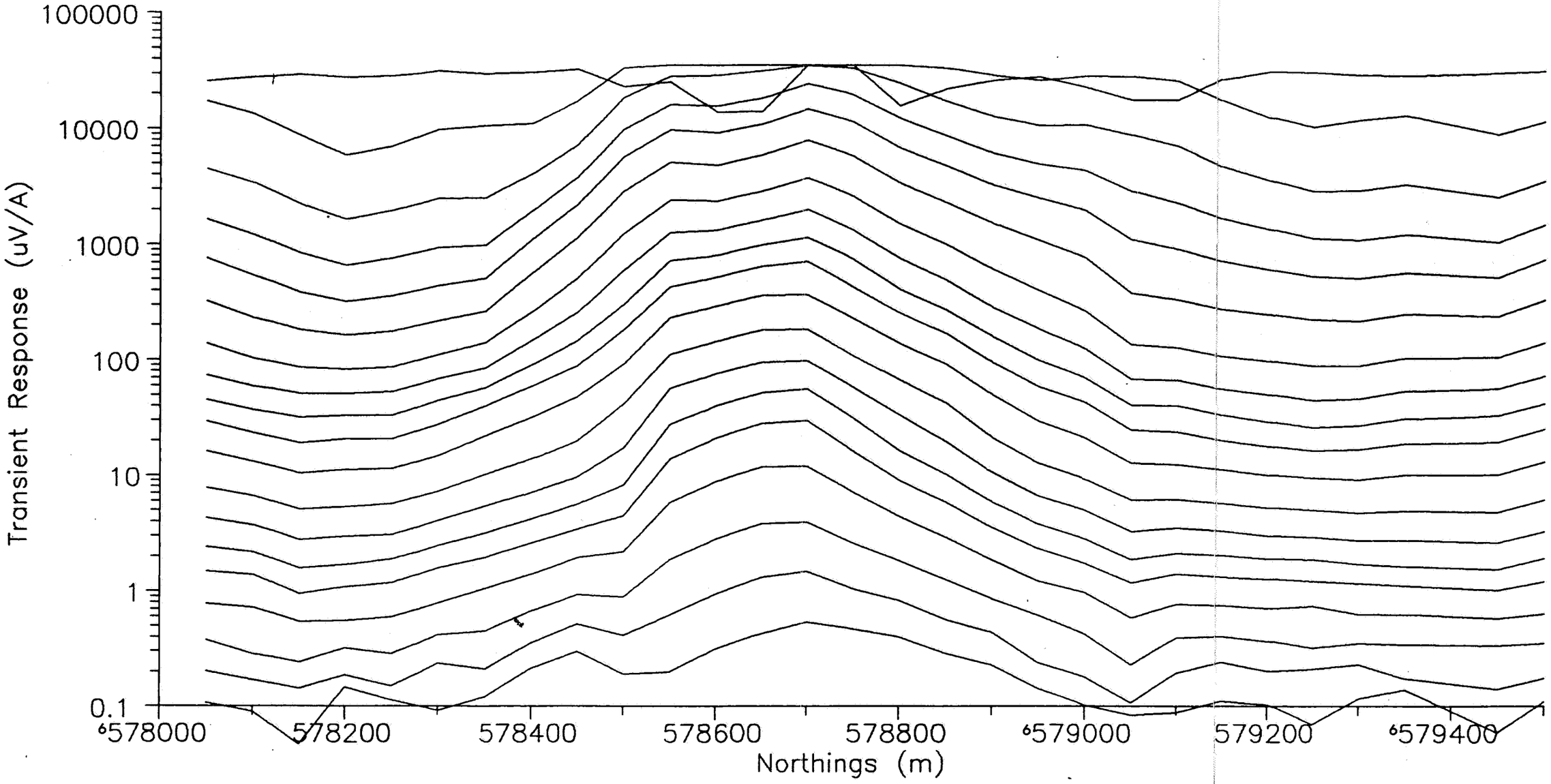


SIROTEM SURVEY: OCTOBER, 1988

SEARCH EXPLORATION SERVICES PTY. LTD.

CRA EXPLORATION PTY LIMITED	
MT. EBA E.L. 1315 – S.A. SOUTH LAKE PROSPECT SIROTEM PROFILE LINE 496000 mE	
Ref. : TARCOOLA SH 53-10	
Scale 1 : 5000	
Author G.L.M.	Report No. 15658
Date DEC '88	Plan No SAa 5048

LINE 496400E SOUTH LAKE PROSPECT, S.A..



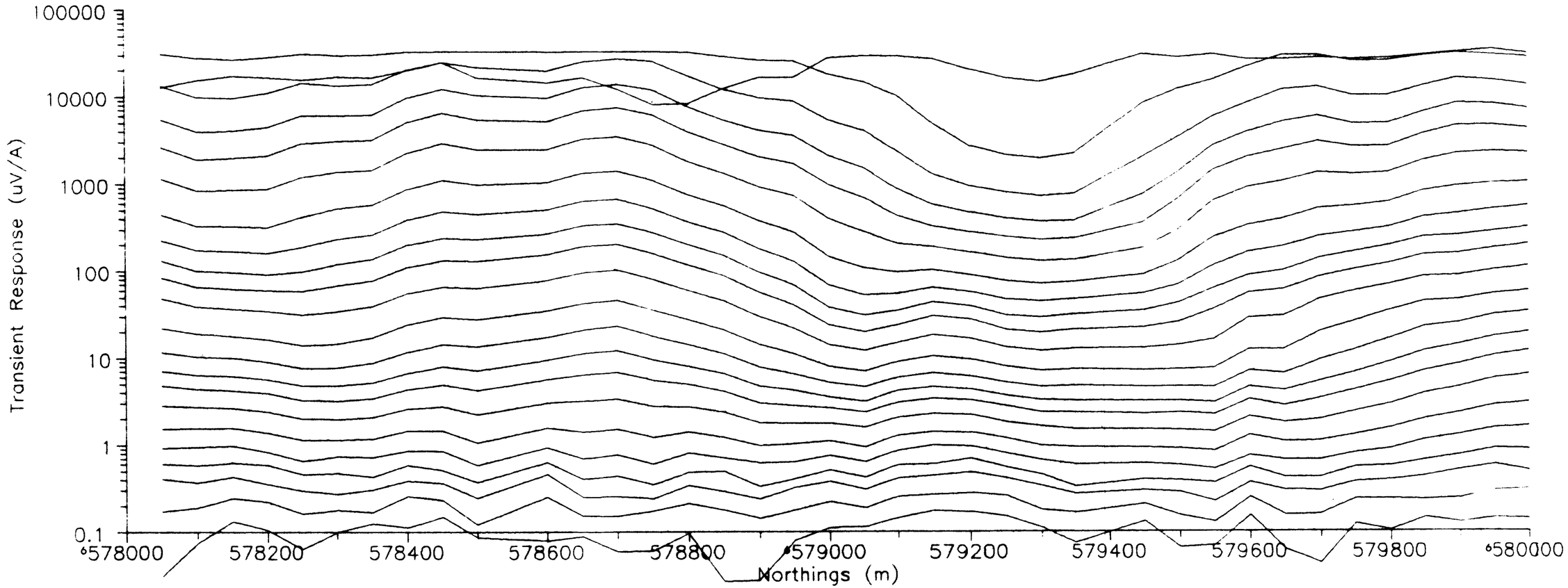
SIROTEM SURVEY: OCTOBER, 1988

SEARCH EXPLORATION SERVICES PTY. LTD.

CRA EXPLORATION PTY LIMITED	
MT. EBA E.L. 1315 — S.A. SOUTH LAKE PROSPECT SIROTEM PROFILE LINE 496400mE	
Ref. : TARCOOLA SH 53-10	
Scale 1 : 5000	
Author G.L.M.	Report No. 15658
Date DEC '88	Plan No. SAa 5049

6320

LINE 499200E SOUTH LAKE PROSPECT, S.A..

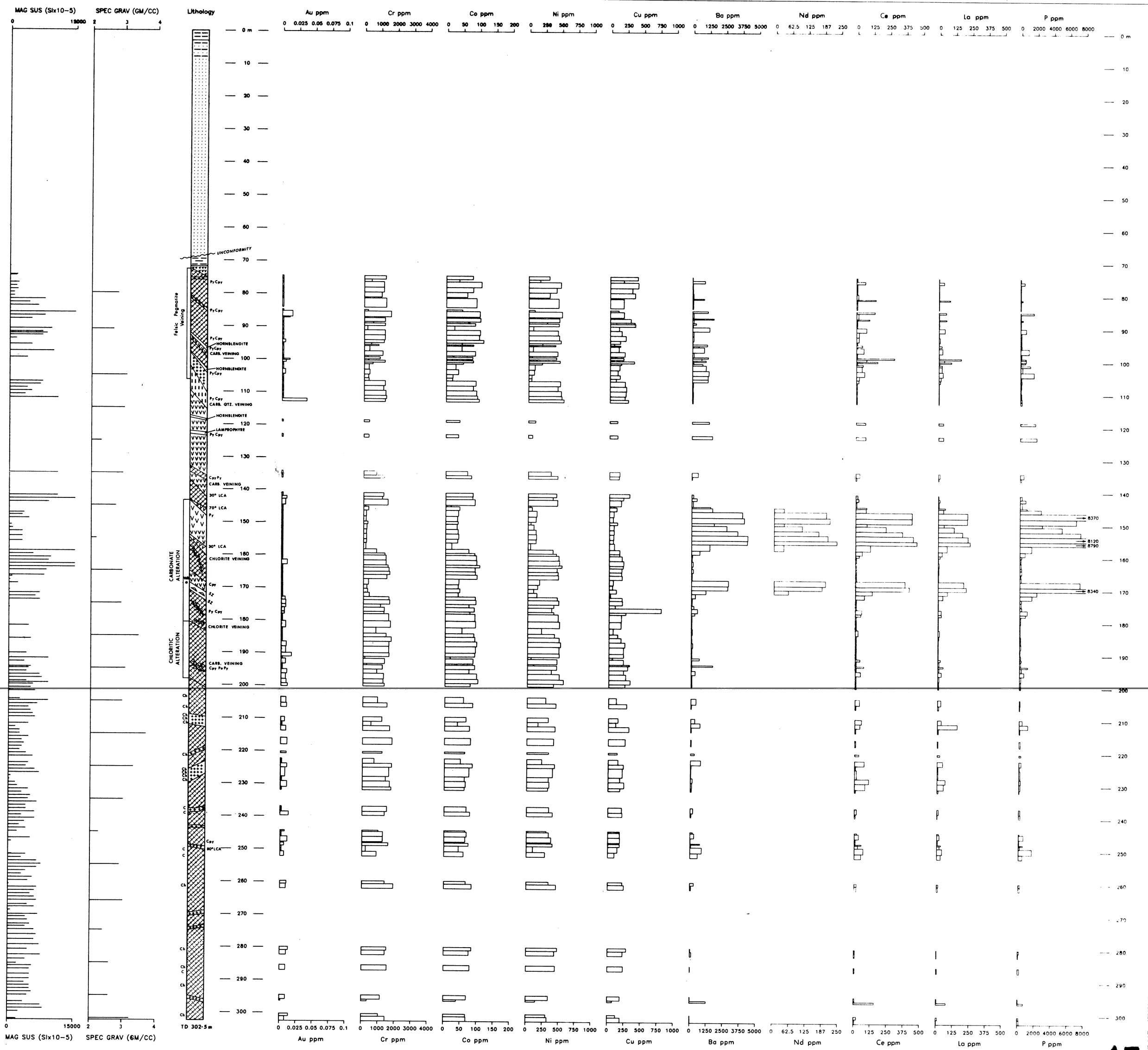


SIROTEM SURVEY: OCTOBER, 1988

SEARCH EXPLORATION SERVICES PTY. LTD.

6532-44

CRA EXPLORATION PTY LIMITED	
MT. EBA E.L. 1315 - S.A. SOUTH LAKE PROSPECT SIROTEM PROFILE LINE 499200mE	
Ref. TARCOOLA SH 53-10	
Scale 1 : 5000	
Author G.L.M	Report No 15658
Date DEC '88	Plan No. SAa 5050



* HOLE BLOCKAGE AT 72·0m PREVENTED DOWNHOLE LOGGING.

MESOZOIC
- CLAYSTONE
- SANDSTONE

UNCONFORMITY

PROTEROZOIC?
- WEATHERED BASEMENT
- PYROXENITE
- PERIDOTITE

- ACID INTRUSIVES (Dacites)
- BASALT (Vesicular)
- TRACHYANDESITE
- K-FELDSPAR-QUARTZ PEGMATITE
- BRECCIA

Ch Chloritic Alteration
C Carbonate Alteration

Cpy Chalcopyrite
Po Pyrrhotite
Py Pyrite
Qtz Quartz

VEINING
SZ Shear Zone

* WHOLE ROCK ANALYSIS
- SiO_2% - 45·5
- Al_2O_3% - 12·4
- CaO% - 8·4
- K_2O% - 3·5
- Fe_2O_3% - 10·5
- MgO% - 5·8
- Na_2O% - 2·2
- TiO_2% - 2·3
- MnO % - 0·13
- P_2O_5% - 2·2
- LOI % - 7·00

(168·38 - 168·44m)

6532-45

CRA EXPLORATION PTY LIMITED

MT.EBA EL 1315 - SA

Lake Labyrinth West Prospect

Drillhole Logs - DD88ME2

REFERENCE KINGOONYA SH53-11	
SCALE 1:500	DRAWN DCP
AUTHOR DCP	REPORT 15658
DATE 20 DEC 88	PLAN No SAa 5004

CRA Exploration Pty. Limited
Incorporated in New South Wales
31 Osmond Terrace, Norwood 5067, South Australia

6th April, 1989

The Director General,
Department of Mines & Energy, South Australia
P.O. Box 151,
EASTWOOD. S.A. 5063.

Dear Sir,

Re: EL 1315 Mt. Eba

Thirteenth Quarterly Report For The Period Ending 9th April, 1989

No field work was undertaken during the quarterly period. Thematic mapping (TM) scenes over the EL were purchased to assist geological mapping.

Work planned for the upcoming field season will include infill gravity and possible follow up of electrical geophysics over portions of the South Lake Prospect grid, EL 1315.

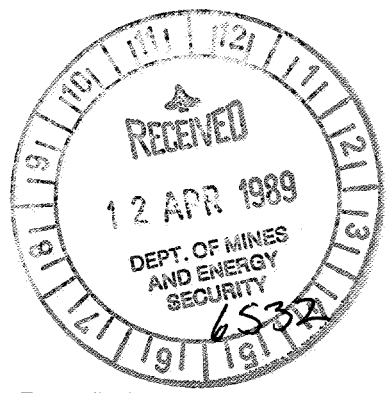
Expenditure for the period ending 31st March, 1989 amounted to $9 228.97, consisting of:

Payroll	$ 3 801.11
General Supplies	$ 758.54
Vehicle Operation	$ 933.83
Property	$ 1 354.00
Professional	$ 583.00
General Overheads	$ 1 798.49
	$ 9 228.97

Yours faithfully,

DAVID C. PALMER
GEOLOGIST

DCP/pq



CRA Exploration Pty. Limited
Incorporated in New South Wales
31 Osmond Terrace, Norwood 5067, South Australia

3rd July, 1989

The Director General,
Department of Mines & Energy, South Australia
P.O. Box 151,
EASTWOOD. S.A. 5063.

Dear Sir,

Re: EL 1315 Mt. Eba

Fourteenth Quarterly Report For The
Period Ending 9th July, 1989

No field work was undertaken during the quarterly period, due to heavy rainfall in the area which negated access.

Planned infill gravity and possible follow up electrical geophysics will be conducted over portions of the South Lake Prospect grid when ground access is favourable.

Yours faithfully,

DAVID C. PALMER
GEOLOGIST

DCP/pq

III

CRA EXPLORATION PTY. LIMITED

FIFTEENTH QUARTERLY REPORT FOR MOUNT EBA EL 1315, SOUTH AUSTRALIA, FOR THE PERIOD ENDING 9TH OCTOBER, 1989

AUTHOR: D.C. PALMER/G.L. MACKEE

COPIES TO: SADME
CIS CANBERRA

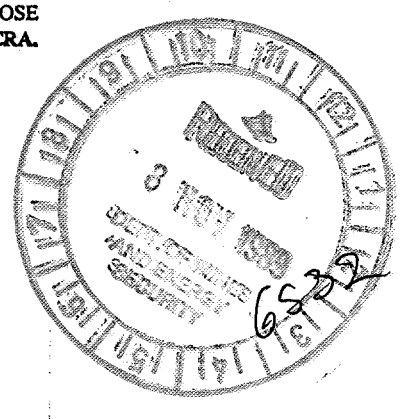
DATE: 30TH OCTOBER, 1989

SUBMITTED BY: S. L. Mackee

ACCEPTED BY:

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16191



CONTENTS

	PAGE
LIST OF PLANS	
LIST OF TABLES	
LIST OF APPENDICES	
1. SUMMARY	1
2. CONCLUSIONS AND RECOMMENDATIONS	1
3. INTRODUCTION	1
4. PREVIOUS WORK	1
5. WORK CARRIED OUT	4
5.1 Geophysics - South Lake Prospect	4
5.2 Geophysical Modelling - South Lake Propsect	5
5.3 Rock Sampling - Hopeful Hill	5
EXPENDITURE	6
REFERENCES	7
LOCATION	7
KEYWORDS	7

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba EL 1315, S.A. - Locality Plan	1:250 000
SAa 4762	Mt. Eba EL 1315, S.A. - South Lake Prospect Grid Location & Sirotem Coverage	1: 50 000
SAa 5028	Mt. Eba EL 1315, S.A. - South Lake Prospect Bouguer Gravity & Ground Magnetic Profiles	1: 10 000
SAa 4860	Mt. Eba EL 1315, S.A. - South Lake Prospect Stacked Magnetic Profiles	1: 25 000
SAa 4894	Mt. Eba EL 1315, S.A. - South Lake Prospect Rock Sample Location Plan	1: 25 000
SAa 5207	Mt. Eba EL 1315, S.A. - South Lake Prospect Line 499200mE Geophysical Model	1: 10 000

LIST OF TABLES

Table 1 Summary of Work Completed on Mt. Eba EL 1315

LIST OF APPENDICES

Appendix I South Lake Prospect Infill Gravity Data
Appendix II Hopeful Hill - Rock Sample Ledger

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED"

1. SUMMARY

During the quarter 2.0 line kilometers of ground magnetics and 2.0 line kilometers of gravity were completed over extended grid lines at the South Lake Prospect Grid.

Modelling of the geophysical data was completed and assessment for a possible drill program is continuing.

Four rock chip samples of inferred Archaean basic rock types at Hopeful Hill were submitted for assay. Results are pending.

2. CONCLUSIONS AND RECOMMENDATIONS

The geophysical anomaly detailed at South Lake grid is most probably a repetition of the Kenella Rock iron formations to the north, rather than development of mineralisation within the N-W trending shear.

The core from the Abadon Holdings drill holes near Kenella Rock should be assayed for gold.

3. INTRODUCTION

Mt. Eba EL 1315 is located on the Kingoonya, Tarcoola, Childara and Gairdner 1:250 000 sheets (plan SAa 3552). The licence was granted to CRA Exploration Pty. Limited on 9th January, 1986 for a period of one year, with the latest renewal commencing on 9th January, 1988 for a further one year over a reduced area of 1440 km^2.

This report details work carried out on Mt. Eba during the fifteenth quarter.

3. PREVIOUS WORK

Past exploration within the immediate area of the EL, by other companies, is summarised in the first quarterly report for Mt. Eba EL 1315 (Sugden, S.P.).

Exploration activity conducted by CRA Exploration on Mt. Eba EL 1315 up to and including the fifteenth quarter is summarised in Table 1.

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TABLE 1

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1986	Literature Search	SADME Open File	Compilation of previous exploration	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	27 Samples Assayed (19 elements)		1st Qtly Rpt on Mt. Eba EL 1315
1986	145.1 km Ground Magnetics	20 m stations, MP-3 Magneto-meter	Wallabyng Range Prospect	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	33 Samples Assayed (20 elements)	Wallabyng Range	2nd Qtly Rpt on Mt. Eba EL 1315
1986	Detailed Airborne Magnetic/Radio-metric Survey	300 m N/S lines, 80 m terrain clearance	Geoterrex P/L (Contractors)	3rd/4th Qtly Rpt on Mt. Eba EL 1315
1986	Compilation Plans - Outcrop Geology - Radiometrics Anomalies	1:100 000 (SADME Mapping)		3rd Qtly Rpt on Mt. Eba EL 1315
1986	26 km Ground Magnetics	10 m stations, Scintrex MP-3 Magnetometer	Lake Labyrinth West Prospect	4th Qtly Rpt on Mt. Eba EL 1315
1987	Compilation Plan of all Aeromag-netic Surveys	1:100 000		4th Qtly Rpt on Mt. Eba EL 1315
1987	Rock Chip Sampling	11 Samples Assayed	Glenloth Prospect	7th Qtly Rpt on Mt. Eba EL 1315
1987	3 km Gravity	100 m stations; LaCoste & Romberg gravimeter	Lake Labyrinth West Prospect	7th Qtly Rpt on Mt. Eba EL 1315
1987	107 km Ground Magnetics	10 m stations; Scintrex MP-3 Magnetometer	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315

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TABLE 1

Cont...

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
	65 km Gravity	100 m stations; Lacoste & Romberg gravimeter	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
1987	DD87ME1	Total depth 51.0 m HW tricone chips	Kingoonya Drilling P/L Lake Labyrinth West Prospect	8th Qtly Rpt on Mt. Eba EL 1315
1988	Ground Magnetics Profiles	1:25 000	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Rock Sampling	Petrology (Pontifex & Assoc.)	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	60 Samples Assayed for Au	Reassaying of Bedrock Samples CRAE 1977 South Lake Grid	9th Qtly Rpt on Mt. Eba EL 1315
1988	Stacked Gravity Profiles	1:25 000	South Lake Prospect	10th Qtly Rpt on Mt. Eba EL 1315
1988	DD88ME2	502200mE 6607768mN -60°S Total Depth 302.5 m	Mathews Drilling Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315
	DD88ME2	Petrology (Pontifex & Assoc.) 7 samples	Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	DD88ME2 core grindings 116 samples	Lake Labyrinth West Prospect	11th Qtly Rpt on Mt. Eba EL 1315

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TABLE 1

Cont...

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1988	6.0 km Gravity	3.0km, 50m stns 3.0km, 100m stns LaCoste & Romberg gravimeter	South Lake Prospect Grid	11th Qtly Rpt on Mt. Eba EL 1315
	6.0 km Ground Magnetics	10 m stations Scintrex MP-3 Magnetometer	South Lake Prospect	11th Qtly Rpt on Mt. Eba EL 1315
1988	TEM Survey	4.5km, 3 lines 100m, in-loop RVR SIROTEM	South Lake Prospect/ Kenella Rock	11th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	DD88ME2 core 12 samples REE assays	Lake Labyrinth West Prospect	12th Qtly Rpt on Mt. Eba EL 1315
1989	2.0 km Gravity	2.0km, 100m stns LaCoste & Romberg Gravimeter	South Lake Prospect Grid	15th Qtly Rpt on Mt. Eba EL 1315
	2.0 km Ground Magnetics	10m stations Scintrex MP-3 Magnetometer	South Lake Prospect Grid	
1989	Rock Chip Sampling	4 samples assayed (12 elements)	Hopeful Hill	15th Qtly Rpt on Mt. Eba EL 1315

5. WORK CARRIED OUT

Field work during the fifteenth quarter on Mt. Eba EL 1315 was completed in the vicinity of the South Lake Prospect (plan SAa 4762).

5.1 Geophysics - South Lake Prospect

Existing ground magnetics and gravity coverage over the South Lake Prospect grid had defined a 1mgal gravity anomaly centred on line 499200mE at 6577500mN (plan SAa 5028).

Stacked ground magnetic profiles (plan SAa 4860) suggested that this gravity anomaly was situated on an interpreted thickened shear zone along strike from lead/zinc intersections reported in drill holes by Abadon Holdings Pty. Ltd. (Sugden, CRAE Report No. 13885) near Kenella Rock.

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During the quarter, to gain better definition of the gravity feature on line 499200mE the South Lake Prospect grid was extended by 2.0 line km (plan SAa 4762) and infill ground magnetics and gravity recordings were completed as detailed below, viz...

LINE	FROM	TO	GRAVITY	MAGNETICS	GRIDDING
499000mE	6578000mN	6577000mN	1.0 km	1.0 km	1.0 km
499400mE	6578000mN	6577000mN	1.0 km	1.0 km	1.0 km
		TOTAL	2.0 km	2.0 km	2.0 km

Gravity readings were conducted along the extended grid lines at 100m station spacings. Total magnetic field was read at 10m station intervals along the optically levelled lines using an MP3 magnetometer. The data are tabulated in Appendix I and updated stacked profiles are presented in plan SAa 5028.

5.2 Geophysical Modelling - South Lake Prospect

The infill geophysics was assessed in conjunction with the image-processed aeromagnetic data. The imaged data indicates that the N-W trending shear is deflected (or refracted) by the source of the anomalous magnetic and gravity response, which probably pre-dates the shear. This effectively down-grades the anomaly as a development of mineralisation within the zone. Modelling of the ground magnetic data (plan SAa 5207) also shows that the susceptibilities involved are within the range of that expected from the Mt. Christie iron formations in the area.

Several of the Abadon Holdings drill holes have not been assayed for gold, in particular DH1A which intersected the shear zone under consideration. Further assessment of the mineralisation of the zone should be dependent on these assays being completed.

5.3 Rock Chip Sampling - Hopeful Hill

A large outcropping, reportedly Archaean metabasic rock unit at Hopeful Hill (centred AMG 492000mE, 6576000mN) was sampled. Four rock samples were collected (plan SAa 4894) and despatched for precious and base metal assays. Results are pending. A rock sample ledger appears in Appendix II.

S. L. Mackee

D.C. PALMER & G.L. MACKEE

DCP/GLM/dt

EXPENDITURE

Expenditure for the three month period ending 30th September, 1989 the nearest accounting period was $4 796.00, as detailed below.

	$
Payroll	1 827
Supplies	110
Vehicle	375
Rent	1 430
Contractors	350
Overheads	704
Total	$ 4 796

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REFERENCES

Sugden, S.P., 1986 — First Quarterly Report For Mt. Eba EL 1315, South Australia, For The Period Ending 9th April, 1986. (CRAE Report No. 13885)

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Geophys Gravity, Geochemistry, Rock Chip

APPENDIX I

SOUTH LAKE PROSPECT INFILL GRAVITY DATA

CRA EXPLORATION PTY. LIMITED

GRAVITY SURVEY DATA

AREA:	MT. EBA EL 1315
PROSPECT:	SOUTH LAKE
METER NO:	561
MAIN BASE:	DEPARTMENT OF LANDS BM4734 (5836.1052) 499450mE, 6584300mN, 126.102m and Obs. Gravity: 979344.95mGAL Latitude - 30.86543 deg. Longitude - 134.99477 deg.

South Lake Prospect Lines 499000,499400 (6578000-6577000)

GRAVITY READINGS WERE CORRECTED FOR EARTH TIDE
GRAVITY READINGS WERE CORRECTED FOR METER DRIFT
GRAVITY READINGS WERE CORRECTED FOR LATITUDE USING ISOGAL84
FREE AIR CORRECTION WAS APPLIED USING 2gh/R
BOUGER CORRECTION WAS APPLIED USING DENSITY OF 2.4grams/cc
BASE STATION ; B : 499200. 6580000. 979348.17
METER CONST : 1.0155

	Station	Reading (divs)	Elev (m)	AMG E (m)	AMG N (m)	Time (CST)	Date	Boug Grav (2.4)
B	8901.2575	2808.500	131.130	499200.0	6580000.0	09:29	28.09.89	
	8901.2723	2812.190	126.032	499000.0	6578000.0	09:55	28.09.89	-19.508
	8901.2724	2812.820	124.538	499000.0	6577900.0	10:01	28.09.89	-19.254
	8901.2725	2812.830	123.063	499000.0	6577800.0	10:06	28.09.89	-19.626
	8901.2726	2812.350	124.858	499000.0	6577700.0	10:09	28.09.89	-19.816
	8901.2727	2812.630	126.677	499000.0	6577600.0	10:13	28.09.89	-19.231
	8901.2728	2812.450	127.331	499000.0	6577500.0	10:17	28.09.89	-19.354
	8901.2729	2811.950	127.848	499000.0	6577400.0	10:21	28.09.89	-19.830
	8901.2730	2811.650	128.534	499000.0	6577300.0	10:24	28.09.89	-20.067
	8901.2731	2811.820	128.183	499000.0	6577200.0	10:28	28.09.89	-20.042
	8901.2732	2812.960	124.127	499000.0	6577100.0	10:32	28.09.89	-19.798
	8901.2733	2813.470	123.577	499000.0	6577000.0	10:36	28.09.89	-19.469
	8901.2734	2813.880	123.180	499400.0	6577000.0	10:44	28.09.89	-19.140
	8901.2735	2814.130	123.629	499400.0	6577100.0	10:49	28.09.89	-18.725
	8901.2736	2813.290	126.838	499400.0	6577200.0	10:53	28.09.89	-18.845
	8901.2737	2812.190	130.524	499400.0	6577300.0	10:59	28.09.89	-19.132
	8901.2738	2813.130	128.231	499400.0	6577400.0	11:03	28.09.89	-18.582
	8901.2739	2813.230	128.736	499400.0	6577500.0	11:09	28.09.89	-18.307
	8901.2740	2812.660	129.905	499400.0	6577600.0	11:13	28.09.89	-18.575
	8901.2741	2812.370	129.061	499400.0	6577700.0	11:17	28.09.89	-18.974
	8901.2742	2812.130	128.493	499400.0	6577800.0	11:21	28.09.89	-19.265
	8901.2743	2812.230	128.077	499400.0	6577900.0	11:26	28.09.89	-19.180
	8901.2744	2812.430	127.559	499400.0	6578000.0	11:30	28.09.89	-19.013
B	8901.2575	2808.600	131.130	499200.0	6580000.0	12:12	28.09.89	

APPENDIX II

HOPEFUL HILL ROCK CHIP SAMPLE LEDGER

MT. EBA EL1315

C.R.A. EXPLORATION PTY. LTD.- ROCK SAMPLE FIELD DATA SHEET.

PAGE N°: 1 OF 1

Area: HOPEFUL HILL | Collected: J.F.M/D.C.P | Analysed by: / | Lab. report no:

Map ref: TARCOOLA 1:250,000 | Date collected: 30/9/89 | Date anal. rec:

Photo name: | Date to lab: | Plan no: SAa 4894.

Run No: | D.P.O. No: 37770 | C.R.A. report no:

0286

Less than detection limit [-]

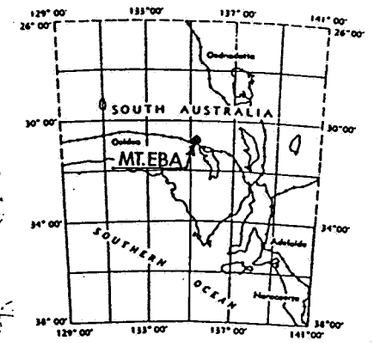
Sample type: 1. Chip. 2. Float 3. Channel. 4. Panel.

Test: 1. Chemistry 2. Duplicate 3. Thin section 4. Polished section.

ANALYSIS METHOD												
DETECTION LIMIT (ppm)												

Sample Number	COORDINATES AM.G/Long./Lat./Local EAST	NORTH	SAMPLE TYPE	WIDTH (m)	AREA (sq.m)	No. CHIPS	TEST	ROCK DESCRIPTIONS	Metal Content (ppm)
950901	490350	6575500	1	2			1	Dark black, fine crystalline BASALT with irregular fractures. No sulphide vis. Magnetic Susceptibility – 2000 SIx10^{-5} av.	
950902	490600	6575550	1	4			1	BASALT. Non foliated as for 950901 Magnetic Susceptibility – 3000 SIx10^{-5} av.	
950903	490850	6575600	1				1	Dark grey to black fine crystalline BASALT with v. thin veinlets. No vis sulphide. Non foliated. Mag. Sus 2500 SIx10^{-5} av.	
950900	490335	6575500	2	-			1/3	Pale greenish grey silicified CHERT BRECCIA with angular red brown clasts. Hematite veins. Non-foliated Magnetic Susceptibility - 15 SIx10^{-5}	

LOCALITY



CRA EXPLORATION PTY LIMITED

MT. EBA E.L. 1315 - S.A.

LOCALITY PLAN

REF.	TARCOOLA SH53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15
SCALE	1:250 000
AUTHOR	DCP
DATE	Oct. '89
REPORT	16191
PLAN No	SAa 3552

1820

485000mE 490000mE 495000mE 500000mE 505000mE

6594000mN

30°45'

6590000mN

30°50'

6585000mN

6580000mN

30°55'

6575000mN

6571000mN

134°55' 135°00' 31°00'

• Warna Rockhole

TARCOOLA 29Km

VERMIN PROOF FENCE

TRANS AUSTRALIAN RAILWAY

Carters Well

Tank (disused)

Earea Dam

4734

Mt. 5342

Mt. 5361

6586000mN

VERMIN PROOF FENCE

KINGOONYA 26·5 Km

496000mE

498000mE

500000mE

6584000mN

6580000mN

6577000mN

SOUTH LAKE

salt

salt lakes

approx position

approx position

Kenella Well

494000mE

498000mE

HOPEFUL HILL

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA EL 1315 Relinquished Area 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

SIROTEM COVERAGE

0 5km 10km

1:50 000

6532-46

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT
GRID LOCATIONS AND SIROTEM COVERAGE

REF.	TARCOOLA SH 53-10		
SCALE	1:50 000	DRAWN	F.R.
AUTHOR	G.L.M.	REPORT	16191
DATE	Oct '89	PLAN NO.	SAa 4762

AMG NORTH (m)

6577000 mN 77500 78000 78500 79000 79500 6580000 mN

T.M.I. (nT) 62000 60000 58000 56000

498400 mE

BOUG GRAV (mgal) -31.0 -32.0 -33.0 -34.0 -35.0

498800 mE

499000 mE

499200 mE

499400 mE

499600 mE

499800 mE

6577000 mN 6577500 6578000 6578500 6579000 6579500 6580000 mN

AMG NORTH (m)

6532-47

CRA EXPLORATION PTY LTD

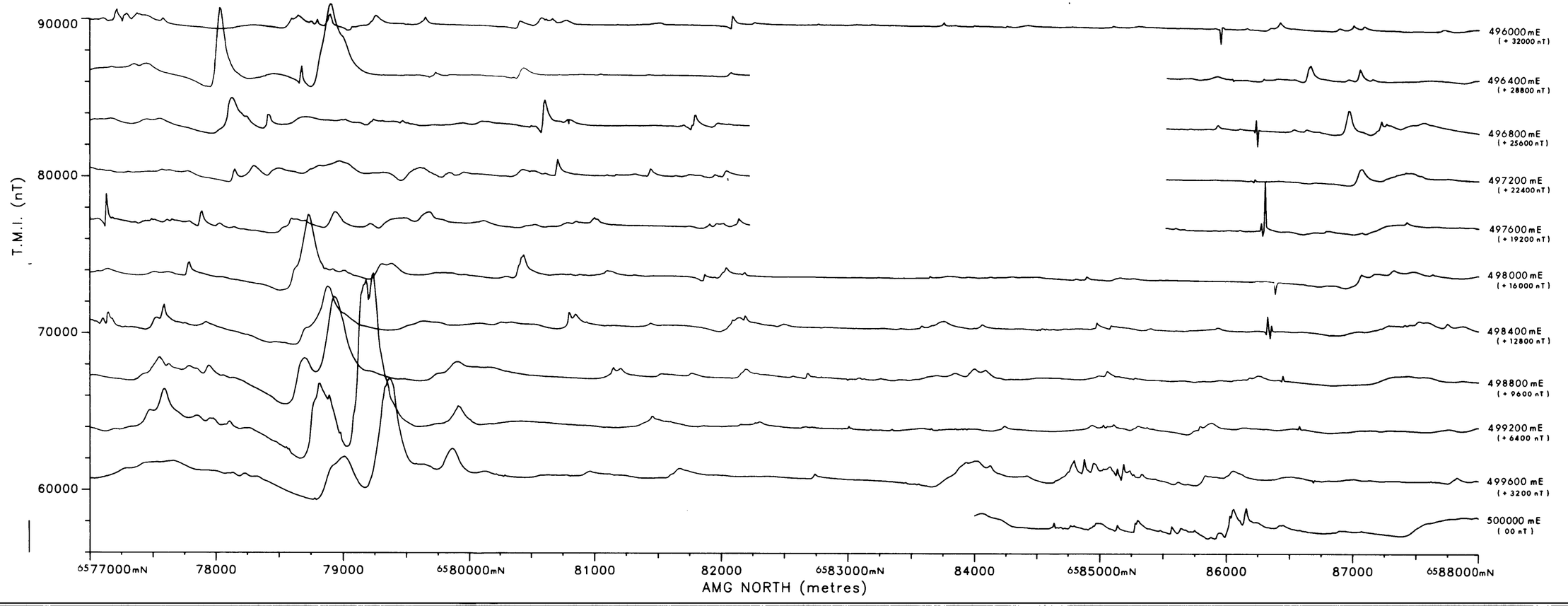
MT EBA E.L. 1315

SOUTH LAKE PROSPECT

BOUGUER GRAVITY AND MAGNETIC PROFILES

REFERENCE TARCOOLA SH 53-10	
SCALE 1:10,000	DRAWN GLM
AUTHOR GLM	REPORT 16191
DATE Oct. 89	PLAN No SAa 5028

0 100 200 300 400 500 600 700 800 900 1000 m.



6532-48

CRA EXPLORATION PTY LTD	
MT EBA E.L. 1315 – S.A. SOUTH LAKE PROSPECT STACKED MAGNETIC PROFILES	
REFERENCE TARCOOLA SH 53–10	
SCALE 1:25000	DRAWN GLM
AUTHOR GLM	REPORT 16191
DATE 28 JAN 88	PLAN No SAg 4860

6590000 mN

490000 mE

495000 mE

500000 mE

505000 mE

MT. EBA E.L. 1315

30° 50'

salt

TRANS AUSTRALIAN RAILWAY

Carters Well

Tank (disused)

Earea Dam

498000 mE

VERMIN FENCE

6586000 mN

4734

M.L. 5361

M.L. 5342

1164144

1164145

6585000 mN

6584000 mN

Enlarged Grid See Plan SAa 118

SOUTH LAKE

TIN MINE

AUST. DEV. RAB HOLES

1164141 - 1164143

1164139 - 1164140

1164138

1164137

1164136

1164119 - 1164120

1164134 - 1164135

1164133

6580000 mN

1164121

1164131

1164132

1164127

1164128

1164123

1164124

1164125

1164126

1164130

1164129

1164122

approx. position

approx. position

Kenella Well

494000 mE

498000 mE

499200 mE

6577000 mN

950902

950903

950901

950901

HOPEFUL HILL

6575000 mN

salt lakes

30°55'

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

1159702 - 1159709 1985 Rock Samples
919353 - 919355 1986 Rock Samples
} see plan SAa 3763
11624119 - 11624145 1988 Rock Samples
950900 - 950903 1989 Rock Samples

0 500m 1 2 3 4 5 Km.

134°55'

135°00'

31°00'

6532-49

CRA EXPLORATION PTY. LIMITED.

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT

ROCK SAMPLE LOCATION PLAN

Ref. :	TARCOOLA SH 53-10		
Scale	1 : 25 000	Drawn	
Author	D.C.P.	Report No.	16191
Date	Oct '89	Plan No.	SAa 4894

TOOLKIT PLUS Ver.1.23

CRA EXPLORATION LTD

m

PLAN VIEW

PLAN VIEW

MAG

+320

64375

0

61250

−32·0

mgal.

−33·0

−320

−34·0

58125

OBSERVED MAGNETICS

BOUGUER GRAVITY

CALCULATED MAGNETICS

6577600N

6578400N

6579200N

6580000N

6555000N

SECTION

4

3

0·015 SI

0·015 SI

SECTION

1

0·032 SI

2

0·032 SI

Several thinner bodies bulked together

320

640

960 m

MT. EBA E.L. 1315
SOUTHLAKE PROSPECT

LINE 499200mE

Scale 1 : 10000
Author G.L.M.

Ref.: TARCOOLA SH 53-10
Report No. 16191
Plan No. SAa 5207

Encom Technology Pty Ltd 14:28 13 Oct 89

0283

CRA EXPLORATION PTY. LIMITED

FINAL AND RELINQUISHMENT REPORT FOR MT. EBA EL 1315, SOUTH AUSTRALIA

1ST DECEMBER, 1989

AUTHOR: D.C. PALMER

COPIES TO: SADME
CIS CANBERRA

DATE: 14TH DECEMBER, 1989

SUBMITTED BY:

ACCEPTED BY:

16304

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CONTENTS

		Page
LIST OF PLANS		
LIST OF TABLES		
LIST OF APPENDICES		
1.	SUMMARY	1
2.	ASSESSMENT	1
3.	INTRODUCTION	2
4.	GEOLOGY	2
5.	WORK COMPLETED DURING FINAL QUARTER	4
	5.1 South Lake Prospect	4
	5.2 Hopeful Hill Prospect	4
	5.3 Area Review	4
6.	SUMMARY OF EXPLORATION COMPLETED ON MT. EBA EL 1315 (Reduced Area) BY CRA EXPLORATION PTY. LIMITED	5
	6.1 Introduction	5
	6.2 Radiometric Anomalies	9
	6.3 Reconnaissance Sampling	9
	6.4 Lake Labyrinth Prospect	9
	6.5 South Lake Prospect	10
	6.6 Glenloth Prospect	12
	6.7 Hopeful Hill Prospect	12
EXPENDITURE		13
REFERENCES		14
LOCATION		14
KEYWORDS		14

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LIST OF PLANS

Plan No.	Title	Scale
SAa 3552	Mt. Eba EL 1315, S.A. - Location Plan	1:250 000
SAa 3765	Mt. Eba EL 1315, S.A. - Airborne Geophysical Survey Boundary and Sheet Index	1:250 000
SAa 4284	Mt. Eba EL 1315, S.A. - Proterozoic and Archaean Outcrop Geology	1:100 000
SAa 4481	Mt. Eba EL 1315, S.A. - Magnetic Anomalies	1:100 000
SAa 4755	Mt. Eba EL 1315, S.A. - Gravity and Magnetic Model, Line 502200mE	1: 10 000
SAa 4762	Mt. Eba EL 1315, S.A. - South Lake Prospect Grid Locations with Drill Hole Locations	1: 50 000
SAa 3763	Mt. Eba EL 1315, S.A. - Rock Chip Samples	1:100 000
SAa 4893	Mt. Eba EL 1315, S.A. - South Lake Prospect Base Map	1: 25 000
SAa 4894	Mt. Eba EL 1315, S.A. - South Lake Prospect Rock Sample Location Plan	1: 25 000
SAa 5004	Mt. Eba EL 1315, S.A. - Lake Labyrinth Prospect, DD88ME2 Drill Logs	1: 500
SAa 5028	Mt. Eba EL 1315, S.A. - South Lake Prospect Bouguer Gravity and Magnetic Profiles	1:100 000
SAa 5050	Mt. Eba EL 1315, S.A. - South Lake Prospect SIROTEM Profile, Line 499200mE	1: 5 000
SAa 4370	Mt. Eba EL 1315, S.A. - Radiometric Anomalies	1:100 000

LIST OF TABLES

Table I Summarized Stratigraphy - Mt. Eba EL 1315
Table II Summary of Work Completed by CRAE over Mt. Eba EL 1315

LIST OF APPENDICES

Appendix I Abadon Holdings Drill Hole DH1A - Drill Hole Log & Assays
Appendix II Hopeful Hill - Rock Sample Ledger
Appendix III Lake Labyrinth Prospect - Lithological Drill Hole Log (DD88ME2) and Geochemical Assay Data

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1. SUMMARY

Mt. Eba EL 1315 was acquired to cover a regional gravity high located north of Kingoonya, and adjoining areas of subcropping Archaean and Proterozoic basement which were considered as having potential for base metal and Au mineralisation.

An airborne magnetic and radiometric survey was flown over the western portion of the licence and three primary target areas were selected for follow up with two grids being surveyed.

Drilling at the Lake Labyrinth Prospect indicated no economic mineralisation. No additional drill targets were identified from work completed over other existing prospects.

A partial relinquishment of Mt. Eba EL 1315 was completed in January, 1989.

A review of all data has indicated that no potential targets remained in the western portion of the licence area covered by the airborne survey, and that relinquishment of the remainder of Mt. Eba EL 1315 is warranted.

2. ASSESSMENT

The following conclusions were drawn from work programmes completed by CRA Exploration Pty. Limited, over Mt. Eba EL 1315;

i) Drill testing of a reverse polarised 4000nT/2.8 mgal coincident magnetic and gravity anomaly at Lake Labyrinth Prospect has shown that the anomaly is due to a unmineralised layered peridotitic intrusive.

ii) Ground investigation at South Lake Prospect has downgraded the potential of geophysical targets to host Archaean base metal or Au mineralisation.

iii) Low amplitude magnetic anomalies at Glenloth Prospect are attributable to unmineralised magnetic granite.

iv) Within areas covered by the airborne magnetic/radiometric survey over Mt. Eba EL 1315, no significant anomalies remain untested. No further work is recommended and Mt. Eba EL 1315 should be relinquished.

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3. INTRODUCTION

Mt. Eba EL 1315 was granted to CRA Exploration Pty. Limited on 9th January, 1986 and renewed for further one year periods in 1987 and 1988.

The relinquishment of 44% of Mt. Eba EL 1315 tenement was completed on 9th January, 1989 and an extension of term for EL 1315 over a reduced area subsequently granted.

The remaining licence area centred 50 km east of Tarcoola, shown on plan SAa 3552 was surrendered on 1st December, 1989.

The licence area was acquired to cover a regional gravity high located north of Kingoonya, interpreted as representing a possible Middle Proterozoic sediment filled graben. The graben was considered to have potential for conglomerate-hosted Au deposits. Adjoining areas of Archaean and Proterozoic lithologies covered by EL 1315 were also considered as having potential for base metal and Au styles of mineralisation.

This final and relinquishment report for Mt. Eba EL 1315 details work completed by CRA Exploration Pty. Limited, over Mt. Eba EL 1315 during the sixteenth quarter and provides a summary of all work completed on Mt. Eba EL 1315 during CRAE's period of tenure.

CRAE Report No. 15863 details work completed by CRAE over portions of Mt. Eba EL 1315 relinquished in January, 1989.

4. GEOLOGY

Mt. Eba EL 1315, lies within the northwestern portion of the Gawler Craton. The licence covers a sub-province of the Gawler Craton containing Archaean to Lower Proterozoic faulted crystalline basement, variably covered by flat lying to folded Middle Proterozoic sedimentary (Tarcoola Formation) and volcanic rocks (Gawler Range Volcanics) and intrusive granites (Hiltaba Suite).

Abundant Jurassic and Cretaceous sand units, Tertiary laterites/silcrete and Quaternary gypsiferous lake deposits restrict Pre-Cambrian outcrop to less than ten percent.

A compilation of Archaean and Proterozoic outcrop over EL 1315 from open file data (SADME Mapping) is shown on plan SAa 4284. A summarized stratigraphic geological column in presented in Table I.

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Table I

Summarized Stratigraphy - Mt. Eba EL 1315

AGE	STRATIGRAPHIC UNITS	LITHOLOGY(S)	COMMENTS
QUATERNARY		Unnamed silcrete/ferricrete/ calcrete, Gypsiferous sand, Quartz dune sand	
TERTIARY	PIDINGA FORMATION (Eocene)	Carbonaceous clay & qtz sand	Palaeodrainage Channels
MESOZOIC	BULLDOG SHALE (Cretaceous)	Silty claystone	Extensive cover
	ALGEBUCKINA SANDSTONE (Jurassic)	Kaolinitic Quartz Arenite	
	GAIRDNER DYKE SWARM	Dolerites	Subsurface
	PANDURRA FORMATION	Haematitic and micaceous arenites	Subsurface only
	HILTABA SUITE	Granite-Adamellite	1475+/-45 Ma (Rb/Sr)
	TARCOOLA FORMATION	Volcaniclastics, Qtz pebble Conglomerates, Arkosic Sandstones	Wallabyng Range
	GAWLER RANGE VOLCANICS	Porphyritic rhyolites/rhyodacites Welded tuffs and vesicular basalts. Intrusive Diorite.	Ealbara Rhyolite 1511+/-9 Ma (Rb/Sr) West of Wallabyng Range
	KIMBAN INTRUSIVES	Gneissic granites/adamellites Foliated gabbroic & dolerite dykes	Symons Granite 1585+/-12 Ma (Rb/Sr)
PROTEROZOIC	HUTCHINSON GROUP (Wilgena Hill Jaspillite)	Jaspillitic Iron Formation	Wallabyng Range
LATE ARCHAEAN to EARLY PROTEROZOIC	MULGATHING COMPLEX	Calc-silicate hornfels, meta-sediments, metamorphosed pillow lavas and ultrabasic rocks.	Mt. Christie Gneiss 2417+/-59 Ma (Rb/Sr) Kenella Gneiss 2488+/-130 Ma (Rb/Sr)

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5. WORK COMPLETED DURING THE FINAL QUARTER

During the sixteenth and final quarter for Mt. Eba EL 1315, field work was completed on South Lake Prospect and Hopeful Hill Prospect, whilst a review of all previous prospects and data over EL 1315 was completed.

5.1 South Lake Prospect

During the last quarter, the geophysical anomalies detailed at South Lake Prospect grid were identified as repetitions of the Kenella Rock iron formation, rather than developments of mineralisation within a N-W trending shear (CRAE Report 16191).

The Kenella Rock iron-formation (Mt. Christie Gneiss) and gneissic meta-sediments were intersected at Kenella Rock by Abadon Holdings drill hole 73DH1A.

Grindings of core from drill hole DH1A were submitted for Au assay. All twenty-two samples returned Au assay values below a 0.01 ppm lower detection limit. Assay results attached to a full lithological drill log are presented in Appendix I.

The potential of the South Lake Prospect Archaean meta iron formation sequence to host Au mineralisation has been downgraded. No further work appears warranted on South Lake Prospect.

5.2 Hopeful Hill

During the previous quarter, a reportedly Archaean metabasic rock unit at Hopeful Hill (centred AMG 492000mE, 6576000mN) was rock chip sampled and the four samples collected were dispatched for assay (plan SAa 4894). No significant precious or base metal assays were returned, and no further work was deemed necessary. Assay results are tabulated with a rock sample ledger in Appendix II.

5.3 Area Review

During the quarter, a review of all geophysical and geological data over Mt. Eba EL 1315, was completed, including a revision of previous prospects.

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All primary and secondary targets delineated by Mt. Eba EL 1315 aeromagnetic/radiometric survey data have been ground located and adequately tested. In the absence of any significant targets, no further work on Mt. Eba EL 1315 is recommended.

6. SUMMARY OF EXPLORATION COMPLETED BY CRAE ON MT. EBA EL 1315 (Reduced Area)

6.1 Introduction

Mt. Eba EL 1315 was acquired to cover a regional gravity high located north of Kingoonya and adjoining areas of subcropping Archaean and Proterozoic basement, which were considered as having potential for base metal and Au styles of mineralisation.

An airborne magnetic and radiometric survey was flown over the western half of Mt. Eba EL 1315 in 1986.

Data tapes for the Mt. Eba aeromagnetics/radiometrics survey have been submitted to SADME. The located data tapes have the CRAE number sequence AM279-281, whilst the gridded magnetics data tape is referenced by AM327. Plan SAa 3765 details the airborne survey boundary.

From this survey, three primary target areas (plan SAa 4481) were delineated for further work;

i) Lake Labyrinth Prospect
ii) South Lake Prospect
iii) Glenloth Prospect

In addition to specific targets generated from the interpretation of aeromagnetic data, general prospecting was completed across the tenement area.

The eastern portion of EL 1315 tenement which covered the gravity high was relinquished at the beginning of 1989, and all work completed by CRAE over that portion of the EL is documented in CRAE Report 15863.

Exploration activity conducted by CRA Exploration on the remaining area of Mt. Eba EL 1315 up to and including the sixteenth (final) quarter is summarized in Table II.

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TABLE II

SUMMARY OF WORK COMPLETED BY CRAE OVER MT. EBA EL 1315

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1986	Literature Search	SADME Open File	Compilation of previous exploration	1st Qtly Rpt on Mt. Eba EL 1315
1986	Rock Chip Sampling	23 Samples Assayed (19 elements)		1st Qtly Rpt on Mt. Eba EL 1315
1986	Detailed Airborne Magnetic/Radiometric Survey	300 m N/S lines, 80 m terrain clearance	Geoterrex P/L (Contractors)	3rd/4th Qtly Rpt on Mt. Eba EL 1315
1986	Compilation Plans - Outcrop Geology - Radiometrics Anomalies	1:100 000 (SADME Mapping)		3rd Qtly Rpt on Mt. Eba EL 1315
1986	26 km Ground Magnetics	10 m stations, Scintrex MP-3 Magnetometer	Lake Labyrinth West Prospect	4th Qtly Rpt on Mt. Eba EL 1315
1987	Compilation Plan of all Aeromagnetic Surveys	1:100 000		4th Qtly Rpt on Mt. Eba EL 1315
1987	Rock Chip Sampling	11 Samples Assayed	Glenloth Prospect	7th Qtly Rpt on Mt. Eba EL 1315
1987	3 km Gravity	100 m stations; LaCoste & Romberg gravimeter	Lake Labyrinth West Prospect	7th Qtly Rpt on Mt. Eba EL 1315

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TABLE II

cont...

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1987	107 km Ground Magnetics	10 m stations; Scintrex MP-3 Magnetometer	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
	65 km Gravity	100 m stations; Lacoste & Romberg gravimeter	South Lake Prospect Solo Geophysics P/L (contractors)	8th Qtly Rpt on Mt. Eba EL 1315
1987	DD87ME1	Total depth 51.0 m HW tricone chips	Kingoonya Drilling P/L Lake Labyrinth West Prospect	8th Qtly Rpt on Mt. Eba EL 1315
1988	Ground Magnetics Profiles	1:25 000	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Rock Sampling	Petrology (Pontifex & Assoc.)	South Lake Prospect	9th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	60 Samples Assayed for Au	Reassaying of Bedrock Samples CRAE 1977 South Lake Grid	9th Qtly Rpt on Mt. Eba EL 1315
1988	Stacked Gravity Profiles	1:25 000	South Lake Prospect	10th Qtly Rpt on Mt. Eba EL 1315
1988	DD88ME2	502200mE 6607768mN -60°S Total Depth 302.5 m	Mathews Drilling Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315
	DD88ME2	Petrology (Pontifex & Assoc.) 7 samples	Lake Labyrinth West Prospect	10th Qtly Rpt on Mt. Eba EL 1315

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TABLE II

cont...

YEAR	WORK	SPECIFICATIONS	REMARKS	REPORT
1988	Geochemistry	DD88ME2 core grindings 116 samples	Lake Labyrinth West Prospect	11th Qtly Rpt on Mt. Eba EL 1315
1988	6.0 km Gravity	3.0km, 50m stns 3.0km, 100m stns LaCoste & Romberg gravimeter	South Lake Prospect Grid	11th Qtly Rpt on Mt. Eba EL 1315
	6.0 km Ground Magnetics	10 m stations Scintrex MP-3 Magnetometer	South Lake Prospect	11th Qtly Rpt on Mt. Eba EL 1315
1988	TEM Survey	4.5km, 3 lines 100m, in-loop RVR SIROTEM	South Lake Prospect/ Kenella Rock	11th Qtly Rpt on Mt. Eba EL 1315
1988	Geochemistry	DD88ME2 core 12 samples REE assays	Lake Labyrinth West Prospect	12th Qtly Rpt on Mt. Eba EL 1315
1989	2.0 km Gravity	2.0 km, 100m stns LaCoste & Romberg Gravimeter	South Lake Prospect Grid	15th Qtly Rpt on Mt. Eba EL 1315
	2.0 km Ground Magnetics	10 m stations Scintrex MP-3 Magnetometer	South Lake Prospect Grid	
1989	Rock Chip Sampling	4 samples assayed (12 elements)	Hopeful Hill	15th Qtly Rpt on Mt. Eba EL 1315
1989	Geochemistry	73DH1A core grindings assayed for Au	(Abadon Drill Core) South Lake Prospect	Final & Rlnq Rpt on Mt. Eba EL 1315

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6.2 Radiometric Anomalies

A list of radiometric anomalies was compiled from flight charts and plotted (plan SAa 4370). In general most anomalies were found to be coincident with claypans, due to the presence of radioactive elements in the claypan muds. Other anomalies coincident were with felsic lithologies (CRAE Report 14183).

6.3 Reconnaissance Rock Sampling

Reconnaissance rock sampling was completed at various locations within Mt. Eba EL 1315 (plan SAa 3763). No highly anomalous assay values were recorded, with most assay values normal for the lithologies sampled (CRAE Rpt. 13885).

6.4 Lake Labyrinth Prospect

A reversely polarized magnetic response identified from aeromagnetic data at Lake Labyrinth, was targetted as a potential carbonatitic intrusion (plan SAa 4481).

Ground definition of the target was achieved via 26 line km of ground magnetics and three line km of gravity. The 4000 nT/2.8 mgal coincident magnetic and gravity anomaly was modelled as a series of steeply dipping intrusive bodies and subsequently diamond drill tested (plan SAa 4755).

Drill hole DD87ME1 (-60°S) was aborted at 51.0 m in cover sequences. Drill hole DD88ME2 (-60°S) located 6607768mN on line 502200mE, intersected a sequence of acid to intermediate volcanics (GRV) overlying an altered layered peridotite with discordant altered alkali-basalt dykes, and felsic pegmatite veins.

A summarized lithological log is detailed below.

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0301

0	- 72	m	Cover sediments
72	- 94.9	m	Interlayered andesite & peridotite with rare pegmatite bands.
94.9	-112.88	m	Interlayered peridotite, pyroxenite & basalt with rare felsic pegmatite bands.
112.88	-134.1	m	Porphyritic andesite with dolerite bands.
134.1	-146.2	m	Interlayered porphyritic andesite & peridotite.
146.2	-156.1	m	Carbonate altered porphyritic andesitic basalt.
156.1	-158.1	m	Andesite.
158.1	-167.3	m	Carbonate altered peridotite.
167.3	-170.7	m	Carbonate altered andesitic basalt with gneiss xenoliths.
170.7	-182.2	m	Carbonate altered peridotite with pegmatite bands.
182.2	-199.3	m	Chlorite altered peridotite with felsic pegmatite bands.
199.3	-302.5	m	Peridotite with felsic pegmatite bands, and rare dolerite.

Total Depth 302.50 m

A blockage at 72.0 m prevented geophysical logging of drill hole DD88ME2.

Negligible Au, Pt, Pd or base metal assays were recorded from the peridotitic sequence, whilst highly elevated Nd values (177-206 ppm) were returned from high Phosphorus (>0.1%) altered basaltic dykes.

A full lithological log with assay data appears in Appendix III, and a geochemical histogram plot of selected elements is shown on plan SAa 5004.

The source of the Lake Labyrinth geophysical anomaly was fully explained by the volume of peridotite intersected in drill hole DD88ME2. The anomaly has been sufficiently drill tested and in the absence of any highly anomalous geochemical assays from drill core samples, no further work over the prospect was deemed necessary.

6.5 South Lake Prospect

Interpretation of aeromagnetic data delineated a circular magnetic quiet zone near South Lake. The magnetic quiet zone, with reported peripheral mineral occurrences was targetted as a hydrothermal alteration centre (plan SAa 4481).

A grid was emplaced over the South Lake Prospect, and a total of 115 line km of ground magnetics and 73 line km of gravity coverage was completed (plan SAa 4762).

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Ground investigation at South Lake indicated that areas of subdued magnetics appear to coincide with non magnetic Archaean quartzo-feldspathic Kenella Gneiss and not broad areas of hydrothermal alteration.

Mineral occurrences reportedly peripheral to the magnetically quiet zone at Earea Dam (Au) and South Lake (Sn) were also investigated. The minor gold mineralisation at Earea Dam appears to be located within a shear zone in Archaean gneiss, whilst Sn mineralisation at South Lake is related to small pegmatitic and gneissen veins within granitic gneiss.

Exploration activity was thence directed towards high amplitude (10 000 nT) linear magnetic anomalies with coincident 1-2 mgal bouguer gravity signatures which had been delineated by ground geophysics in the south eastern portion of the South Lake grid (plan SAa 5028) near Kenella Rock.

An Archaean meta-sediment sequence interpreted as the possible anomaly source was subsequently targetted for Gamsberg-style sulphide mineralisation.

SIROTEM traverses (4.5 line km) were completed over the coincident linear magnetic/gravity sources and in the immediate vicinity of Kenella Rock (plan SAa 5050). No associated massive sulphide TEM anomalies were produced.

To the south of the main linear magnetic anomalies a discrete 1 mgal gravity anomaly centred on Line 499200mE at 6577500mN (plan SAa 5028) was targetted for further work. The gravity anomaly was thought to represent a thickening along strike of a mineralised shear intersected by Abadon Holdings drill hole DH1A (9.1 m of 1.6% Zn from 140 m) collared 3 km to the north west at Kenella Rock.

Modelling of the magnetic and gravity data, in conjunction with a reinterpretation of the airborne magnetics suggested that the anomaly in question appears to a repetition of similar BIF units to the north, rather than a development of mineralisation within the N-W trending shear (CRAE Report 16191).

The Archaean meta-iron formation sequence intersected in drill hole DH1A was assayed for Au, with all samples returning below detection limit (<0.01 ppm) results (Section 5.1).

The potential of geophysical targets delineated within the South Lake Prospect grid to host Archaean base metal or Au targets has been downgraded and no further work on the South Lake Prospect was deemed warranted.

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6.6 Glenloth Prospect

The Glenloth Prospect comprised two discrete low amplitude aeromagnetic anomalies (0.5-1.0 km in diameter) located 14 km south of South Lake (plan SAa 4481). Ground inspection and rock chip sampling of outcrop in the general area was completed.

The magnetic anomalies were found to be attributable to outcropping, foliated magnetic granite. Rock samples of representative lithologies assayed returned no anomalous results. No further work on the Glenloth Prospect was deemed necessary.

6.7 Hopeful Hill Prospect

An inferred Archaean age meta-basic rock unit at Hopeful Hill was rock chip sampled and assays for base and precious metals were completed. No anomalous geochemistry was noted and no further work was considered necessary on the prospect.

DAVID C. PALMER

DCP/pq

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EXPENDITURE

Expenditure for the three month period ended 31st December, 1989, the nearest accounting period on EL 1315, amounted to $21 341.00, as detailed below.

	$
Payroll	8 969
Supplies	2 080
Vehicle	1 119
Travel	625
Rent	2 929
Laboratory	411
Overheads	5 208
Total	$21 341

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REFERENCES

Sugden, S.P. First Quarterly Report for Mt. Eba EL 1315, South Australia, For The Period Ending 9th April, 1986. (CRAE Report 13885)

Sugden, S.P. Third Quarterly Report for Mt. Eba EL 1315, South Australia, For The Period Ending 9th October, 1986. (CRAE Report 14183)

Palmer, D.C. Partial Relinquishment Report for Mt. Eba EL 1315, South Australia, May 1989. (CRAE Report 15863)

Palmer, D.C. Fifteenth Quarterly Report for Mt. Eba EL 1315, South Australia, For The Period Ending 9th October, 1989. (CRAE Report 16191)

LOCATION

Kingoonya	SH53-11	1:250 000 sheet
Tarcoola	SH53-10	1:250 000 sheet
Childara	SH53-14	1:250 000 sheet
Gairdner	SH53-15	1:250 000 sheet

KEYWORDS

Gold, Geochemistry, Base Metals, Geophys-magnetics

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APPENDIX I

ABADON HOLDINGS DRILL HOLE DH1A - DRILL HOLE LOG & ASSAY

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CRA EXPLORATION PTY. LIMITED.

ABADON 18+97W, 4+00S

495997mE

73DH1A (ABADON HOLDINGS) DRILL LOG

PROJECT KENELLA ROCKS SML 680

AMG CO-ORDINATES 6578676mN AZIMUTH N25°E DRILLERS LONGYEAR COMMENCED JULY 1973 DEPTH 500' HOLE No.

RL COLLAR INCLINATION -60° DRILL TYPE COMPLETED CASING LEFT DPO Nos. 37771

*ALL MEASUREMENTS IN FEET

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS	
					ABADON HOLDINGS DRILL HOLE DH1A (CRAE MT. EBA EL 1315 - SOUTH LAKE PROSPECT)						
					HOLE SITED ON PB-ZN SOIL ANOMALY WITH WEAK GROUND EM CONDUCTOR ON FLANK						
					OF MAGNETIC HIGH.						
					ABADON ASSAYS 460-490 ft 1•6% Zn, 680 ppm Pb, 266 ppm Cu (AAS)						
0	162		4"		PERCUSSION CHIPS						
					0- 25 ft Alluvial aeolian sand, clay, gypsum						
					25- 70 ft Weathered altered bedrock clay, soft/soapy red, green dark foliated? fragments, quartz, gneiss						
					70-130 ft Ironstone weakly foliated						
					130-162 ft Quartz-Gneiss						
162	183		BQ		QUARTZ-PLAGIOCLASE-HORNBLENDE?-BIOTITE GNEISS						
					Weathered, white and light to dark brown, moderate to well foliated gneiss. Hornblende forms eyes to 5mm in diameter. Foliation defined by mineral differentiation. Minor epidote grains and limonite dustings on fractures. Core well fractured. Structure: Foliation 42° LCA.						
183	195				INTERBANDED QUARTZ-PLAGIOCLASE GNEISS AND QUARTZ-PLAGIOCLASE-HORNBLENDE?-BIOTITE GNEISS						
					Interbanded very fine grained cherty, quartz-plagioclase gneiss and gneiss as 162-183', well foliated with rare specks pyrite associated with quartz-plagioclase gneiss. Rock less weathered. Structure: Foliation 40° LCA.						
195	200'9"				QUARTZ-PLAGIOCLASE GNEISS?						
					Dark grey fine grained massive quartz plagioclase rock with fine grained pyroxene?? Very minor discontinuous thin quartz veining.						
200'9"	205'3"				QUARTZ-PLAGIOCLASE-K.FELDSPAR-CHLORITE-HORNBLENDE GNEISS						
					White to grey, fine grained, moderate to well foliated gneiss. Foliation defined by mineral differentiation.						
205'3"	207'				QUARTZ-GARNET GNEISS						
					Sub-massive to very poorly foliated and coarse grained, with large garnet porphyroblasts to 4mm in size. Garnets fractured and corroded in parts.						

SUMMARY:

RE LOGGED BY SP SUGDEN DATE 24/08/89

SHEET 1 OF 5

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CRA EXPLORATION PTY. LIMITED.

ABADON 18+97W, 4+00S

73DH1A (ABADON HOLDINGS) DRILL LOG

PROJECT KENELLA ROCKS SML 680

AMG CO-ORDINATES 495997mE 6578676mN | AZIMUTH N25°E | DRILLERS LONGYEAR | COMMENCED JULY 1973 | DEPTH 500' | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE | COMPLETED | CASING LEFT | DPO Nos. 37771

*ALL MEASUREMENTS IN FEET

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS	
207'	214'				QUARTZ-K.FELDSPAR-CHLORITE-CHLORITE GNEISS Moderate to well foliated, fine to medium grained gneiss. Dark minerals from thin discontinuous bands and eyes or lumps. Rare garnet and pyrite, with pyrite as discrete grains and coatings on joints. Core well fractured.						
214'	217'8"				K.FELDSPAR-CHLORITE-PYROXENE? GNESS Fine to medium grained, poorly banded to granoblastic gneiss with rare round culloform??? structures (cherty quartz?). Minor chloritic alteration.						
217'8"	227'6"				QUARTZ-GARNET GNEISS Foliated, thickly banded gneiss with bands tending to be granoblastic in texture. Coarse grained. Garnets to 1cm in size and occasionally extensively chloritized. Rare traces pyrite as discrete grains and very thin wispy veins. Structure: Foliation 32° LCA.						
227'6"	237'				QUARTZ-K.FELDSPAR-GARNET?-HORNBLENDE GNEISS Moderately foliated and thinly banded, fine grained dark grey gneiss. Minor hornblende porphyroblasts and rare traces pyrite as discrete grains and dustings on joint faces.						
237'	239'6"				PLAGIOCLASE-PYROXENE?-K.FELDSPAR GNEISS? Medium grained mossy textured gneiss or granulite with rare thin plagioclase veins.						
239'6"	244'9"				QUARTZ-GARNET BAND Massive quartz garnet band. Minor chloritization of the garnets.						
244'9"	253'				INTERBANDED PLAGIOCLASE-PYROXENE GNEISS & QUARTZ K.FELDSPAR-HORNBLENDE GNEISS Interbanded, massive plagioclase-pyroxene gneiss and thinly foliated quartz-k.feldspar-hornblende gneiss. Bands to 30cm thick. 248'-239'6" K.feldspar-pyroxene mossy textured band Structure: Foliation 15° LCA.						
253'	268'				QUARTZ-GARNET-HORNBLENDE-CHLORITE GNEISS Medium to gine grained, moderately foliated gneiss. Hornblende and garnet usually individual blebs to 5mm in size. Rare traces pyrite, minor chloritization and quartz veining. Structure: Foliation 5° LCA.						

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SUMMARY :

RE LOGGED BY SP SUGDEN DATE 24/08/87

SHEET 2 OF 5

03053

CRA EXPLORATION PTY. LIMITED.

ABADON 18+97W, 4+00S

73DH1A (ABADON HOLDINGS) DRILL LOG

PROJECT KENELLA ROCKS SML 680

AMG CO-ORDINATES 495997mE 6578676mN | AZIMUTH N25°E | DRILLERS LONGYEAR | COMMENCED JULY 1973 | DEPTH 500' | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE | COMPLETED | CASING LEFT | DPO Nos. 37771

*ALL MEASUREMENTS IN FEET

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS	
268'	272'				K.FELDSPAR-PYROXENE-QUARTZ GNEISS						
					Dark green to pink well foliated gneiss. Thinly banded with foliation defined by mineral lineations and wisps.						
272'	279'				QUARTZ-MAGNETITE-CHLORITE GNEISS						
					Moderately foliated gneiss with rare k.feldspar at contacts.						
279'	284'5"				K.FELDSPAR-QUARTZ-PYROXENE GNEISS						
					Red medium grained well foliated gneiss. Tiny plagioclase grains associated with k.feldspar bands. Structure: Foliation 0-5° LCA						
284'5"	292'				CHLORITE-K.FELDSPAR-PLAGIOCLASE-MAGNETITE GNEISS						
					Medium to fine grained, well foliated, thinly banded gneiss. Structure: Foliation 0-20° LCA						
292'	295'6"				K.FELDSPAR-QUARTZ-PYROXENE GNEISS						
					As for 279'-284'5" with chlorite filled fractures.						
295'6"	298'6"				CHLORITE-K.FELDSPAR-PLAGIOCLASE-MAGNETITE GNEISS						
					As for 284'5"-292' but oxidised.						
298'6"	304'6"				K.FELDSPAR-CLAY-CHLORITE ROCK						
					Oxidised brown to white, medium grained rock with minor quartz (granite?).						
304'6"	309'				QUARTZ-K.FELDSPAR GNEISS						
					Light pink to white quartz-k.feldspar gneiss, crudely foliated with rare chloritic veining. Structure: Foliation 38° LCA						
309'	322'				QUARTZ-K.FELDSPAR-AMPHIBOLE-CHLORITE GNEISS						
					Poorly foliated, medium to dark green and white gneiss. Core fractured with minor thin silicified bands and rare biotite. Structure: Foliation 30° LCA						
322'	325'				K.FELDSPAR & QUARTZ						
					Brick red k.feldspar and quartz segregation. Coarse grained.						

SUMMARY :

RE LOGGED BY SP SUGDEN DATE 24/08/87

SHEET 3 OF 5

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CRA EXPLORATION PTY. LIMITED.

ABADON 18+97W, 4+00S

73DH1A (ABADON HOLDINGS) DRILL LOG

PROJECT KENELLA ROCKS SML 680

AMG CO-ORDINATES 495997mE 6578676mN AZIMUTH N25°E DRILLERS LONGYEAR COMMENCED JULY 1973 DEPTH 500' HOLE No.

RL COLLAR INCLINATION -60° DRILL TYPE COMPLETED CASING LEFT DPO Nos. 37771

*ALL MEASUREMENTS IN FEET

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (ft)	TO (ft)	REC. (%)	GEOCHEMISTRY Au (FIRE ASSAY/AAS)
325'	333'				INTERBANDED K.FELDSPAR-QUARTZ-AMPHIBOLE? GNEISS, QUARTZ-K.FELDSPAR-BIOTITE GNEISS & QUARTZ-PLAGIOCLASE-PYROXENE? GNEISS					
					Moderate to poorly foliated and thinly banded gneisses as above. Irregular thin chlorite filled fractures. Structure: Foliation 25° LCA					
333'	352'				K.FELDSPAR-QUARTZ GNEISS					
					Brick red to pink poorly foliated gneiss with wispy thin quartz lineations. Fractured and	950908	333	339		<0.01 ppm
					brecciated by carbonate chlorite veining from 337'-352'.	950909	339	345		<0.01 ppm
					Structure: Foliation 20° LCA	950910	345	352		
352'	360'				MASSIVE CARBONATE					
					Medium grained, massive, light green carbonate band with minor hematitic dustings	950911	352	360		<0.01 ppm
360'	387'6"				INTERBANDED K.FELDSPAR-QUARTZ-GNEISS, K.FELDSPAR-QUARTZ-PYROXENE? GNEISS & PLAGIOCLASE-QUARTZ-PYROXENE-BIOTITE GNEISS					
					Pink white, pink green and white green coloured respectively. Gneisses are all poor to moderately foliated with discontinuous mineral lineations. In plagioclase pyroxene gneiss, pyroxene forms discrete grains and blebs to 4mm in size. Bands are up to 0.5m thick. Very rare traces pyrite. Structure: Foliation 40° LCA					
387'6"	399'				K.FELDSPAR-QUARTZ-CHLORITE GNEISS					
					Light red to pink coloured with a wispy, blebby band of pink to dark green k-feldspar-pyroxene-quartz gneiss from 394'6"-396'6". Moderately foliated. Structure: Foliation 30° LCA					
399'	409'				PYROXENE-CHLORITE-PLAGIOCLASE-K.FELDSPAR GNEISS					
					Massive, fine grained gneiss. Moderately sheared with chlorite slickensides.	950912	399	404		<0.01 ppm
						950913	404	409		<0.01 ppm
409'	421'				BRECCIATED K.FELDSPAR-QUARTZ GNEISS					
					Strongly fractured, broken and brecciated gneiss. From 418'6"-421' gneiss brecciated with	950914	409	415		<0.01 ppm
					chloritic matrix.	950915	415	421		<0.01 ppm
421'	431'6"				PLAGIOCLASE-QUARTZ-CHLORITE-MAGNETITE GNEISS					
					Moderately foliated, extensively fractured and altered with hematite dustings and chloritically	950916	421	426		<0.01 ppm
					altered sections. Minor carbonate veining. Structure: Folation 35° LCA	950917	426	431'6"		<0.01 ppm

SUMMARY:

RELOGGED BY SP SUGDEN DATE 24/08/87

SHEET 4 OF 5

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

CRA EXPLORATION PTY. LIMITED.

ABADON 18+97W, 4+00S

73DH1A (ABADON HOLDINGS) DRILL LOG

PROJECT KENELLA ROCKS SML 680

AMG CO-ORDINATES 495997mE 6578676mN AZIMUTH N25°E DRILLERS LONGYEAR COMMENCED JULY 1973 DEPTH 500' HOLE No.

RL COLLAR INCLINATION -60° DRILL TYPE COMPLETED CASING LEFT DPO Nos. 37771

*ALL MEASUREMENTS IN FEET

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (Ft)	TO (Ft)	REC. (m)	GEOCHEMISTRY Au (FIRE ASSAY/AAS)
431'6"	440'				K.FELDSPAR-QUARTZ GNEISS					
					Brick red gneiss, foliated with wispy quartz bands. Moderate fracturing with chlorite fills.	950918	431'6"	440		<0.01 ppm
440'	445'				ALTERED K.FELDSPAR-QUARTZ GNEISS					
					As above but strongly fractured and altered with carbonate, chlorite and hematite fractures and veins.	950919	440	445		<0.01 ppm
445'	451'6"				PYROXENE-CHLORITE-QUARTZ ROCK					
					Light green, massive medium grained rock with rare pyrite and minor carbonate veining.	950920	445'	451'6"		<0.01 ppm
451'6"	490'				ALTERED K.FELDSPAR-QUARTZ GNEISS					
					Strongly altered and fractured gneiss with chloritic and hematitic alteration. Core strongly,	950921	451'6"	458'		<0.01 ppm
					fractured and brecciated by chlorite and quartz veining. Minor epidote. From 480'-485' minor	950922	458	464		<0.01 ppm
					(approx. 1%) galena and pyrite associated with chlorite veining. Fine grained.	950923	464	470		<0.01 ppm
						950924	470	475		<0.01 ppm
						950925	475	480		<0.01 ppm
						950926	480	485		<0.01 ppm
						950927	485	490		<0.01 ppm
490'	500'				BRECCIATED K.FELDSPAR-QUARTZ GNEISS					
					Gneiss fractured and brecciated with quartz veining. Rare chloritic alteration.	950928	490	495		<0.01 ppm
					Structure: Foliation 20° LCA	950929	495	500		<0.01 ppm
					E.O.H. - 500 Feet					

SUMMARY:

RE LOGGED BY SP SUGDEN DATE 24/08/87

SHEET 5 OF 5

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

APPENDIX II

HOPEFUL HILL - ROCK SAMPLE LEDGER

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

Mt. EBA EL1315

C.R.A. EXPLORATION PTY. LTD.- ROCK SAMPLE FIELD DATA SHEET.

PAGE No: 1 OF 1

Area: Hopeful Hill | Collected: J.F.M/D.C.P | Analysed by: CLASSIC | Lab. report no: 9AD2391

Map ref: Tarcoola 1:250,000 | Date collected: 30/1/89 | Date anal. rec:

Photo name: | Date to lab: | Plan no: SAa 4894. | 0313

Run No: | D.P.O. No: 37770 | C.R.A. report no: | Less than detection limit [-]

Sample type: 1. Chip. 2. Float 3. Channel. 4. Panel.

Test: 1. Chemistry 2. Duplicate 3. Thin section 4. Polished section.

Sample Number	COORDINATES AM.G/Long./Lat./Local EAST	NORTH	SAMPLE TYPE	WIDTH (m)	AREA (sq.m)	No. CHIPS	TEST	ROCK DESCRIPTIONS	Au	Pt (ppb)	Pd (ppb)	Co	Cr	Cu	Fe%	Mn	Ni	Pb	Zn	Mo
								ANALYSIS METHOD	FIRE/AAS →			AAS	AAS	AAS	AAS	AAS	AAS	AAS	AAS	AAS
								DETECTION LIMIT (ppm)	0.01	1ppb	1ppb	4	4	2	4	4	4	4	2	1
									Metal Content (ppm)											
950901	490350	6575500	1	2			1	Dark black, fine crystalline BASALT with irregular fractures. No sulphide vis. Magnetic Susceptibility – 2000 SI x 10^{-5} av.	3ppb	5	7	20	105	40	5.30	840	55	30	44	3
950902	490600	6575550	1	4			1	BASALT. Non foliated as for 950901 Magnetic Susceptibility – 3000 SI x 10^{-5} av.	2ppb	5	7	20	62	14	3.65	610	58	44	36	–
950903	490850	6575600	1				1	Dark grey to black fine crystalline BASALT with v. thin veinlets. No vis sulphide. Non foliated. Mag. Sus 2500 SI x 10^{-5} av.	3ppb	5	8	16	74	20	3.80	780	62	25	32	4
950900	490335	6575500	2	–			1/3	Pale greenish grey silicified CHERT BRECCIA with angular red brown clasts. Hematite veins, Non-foliated Magnetic Susceptibility – 15 SI x 10^{-5}	0.02 (ppm)	ND	ND.	6	105	22	3.05	1820	28	46	–	–

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APPENDIX III

LAKE LABYRINTH PROSPECT - LITHOLOGICAL LOG AND GEOCHEMICAL ASSAY DATA

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW, 60-75 HQ | DPO Nos. 37534, 37539, 37540, 37535

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS SUSC. x10⁻⁵ SI
0	69		Rotary		COVER SEQUENCE					
			HW		0 - 3.0 Claystone: Yellow to olive green with minor angular gypsum, angular to subrounded quartz fragments and calcrete					
					3.0- 9.0 Sandstone/Claystone: Pale yellow to yellow brown quartzose sandstone comprising subangular to subrounded quartz, angular gypsum, minor clays					
					9.0-30.0 Sandstone: White to pale yellow quartzose sandstone comprising medium to fine grained quartz (subangular to subrounded), iron stained, rare quartzite and minor fine grains of ironstone 15.0-21.0m medium to coarse grained.					
					30.0-51.0 Sandstone: As above with abundant fine ironstone grains					
					51.0-69.0 Sandstone: Pale brown, medium to coarse grained quartzose sandstone with subrounded quartz dominant, minor ironstone, quartzite chips, trace carbonaceous fragments, minor clay, rare green chlorite? after pyroxene					
69.0	72.0				WEATHERED BASEMENT/SANDSTONE					80
					Dark brown quartzose sandstone as for 51.0-59.0 with common to abundant chlorite fragments to 2mm, fine grained black rock fragments (mafics?), minor biotite (altered) with an increase in chlorite and mafic content from 69.5m					
72.0	74.5		NQ		PORPHYRITIC DACITE/RHYODACITE					30
					Brown to grey weathered porphyritic acid (intermediate?) volcanic, dacite? consisting of euhedral phenocrysts of plagioclase (25%), and subordinate k-feldspar (15%) to 2mm with fine laths of hornblende and biotite (15% combined) distributed throughout. A fine crystalline quartz dominant ground mass. Numerous cross cutting chlorite-serpentinite veinlets with minor iron oxide and micro brecciation/fracturing. Core very broken.					
					72.1-72.8 Core loss					
					74.4 K-feldspar xenocryst - surrounded with chloritic altered margins. Lower contact 10-40° LCA (approx.)					
74.5	94.9				PERIDOTITE WITH INTERLAYERED DACITE/RHYODACITE AND DISCORDANT PEGMATITES AND RARE DOLERITE					
					Rock weathered to 81.0m. Core very broken and fragmented obscuring structure	1161801	74.5	75.55		
					74.5 -75.55 Peridotite Dark green to grey, weathered, massive medium crystalline peridotite comprising of altered plagioclase and olivene? (40%), euhedral amphibole (25%), disseminated magnetite (10-15%) and scattered phenocrysts of euhedral biotite (10-15%). Possible pyroxene (10%). Numerous iron oxide and chlorite veining at 0-5° LCA. Trace disseminated pyrite and chalcopyrite. Lower boundary 45° LCA (approx.).				74.8m	1500

SUMMARY:

LOGGED BY D.C. PALMER DATE 25/04/88

SHEET 1 OF 8

SAo 4187a

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

SAMPLE Nos. 1161801 | DPO Nos 37535

DEPTH FROM 74.50 TO 75.55m | LABS ANALABS

	Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe_2O_3	P	Mn	Mo
1161801	<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	75	22	420	317	81	1320	<5	<15		<3	<10	6·20	<100	1260	<20
	0.005 ppm	0.005 ppm	0.001 ppm	2 ppm	20 ppm	3 ppm	5 ppm	5 ppm	5 ppm	5 ppm	5 ppm	10 ppm	5 ppm	10 ppm	5 ppm	15 ppm		3 ppm	10 ppm	0.01%	100 ppm	15 ppm	20 ppm
	FIRE/C (337)	ARRON	ROP	XRF (401)	XRF (401)	XRF (401)	ICP (201)	XRF (401)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	XRF (401)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)

6532-50 Sheet 1 of 8

Plan No SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607268mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW, 60-75 HQ | DPO Nos 37534, 37539, 37540, 37535

SAMPLE Nos. 1161802-1161817 | DEPTH FROM 75.55m TO 94.90m | DPO Nos 37535 | LABS. ANALABS

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA ELBIS

HOLE No. DD88ME2

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻⁵ SI	GEOPHYSICS S.G. g/cc
			NQ		75.55-76.3 Porphyritic Dacite Brown to grey dacite as for 72.00-74.5m with k-feldspar-quartz (biotite) pegmatite at 76.4-76.5m and chlorite and iron oxide lined fractures. Lower boundary 90° LCA (approx.)	1161802	75.55	76.3			
					76.3 -84.12 Peridotite? Dark green to grey weathered massive medium crystalline diorite comprising plagioclase (40%) and an interlocking mass of euhedral amphibole (25-30%), magnetite (10-15%), pyroxene? (5-10%) and biotite (10-15%) minor irregular quartz and calcite veinlets. Trace pyrite and chalcopyrite disseminated through rock.	1161803	76.3	78.0			
						1161804	78.0	79.5			
						1161805	79.5	81.0			2.81
					Discordant. K-feldspar-quartz-amphibole pegmatite from 81.0-81.30 at 55° LCA	1161806	81.0	81.3			
						1161807	81.3	84.12			
					84.12-84.8 Rhyodacite Possibly discordant, comprising medium crystalline phenocrysts of plagioclase (25%) and k-feldspar (45%) which may be rotated (flow banding?) and subordinate quartz (20%). Minor amphibole and biotite. Well orientated chlorite between feldspathic phenocrysts. Core loss between 84.35-84.8.						
					84.8 -85.28 Dolerite? Weathered discordant? Plagioclase-amphibole-k-feldspar-biotite dolerite, rock very friable.	1161808	84.8	85.28			
					85.28-87.0 Peridotite As for 76.5-84.12m with thin (1-2mm) siderite? and quartz veinlets. Trace pyrite and chalcopyrite with veins. Minor clay coatings on some fracture surfaces				86.0	15000	
						1161809	85.28	87.0			
					87.0 -87.3 Pegmatite Quartz-k-feldspar-plagioclase-(biotite-chlorite) pegmatite. Medium to coarse crystalline, frequently fractured. Upper boundary 60° LCA.	1161810	87.0	87.3			
					87.3 -88.45 Peridotite As for 85.28-87.0m. Trace pyrite and chalcopyrite.				88.0	5000	
						1161811	87.3	88.45			
					88.45-88.9 Pegmatite Very coarsely crystalline, quartz (80%), k-feldspar (15%) and biotite (5%) Trace chlorite. Unit discordant with lower boundary 30° LCA	1161812	88.45	88.90			
					88.9 -89.7 Peridotite As for 85.28-87.0m	1161813	88.90	89.70			
					89.7 -90.0 Core Loss						
					90.0 -91.0 Pegmatite As for 87.0-87.3m	1161814	89.7	91.0			2.67
					90.4 -90.0 Core Loss						
					91.0 -94.9 Peridotite As for 74.5-75.5 with discordant quartz vein (55° LCA) at 94.2m and from 94.4m chloritic/serpentinitic alteration of plagioclase and olivene? within the peridotite	1161815	91.0	92.5			
									92.4	8500	
						1161816	92.5	94.0			
						1161817	94.0	94.9			
94.9	112.88				INTERLAYERED ULTRAMAFICS AND BASALT WITH DISCORDANT PEGMATITE BANDS Unit is a series of interlayed basic volcanics with discordant pegmatite bands. The basic volcanics are altered to hornblendites near the pegmatite bands. Rock very fractured and broken with quartz plagioclase veining and minor siderite veinlets.						

	Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe%	P	Mn	Mo	
	<0.005	<0.005	<0.001	<2	85	6	<5	6	140	948	209	177	40	462	40	68		<3	13	3.82	497	582	<20	✱
	<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	85	39	429	495	107	1210	<5	<15		<3	<10	7.69	<100	1360	<20	
	<0.005	<0.005	<0.001	15	<20	<3	<5	5	73	50	337	429	82	1210	<5	<15		<3	<10	7.32	<100	1290	<20	
	<0.005	<0.005	<0.001	<2	<20	4	<5	<5	83	84	380	323	64	1070	<5	15		4	<10	5.98	<100	1290	<20	
	<0.005	<0.005	<0.001	<2	100	6	<5	<5	112	892	110	44	21	140	87	149		<3	22	1.18	277	803	<20	✱
	<0.005	<0.005	<0.001	<2	<20	3	<5	<5	75	66	207	459	92	1350	<5	<15		<3	<10	6.16	<100	1250	<20	
	<0.005	<0.005	<0.001	<2	<20	5	<5	<5	121	1180	131	95	49	240	56	141		3	41	6.33	1650	1360	<20	✱
	0.016	<0.005	<0.001	<2	<20	<3	<5	<5	89	102	211	573	102	1640	<5	17		<3	<10	7.08	<100	1430	<20	
	0.012	<0.005	<0.001	5	110	<3	<5	20	118	1630	122	47	20	248	59	102		<3	24	1.57	320	318	<20	✱
	<0.005	<0.005	<0.001	3	<20	8	<5	<5	83	104	216	473	104	1280	<5	<15		<3	<10	6.44	<100	1310	<20	
	<0.005	<0.005	<0.001	<2	320	5	<5	<5	284	283	375	284	70	539	5	<15		<3	<10	3.18	<100	628	<20	
	<0.005	<0.005	<0.001	2	<20	8	<5	<5	109	50	385	465	88	1280	<5	<15		3	<10	6.18	<100	1490	<20	
	<0.005	<0.005	<0.001	<2	70	<3	<5	10	110	1300	139	73	25	205	46	78		<3	54	1.83	691	398	<20	✱
	<0.005	<0.005	<0.001	<2	<20	10	<5	40	103	103	179	450	103	1270	<5	21		3	<10	6.71	124	1540	<20	
	<0.005	<0.005	<0.001	<2	<20	<3	<5	20	73	101	240	469	100	1270	9	20		<3	<10	6.44	119	1210	<20	
	<0.005	<0.005	<0.001	<2	<20	8	<5	7	83	25	156	498	113	1210	<5	<15		<3	<10	5.90	119	1240	<20	
	0.005ppm	0.005ppm	0.001ppm	2ppm	20ppm	3ppm	5ppm	5ppm	5ppm	5ppm	5ppm	10ppm	5ppm	10ppm	5ppm	15ppm		3ppm	10ppm	0.01%	100ppm	15ppm	20ppm	
	FIRE ASSAY	FIRE ASSAY	FIRE ASSAY	XRF(40)	XRF	XRF	ICP	XRF	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP		XRF	ICP	ICP	ICP	ICP	ICP	
	DUPLICATE		DUP 337		(40)	(40)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)	(20)		(40)	(20)	(20)	(20)	(20)	(20)	

SUMMARY :

LOGGED BY DC PALMER/SP SUGDEN DATE 27/04/88

SHEET 2 OF 8

SAe 4187

6532-51 Sheet 2 of 8

Plan No SAe 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW, 60-75 HQ | "DPO Nos. 37534, 37539, 37540, 37535

SAMPLE Nos. 1161818 - 1161835 | DEPTH FROM 94.90m TO 112.88m

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

DPO Nos 37535, 37593 | LABS. ANALABS (geochem), PENTIFEX & ASSOC (petrology)

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL315

HOLE No. DD88ME2

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10⁻⁵SI	GEOPHYSICS S.G g/cc
			NQ		94.90-95.45 Hornblendite with Pegmatite Dark to light green medium to coarse crystalline						
					massive amphibole, altered rock, comprising euhedral amphibole 45% and biotite (25%)				95.2	80	
					with fine grained altered plagioclase. This appears to be an alteration halo to small	1161818	94.9	95.45			
					discordant irregular k-feldspar-quartz pegmatite bands (contacts 40-80° LCA) at	919866	95.25	95.3	(PET)		
					97.05-97.14, 95.27-95.30 and 95.45-95.5m. Minor siderite and quartz veining with						
					traces pyrite						
					95.45-95.8 Peridotite As for 76.5-84.12. Lower contact 60° LCA (v.approx.)	1161819	95.45	95.80	95.7	5000	
					95.8 -97.4 Vesicular/Amgdalyoidal Basalt Dark green-grey massive fine grained rock with	1161820	95.80	97.40			
					groundmass of mafic minerals and plagioclase. Irregularly scattered vesicules 1-3mm	919867	96.5	96.55	(PET)		
					in diameter which may be quartz or carbonate filled. Trace pyrite and chalcopyrite						
					(97.10m). Minor irregular quartz veining (20-60° LCA) Trace pyrite and chalcopyrite						
					on fracture planes. Lower contact 60° LCA.						
					97.4 -98.8 Peridotite As for 76.5-84.12 with moderate quartz/carbonate?? veining (carbonate	1161821	97.40	98.80	97.8	10000	
					doesn't react with acid). Small pegmatite band at 40° LCA from 98.3-98.4m						
					98.8 -99.2 Pegmatite As above	1161822	98.80	99.20			
					99.2 -99.68 Peridotite As above with thin pyrite veins at 15° LCA and minor carbonate at 99.5m	1161823	99.20	99.86			
					99.68-99.86 Hornblendite Similar to 94.9-95.45 with k-feldspar (20%) forming medium sized				99.8	4000	
					grains in ground mass with amphibole (50%) biotite 15% and minor plag <5%. Minor						
					chalcopyrite and pyrite (approx. 1%) as fine disseminated grains. Lower contact						
					17° LCA. Interpreted as alteration contact to pegmatite below.	919868	107.2	107.25	(PET)		
					99.86-100.23 Pegmatite K-feldspar-quartz-biotite rock with thin amphibolitic margins	1161824	99.86	100.23			
					100.23-100.85 Peridotite Weakly amphibolitic altered with carbonate veining	1161825	100.23	100.85			
					100.85-101.35 Hornblendite As for 99.68-99.86	1161826	100.85	101.35			
					101.63-106.45 Pegmatite Coarse crystalline felsic pegmatite consisting of quartz 35%, k-feldspar	1161827	101.35	103.00	102.0	20	
					25%, microcline? 35%, and minor biotite 5%, with minor amphibolitic xenoliths	1161828	103.00	104.50			
					and carbonate/clay veining. Minor amphibole-biotite-k-feldspar veining	1161829	104.50	105.60	105.00		3.07
						1161830	105.60	106.45			
					106.45-112.88 Pyroxenite Dark green to grey massive to very weakly foliated (30° LCA) medium				107.1	7500	
					crystalline pyroxenite comprising plagioclase (35-40%). Pyroxene 25-30%, Magnetite	1161831	106.45	108.00	112.1	11000	
					10-15% and biotite 10-15%. Trace disseminated pyrite and rare chalcopyrite.	1161832	108.00	109.45			
					Abundant carbonate?? and quartz veining (some with clay) at irregular orientations,	1161833	109.45	111.00			
					and serpentine.	1161834	111.00	112.00			
112.88	134.10				PORPHYRITIC ANDESITE WITH MINOR DISCORDANT DOLERITE? BANDS	1161835	112.00	112.88	114.0	35	
					Dark grey to grey green porphyritic andesite comprising of subhedral plagioclase phenocrysts to 2mm						
					in size (30%) weakly orientated biotite laths (25%) and minor hornblende (5-10%) in a finely				115.00		3.00
					crystalline plagioclase groundmass. Rare disseminated pyrite and chalcopyrite. Minor mafic bands.						
					Lower contact 55° LCA. Core now competent.						

Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe%	P	Mn	Mo	
0.005ppm FIRE	0.005ppm CARBON	0.001ppm ROP	2ppm XRF (337)	20ppm XRF (401)	20ppm XRF (401)	3ppm KP (401)	5ppm KP (201)	6ppm XRF (401)	5ppm XRF (201)	5ppm ICP (401)	5ppm ICP (201)	5ppm ICP (201)	10ppm ICP (201)	5ppm ICP (201)	10ppm ICP (201)	5ppm ICP (201)	15ppm ICP (201)		3ppm XRF (401)	10ppm KP (201)	0.01% KP (201)	10ppm KP (201)	15ppm KP (201)	20ppm KP (201)	
<0.005	<0.005	<0.001	<2	25	<3	<5	85	136	1130	66	212	48	444	23	46		3	16	3.53	146	1070	<20	
<0.005	<0.005	<0.001	<2	<20	<3	<5	15	83	495	159	413	83	886	<5	<15		<3	<10	4.50	119	889	<20	
<0.005	<0.005	<0.001	4	<20	3	<5	25	120	896	135	67	47	329	28	57		<3	<10	6.60	1030	1300	<20	
<0.005	<0.005	<0.001	<2	20	7	<5	50	81	113	225	444	88	1130	<5	<15		<3	<10	5.81	121	1140	<20	
<0.005	<0.005	<0.001	<2	90	8	<5	10	99	1200	94	53	22	224	170	291		3	53	1.72	664	313	<20	
<0.005	<0.005	<0.001	<2	<20	<3	<5	10	113	706	207	425	80	964	42	79		<3	<10	6.31	676	1350	<20	
0.012	<0.005	<0.001	<2	40	4	<5	7	109	1040	45	124	83	266	96	164		3	57	4.11	606	1000	<20	
0.006	<0.005	<0.001	<2	<20	5	<5	5	77	88	369	481	82	1270	5	<15		<3	<10	5.62	<100	1210	<20	
<0.005	<0.005	<0.001	<2	<20	<3	<5	20	139	791	174	208	52	534	25	52		<3	<10	6.05	1200	1570	<20	
<0.005	<0.005	<0.001	<2	170	<3	<5	10	150	1040	148	96	29	295	24	44		<3	23	2.03	237	478	<20	
0.005	<0.005	<0.001	<2	30	<3	<5	10	124	1250	119	85	37	338	32	63		<3	<10	5.94	1630	1330	<20	
<0.005	<0.005	<0.001	<2	140	<3	<5	10	139	1180	152	48	20	267	16	23		<3	18	1.08	119	232	<20	
<0.005	<0.005	<0.001	5	110	7	<5	15	99	1190	94	46	19	290	11	19		<3	10	1.63	148	262	<20	
<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	74	75	230	486	90	1280	<5	<15		<3	<10	6.84	112	1160	<20	
<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	71	53	250	448	82	1180	<5	<15		<3	<10	6.31	<100	1190	<20	
<0.005	<0.005	<0.001	3	<20	<3	<5	<5	81	77	242	500	92	1320	<5	<15		<3	<10	6.94	118	1210	<20	
<0.005	<0.005	<0.001	<2	<20	5	<5	<5	89	64	228	509	95	1360	<5	<15		<3	<10	7.02	171	1150	<20	
0.038	<0.005	<0.001	<2	<20	5	<5	<5	86	64	280	541	100	1290	<5	<15		<3	<10	6.86	185	1260	<20	

SUMMARY:

LOGGED BY DC PALMER/SP SUGDEN DATE 4/05/89

SHEET 3 OF 8

SAe 4187

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

6532-52 Sheet 3 of 8

Plan No SAe 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW, 60-75 HQ | DPO Nos 37534, 37535, 37539, 37540

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻⁵	GEOPHYSICS S.G. g/cc
			NQ								
					118.47-119.10 Hornblendite as for 94.9-95.45. Possibly an alteration halo to a pegmatite band near hole. Indistinct contacts	1161836	118.47	119.10			
						919869	119.7	119.75 (PET)			
					122.85-123.8 Medium grained k-feldspar-hornblende-biotite-plagioclase with distinct amphibole needles. Possibly lamprophyric-basalt related. Traces pyrite and chalcopyrite	1161837	122.85	123.80	123.0	40	
						919870	123.5	123.75 (PET)			
									125.00		2.30
134.1	146.2				INTERBANDED PORPHYRITIC ANDESITE AND PERIDOTITE WITH MINOR DOLERITE? BANDS						
					134.1 -136.4 Peridotite Grey green medium grained plagioclase-amphibole-biotite, with traces very fine grained pyrite and chalcopyrite, thin irregular anastamosing	1161838	134.10	135.50	135.0	11000	2.96
					chlorite/serpentinite veinlets and minor irregular carbonate? veinlets.	1161839	135.50	136.40			
					134.5 -134.65 Pegmatite band with chloritic or amphibolitic alteration halo and traces chalcopyrite and pyrite						
					136.4 -140.87 Porphyritic Andesite Dark green to grey fine grained dacite with plagioclase and rare k-feldspar phenocrysts and small biotite laths in a very fine grained quartzose ground mass. Rock fractured by very thin carbonate? veinlets. Lower contact is distinct with a chilled amphibolitic margin at 30° LCA				137.5	25	
					140.87-144.65 Peridotite Grey green to grey medium grained plagioclase-amphibole-biotite,				142.0	11000	
					Diorite containing rare traces fine grained disseminated pyrite. Minor thin	1161840	140.87	142.0			
					carbonate? veinlets (60° LCA) and chlorite veinlets (30° LCA). Minor chloritic	1161841	142.0	142.85			
					alteration, possibly related to Dolerite? Dykes.						
					142.85-143.1 Discordant Hornblendite unit. Amphibole-chlorite-plagioclase-biotite rock, possibly altered as 118.47-119.1 with upper contact	1161842	142.85	144.65			
					60° LCA and lower 120° LCA. Minor k-feldspar pegmatite						
					remnant in centre, contacts gradational						
					144.65-145.06 Andesite As for 136.4-140.8m	1161843	144.65	145.06	145.5	30	2.75
					145.06-146.21 Alkali Dolerite?? Medium grained plagioclase-k-feldspar-amphibole-pyroxene-	1161844	145.06	146.21			
					biotite rock with amphibole forming distinct needles. K-feldspar usually forms	948276	145.06	146.21			
					in dominant sections. Altered pegmatite or alkali dolerite? Rare pyrite as fine	948277	146.21	148.00			
					disseminated euhedral grains. Distinct chilled upper contact at 70° LCA.	948278	148.00	149.59			
146.21	156.10				CARBONATE ALTERED PORPHYRITIC ANDESITIC ALKALI BASALT						
					Fine grained dark green-grey with small phenocrysts of k-feldspar and plagioclase often altered	1161845	146.21	148.00	147.3	3400	
					to calcite. 1-3mm in size and elongate forming a weak foliation at 30-40° LCA. Ground mass	1161846	148.00	149.59			
					very fine grained mafic minerals and minor biotite. Lower contact chilled, irregular with angle	919871	147.7	147.9 (PET)			
					approximately 30° LCA.	948279	149.59	150.43			
					149.59-150.43 Medium grained doleritic band with k-feldspar veinlets and xenoliths	1161847	149.59	150.43	150.4	37	

SUMMARY :

LOGGED BY S.P. SUGDEN DATE 5/5/88

SHEET 4 OF 8

SAs 4187a

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

SAMPLE Nos. 116836 - 1161847 | DPO Nos 37535, 37539, 37593.

DEPTH FROM 118.47 TO 150.43m | LABS. ANALABS (geochem), PONTIFEX & Assoc (petrology)

SAMPLE NUMBER	Au ppb	Pt ppb	Pd ppb	As ppm	W ppm	Sn ppm	Ag ppm	Pb ppm	Zn ppm	Ba ppm	Cu ppm	Ni ppm	Co ppm	Cr ppm	La ppm	Ce ppm	Nb ppm	U ppm	Th ppm	Fe%	P ppm	Mn ppm	Mo ppm	Y ppm	Pr ppm	Nd ppm	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm
	0.005	<0.005	<0.001	<2	45	<3	<5	10	120	1300	120	109	42	336	36	73		<3	10	6.03	1850	1800	<20											
919869																																		
1161837	0.005	<0.005	<0.001	<2	30	<3	<5	10	126	1550	123	63	38	306	37	75		<3	<10	6.09	2000	1350	<20											
919870																																		
1161838	0.005	<0.005	<0.001	<2	45	5	<5	6	106	494	157	369	66	791	13	30		<3	<10	5.73	950	1240	<20											
1161839	0.005	<0.005	<0.001	<2	<20	5	<5	<5	90	37	149	453	78	1260	<5	<15		<3	<10	6.23	144	1850	<20											
1161840	0.005	<0.005	<0.001	2	<20	6	<5	360	419	139	369	437	83	1220	<5	15		<3	<10	6.04	253	1290	<20											
1161841	0.008	<0.005	0.002	<2	<20	<3	<5	20	92	399	218	384	82	1140	12	23	<10	<3	<10	6.88	715	1200	<20											
1161842	0.006	<0.005	<0.001	<2	<20	<3	<5	7	78	110	182	453	89	1480	5	<15	<10	<3	<10	6.51	274	1110	<20											
1161843	0.005	<0.005	<0.001	<2	55	<3	<5	8	83	1400	75	40	17	126	53	85	12	8	11	2.64	848	583	<20											
1161844	0.005	<0.005	0.004	<2	35	<3	<5	15	123	1590	115	62	43	308	39	80	12	4	11	6.26	2580	1210	<20											
948276	-																							21	<20	38	8	2	<10	<5	<5	<20	2	<2	2
948277	-																							33	51	149	26	6	16	<5	7	<20	3	<2	2
948278	0.005																							34	53	213	29	6	16	<5	7	<20	3	<2	2
1161845	0.005	<0.005	<0.001	<2	35	<3	<5	20	146	3870	70	135	39	172	222	430	31	<3	17	7.56	8370	1040	<20											
1161846	0.005	<0.005	<0.001	<2	25	<3	<5	10	134	4010	59	122	36	157	220	429	16	<3	14	7.36	6890	1690	<20											
948279	-																							21	<20	38	8	2	<10	<5	<5	<20	2	<2	2
1161847	0.005	<0.005	0.004	<2	20	<3	<5	<5	112	1720	126	44	38	263	44	89	13	<3	11	6.27	2720	1200	<20											
	0.005	0.005	0.001	2ppm	20ppm	3ppm	5ppm	5ppm	5ppm	5ppm	5ppm	10ppm	5ppm	10ppm	5ppm	15ppm	10ppm	5ppm	10ppm	0.01%	10ppm	15ppm	20ppm	1ppm	20ppm	20ppm	5ppm	1ppm	20ppm	5ppm	5ppm	20ppm	2ppm	2ppm	2ppm
	FIRE	CARBON ROD		XRF	XRF	XRF	ICP	XRF	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	XRF	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP
	(357)			(101)	(101)	(101)	(201)	(101)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(101)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)

Sheet 4 of 8 Plan No SAs 4187b

6532-55

Sheet 4 of 8 Plan No SAs 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | INCLINATION -60° | DRILLERS MATHEWS DRILLING | DRILL TYPE LONGYEAR 44 | COMMENCED 19/04/88 | COMPLETED 27/05/88 | DEPTH 302.5m | CASING LEFT 0-72 HW, 60-75 HQ | HOLE No. | DPO Nos 37534, 37539, 37540, 37535

RL COLLAR

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻⁵	GEOPHYSICS S.G. g/cc
			NQ								
					150.43-153.4 More andesitic interval with angular k-feldspar quartz gneiss and peridotite	1161848	150.43	152.00			
					xenoliths rare thin carbonate veins	1161849	152.00	153.40			
						1161850	153.40	155.00	154.5	3000	
						1161851	155.00	156.16			
						948280	150.43	152.00			
156.16	158.1				ANDESITE	948281	152.00	153.40			
					Fine grained light grey with k-feldspar and plagioclase phenocrysts and rare biotite laths, in a	1161852	156.16	158.10	157.2	20	
					quartzose ground mass. Rare thin chlorite veining core fractured with indistinct lower contact	948282	153.40	155.00			
						948283	155.00	156.16			
158.1	167.3				CARBONATE ALTERED PERIDOTITE	948284	156.16	158.10			
					Medium grained, Dark green-grey diorite consisting of equigranular mass of plagioclase, olivene?						
					and laths of biotite with traces of very fine grained disseminated euhedral chalcopyrite, variably						
					altered by carbonate (calcite) replacing plagioclase within rock and numerous thin veinlets which						
					may contain chalcopyrite. Vein orientations of 0°, 30° and 50° LCA						
					158.1 -159.35 Peridotite contains extensive chlorite veining	1161853	158.10	159.35			
					159.35-159.5 Thin pegmatitic band with chloritic or amphibolitic alteration halo of surrounding	1161854	159.35	160.00			
					peridotite	1161855	160.00	161.50	161.0	9500	
					163.75-165.0 Moderately carbonate altered section	1161856	161.50	163.00			
					165.0 -167.3 Strongly carbonate altered section	1161857	163.00	163.75			
						1161858	163.75	165.00			
						1161859	165.00	166.00	165.06	1	2.95
						1161860	166.00	167.30	166.6	8000	
167.3	170.7				CARBONATE ALTERED PORPHYRITIC ANDESITIC BASALT WITH GNEISS XENOLITHS	919872	162.1	162.3	(PET)		
					Dark grey very fine grained andesitic basalt with small phenocrysts to 1mm of carbonate (after	1161861	167.30	169.00			
					plagioclase) in a mafic ground mass. Minor traces disseminated pyrite and chalcopyrite. Thin	1161862	169.00	170.25			
					carbonate veinlets throughout. Phenocrysts form a vague lineation of 30° LCA. In parts the	1161863	170.25	171.46			
					basalt contains xenoliths of k-feldspar-quartz gneiss						
					170.25-171.7 Xenolith? of medium to fine grained well foliated quartz-k-feldspar-biotite-	1234565	168.38	168.44	(WHOLE ROCK)		
					amphibole gneiss?? with coarse grained k-feldspar-quartz segregations, wisps	948287	167.30	169.00			
					and bands parallel to foliation. Traces pyrite and at 170.8-170.9 carbonate	948288	169.00	170.25			
					altered dolorite with chilled margins. Irregular contact.	948289	170.25	171.46			
170.7	172.75				BRECCIA/SHEAR ZONE	1161864	171.46	172.75	171.0	150	
					Complex disrupted texture with carbonate and chloritic clasts (after diorite??) within a similar						
					matrix. Minor quartz and quartz-k-feldspar veinlets. Lower contact 55° LCA.						

SUMMARY:

LOGGED BY S.P. SUGDEN DATE 8/5/88

SHEET 5 OF 8

5Aa 4187a

"CRA CONFIDENTIAL INFORMATION - UNAUTHORISED USE PROHIBITED."

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

SAMPLE Nos 116/848-116/864, 1234565 DPO Nos 37539, 37584, 37593, 37594

DEPTH FROM 150.43m TO 172.75m LABS ANALABS (geochem), Pontifex & Assoc (petrology)

SAMPLE NUMBER	Au ppm	Pt ppm	Pd ppm	Ag ppm	W ppm	Sn ppm	As ppm	Pb ppm	Zn ppm	Ba ppm	Cu ppm	Ni ppm	Co ppm	Cr ppm	La ppm	Ce ppm	Nb ppm	U ppm	Th ppm	Fe%	P ppm	Mn ppm	Mo ppm	Zr ppm	Na%	Mg%	Si%	Ti%	Ca%	K%	Fe%	Mn%	Na%	Be%	LOI %	Y ppm	Pr ppm	Nd ppm	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm
	0.005	0.005	0.001	2ppm	20ppm	3ppm	5ppm	5ppm	5ppm	10ppm	5ppm	5ppm	5ppm	5ppm	10ppm	10ppm	10ppm	10ppm	10ppm	0.01%	100ppm	10ppm	5ppm	20ppm	20ppm											5ppm	1ppm	10ppm	5ppm	5ppm	20ppm	2ppm	2ppm	2ppm	2ppm	2ppm
Fusion	CARBON ROD		XRF	XRF	XRF	XRF	XRF	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP		ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP	ICP
(327)			(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)	(400)		(401)	(401)	(401)	(401)	(401)	(401)	(401)	(401)	(401)	(401)	(401)	(401)
116/848	<0.005	<0.005	<0.001	<2	40	<3	<5	20	115	2680	72	89	35	207	120	232	19	<3	11	6.02	5140	1150	<20	✓																					
116/849	<0.005	<0.005	<0.001	<2	60	4	<5	10	139	3570	74	122	38	182	184	359	28	<3	16	6.75	7390	1290	<20	✓																					
116/850	<0.005	<0.001		<2	30	7	<5	15	148	4280	68	130	40	185	225	339	29	3	17	7.48	8120	1470	<20	✓																					
116/851	<0.005	<0.001		<2	20	6	<5	25	147	4250	62	122	37	184	242	446	28	<3	13	7.89	9790	1580	<20	✓											24	26	107	15	4	<10	<5	5	<20	2	<2	2
948280																																			29	42	170	23	5	13	<5	6	<20	2	<2	2
948281	<0.005																																												
948282	<0.005	<0.005	<0.001	<2	45	5	<5	6	83	1390	79	39	19	141	69	114	16	5	14	3.05	1430	475	<20	✓											34	53	205	28	6	16	<5	7	<20	3	<2	2
948283																																			36	50	200	28	6	14	<5	7	<20	3	<2	2
948284	<0.005																																		10	<20	37	5	1	<10	<5	<5	<20	<2	<2	<2
1161853	<0.005	<0.005	<0.001	<2	<20	<3	<5	7	96	633	162	386	71	801	80	51	11	4	<10	5.53	642	992	<20	✓																					
1161854	<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	127	78	163	439	89	1310	16	29	10	<3	<10	7.21	223	620	<20	✓																					
1161855	<0.005	<0.005	<0.001	<2	<20	<3	<5	8	74	49	197	478	94	1380	<5	<15	<10	<3	<10	6.75	135	1210	<20																					
1161856	<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	75	125	222	486	95	1390	7	<15	<10	<3	<10	6.85	165	1140	<20																					
1161857	<0.005	<0.005	<0.001	<2	<20	<3	<5	<5	71	45	216	525	104	1500	5	<15	<10	3	<10	7.20	220	1810	<20																					
1161858	<0.005	<0.005	0.001	<2	<20	<3	<5	7	73	144	194	465	90	1560	5	<15	<10	<3	<10	6.92	231	1160	<20																					
1161859	<0.005	<0.005	<0.001	<2	<20	<3	<5	10	70	51	190	465	91	1610	<5	<15	<10	<3	<10	6.64	121	1120	<20																				✓	
1161860	<0.005	<0.005	0.001	<2	<20	<3	<5	<5	68	53	199	470	96	1430	<5	<15	<10	<3	<10	6.61	174	1220	<20																					
919872																																													
1161861	<0.005	<0.005	<0.001	<2	<20	<3	<5	20	127	2820	63	179	41	311	193	376	21	<3	13	7.21	7330	1260	<20	+																					
1161862	<0.005	<0.005	<0.001	<2	<20	<3	<5	15	111	2270	51	149	39	212	213	410	22	<3	15	7.39	8340	1060	<20	✓																					
1161863	<0.005	<0.005	<0.001	<2	<20	5	<5	10	111	1100	110	87	44	254	70	128	19	<3	10	7.39	2070	1030	<20	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓													
1234565										3300		136	32	228			32		43					328	206	12.9%	4.65%	2.32%	4.38%	2.35%	7.50%	11.50%	0.89%	5.87%	0.89%	2.17%	2.18%	7.00%											
948287																																													
948288																																			33	50	196	27	6	15	<5	7	<20	3	<2	2
948289	<0.005																																		32	46	133	24	5	15	<5	7	<20	3	<2	2
1161864	<0.005	<0.005	0.001	<2	<20	<3	<5	7	100	296	21	137	39	359	35	68	<10	<3	<10	5.58	1470	936	<20	✓											23	<20	55	9	2	<10	<5	<5	<20	2	<2	2

Sheet 5 of 8 Plan No 5Aa 4187b

6532-34

Sheet 5 of 8 Plan No 5Aa 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW 60-75 HQ | DPO Nos 37534, 37535, 37539, 37540

DEPTH From	DEPTH To	CORE REC.	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS x10⁻⁵ SI	GEOPHYSICS S.G
172.75	182.2		NQ		CARBONATE ALTERED PERIDOTITE						g/cc
					Grey to grey green medium grained peridotite weak to strongly carbonate altered with carbonate						
					replacing plagioclase grains, shattered in parts by fine networks of calcite veinlets. Rare						
					k-feldspar-quartz-amphibole pegmatite bands to 15cm thick with distinct chloritised peridotite						
					margins to 15cm wide. Rare traces pyrite and chalcopyrite as disseminated grains						
					172.75-173.7 Strongly carbonate altered and veined interval	1161865	172.75	173.7			
					175.05-176.0 Strongly carbonate altered section	1161866	173.7	175.05			
					176.0 -176.15 Pegmatite band with traces of pyrite and chloritic altered peridotite margins	1161867	175.05	176.0	175.00		2.92
						1161868	176.0	177.3	176.4	150	
					176.15-177.3 Strongly chlorite and amphibolitic? altered section with minor biotite and	1161869	177.3	178.0			
					chalcopyrite	1161870	178.0	180.2			
					179.15 Thin carbonate veinlet with pyrite and pyrrhotite blebs	1161871	180.2	182.2	182.0	4500	
					178.0 -180.2 Less altered peridotite						
					180.2 -180.55 Carbonate and chlorite altered peridotite with chlorite veinlets						
182.2	199.3				CHLORITE ALTERED PERIDOTITE						
					Medium grained grey green biotite, plagioclase, amphibole, chlorite peridotite with rare pyrite,						
					chalcopyrite and pyrrhotite as disseminated grains throughout. Minor talc coated joints of 30°						
					LCA. Peridotite variably chloritically (or amphibolitic?) altered throughout. Minor k-feldspar						
					quartz pegmatite bands with intensely chloritised halos.						
					182.2 -185.1 Strongly to toally chloritised section with carbonate veinlets and amphibole rich	1161872	182.2	184.0	183.0	7	
					sections. Minor talc, with fractured and brecciated quartz vein from 183.0-	1161873	184.0	185.1	186.0	5000	3.45
					183.5m	1161874	185.1	186.5			
					187.7 -187.8 Thin k-feldspar/quartz bands with chloritic alteration halos	1161875	186.5	188.0			
					188.7 -189.6 Very strongly chloritic and talc altered sections	1161876	188.0	190.0			
					190 -191.15 Very strongly chloritic section	1161877	190.0	191.15	190.5	4000	
					191.15-191.75 K-feldspar-quartz pegmatite band	1161878	191.15	191.75			
					191.75-193.3 Strongly chloritic and carbonate altered peridotite with thin carbonate veinlets	1161879	191.75	193.3			
						1161880	193.3	193.7			
					193.3 -193.7 Pegmatite band upper contact 40° LCA	1161881	193.7	195.0			
					193.7 -196.3 Moderate to strong chloritic altered and moderate carbonate altered peridotite,	1161882	195.0	196.3	194.6	5000	3.05
					rare traces chalcopyrite and moderate thin carbonate veinlets	1161883	196.3	198.0			
						1161884	198.0	199.3			
					196.3 -199.3 Weakly chloritically altered peridotite						

SUMMARY:

LOGGED BY S.P. SUGDEN DATE 8/5/88

SHEET 6 OF 8

5Ao 4187a

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

SAMPLE Nos. 1161865-1161884 DPO Nos 37539, LABS. ANALABS

DEPTH FROM 172.75 TO 199.3m

SAMPLE NUMBER	Au	Pt	Pd	As	W	Sn	Ag	Pb	Zn	Ba	Cu	Ni	Co	Cr	La	Ce	Nb	U	Th	Fe %	P	Mn	Mo	
	0.005ppm FIRE	0.005ppm CARBON	0.001ppm ROD	2ppm XRF	20ppm XRF	3ppm XRF	5ppm ICP	10ppm XRF	5ppm ICP	5ppm ICP	5ppm ICP	10ppm ICP	5ppm ICP	10ppm ICP	5ppm ICP	15ppm ICP	10ppm ICP	3ppm XRF	10ppm ICP	0.01% ICP	100ppm ICP	15ppm ICP	20ppm ICP	
		(337)		(401)	(401)	(401)	(201)	(401)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(201)	(401)	(201)	(201)	(201)	(201)	(201)	
1161865	0.006	<0.005	0.001	<2	<20	<3	<5	<5	63	63	199	454	91	1560	<5	<15	<10	<3	<10	6.68	199	1280	<20	
1161866	0.007	<0.005	<0.001	<2	<20	<3	<5	5	58	49	204	477	93	1610	<5	<15	<10	<3	<10	6.80	169	1220	<20	
1161867	0.007	<0.005	<0.001	10	<20	<3	<5	10	72	190	95	401	72	1050	<5	<15	<10	<3	<10	5.18	239	1230	<20	
1161868	0.005	<0.005	0.003	15	<20	<3	<5	25	142	464	792	369	88	1280	24	48	<10	3	<10	7.47	923	1550	<20	X
1161869	0.005	<0.005	0.002	8	<20	<3	<5	35	93	262	258	401	75	1260	25	41	<10	<3	<10	6.22	714	1380	<20	X
1161870	<0.005	<0.005	0.001	<2	<20	<3	<5	<5	59	47	190	469	70	1550	<5	<15	<10	<3	<10	6.73	116	1190	<20	
1161871	0.007	<0.005	<0.001	5	<20	<3	<5	5	66	40	185	490	92	1660	<5	<15	<10	<3	<10	6.56	<100	1220	<20	
1161872	<0.005	<0.005	<0.001	5	<20	<3	<5	40	78	75	64	213	51	775	11	21	<10	<3	<10	6.36	<100	1190	<20	
1161873	<0.005	<0.005	<0.001	<2	<20	6	<5	<5	120	34	134	412	87	1400	6	<15	<10	<3	<10	7.65	116	2100	<20	
1161874	<0.005	<0.005	0.001	<2	<20	<3	<5	<5	78	46	185	485	90	1710	<5	<15	<10	<3	<10	6.37	126	1390	<20	
1161875	0.008	<0.005	<0.001	<2	<20	<3	<5	<5	68	109	244	507	96	1570	<5	<15	<10	<3	<10	7.15	155	1330	<20	
1161876	0.007	<0.005	0.001	<2	<20	<3	<5	6	76	43	223	482	92	1560	<5	<15	<10	<3	<10	6.96	<100	1410	<20	
1161877	0.016	<0.005	0.001	<2	<20	<3	<5	<5	72	44	225	488	90	1570	<5	<15	<10	<3	<10	6.59	127	1220	<20	
1161878	<0.005	<0.005	<0.001	<2	<20	<3	<5	70	46	624	52	55	16	110	20	36	15	20	68	1.43	208	323	<20	
1161879	0.007	<0.005	<0.001	<2	<20	<3	<5	<10	66	47	223	454	85	1310	8	<15	<10	<3	62	5.94	143	1150	<20	
1161880	<0.005	<0.005	<0.001	<2	<20	<3	<5	20	104	1650	318	94	36	213	40	66	18	7	135	5.15	1000	1110	<20	X
1161881	<0.005	<0.005	<0.001	<2	<20	<3	<5	<10	77	41	288	449	90	1180	8	<15	<10	<3	67	6.07	218	1260	<20	
1161882	0.009	<0.005	<0.001	<2	<20	7	<5	10	90	307	225	367	73	839	26	41	10	<3	95	5.65	532	1230	<20	X
1161883	0.007	<0.005	<0.001	<2	<20	<3	<5	<10	70	60	257	489	96	1250	9	<15	<10	<3	64	6.53	174	1210	<20	
1161884	0.008	<0.005	0.002	<2	<20	<3	<5	<10	67	64	325	554	100	1220	7	<15	<10	<3	62	6.90	137	1240	<20	

6532-55 Sheet 6 of 8

Plan No 5Ao 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE, 6607768mN | AZIMUTH Grid South | INCLINATION -60° | DRILLERS MATHEWS DRILLING | DRILL TYPE LONGYEAR 44 | COMMENCED 19/04/88 | COMPLETED 27/05/88 | DEPTH 302.5m | CASING LEFT 0-72 HW, 60-75 HQ | HOLE No. | DPO Nos. 37534, 37535, 37539, 37540

RL COLLAR

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC. (m)	GEOPHYSICS MAG SUS ×10⁻⁵SI	GEOPHYSICS S.G. g/cc
199.3	302.50				PERIDOTITE WITH K-FELDSPAR-QUARTZ PEGMATITE BANDS AND RARE DOLERITE						
					Medium grained drak grey to grey green amphibole-biotite-plagioclase. Peridotite weakly	1161885	199.3	200.2	199.5	9000	
					chloritically and carbonate altered in parts. Traces disseminated chalcopyrite and pyrite	919873	204.85	204.95	(PET)		
					throughout. Minor to moderate, thin irregular carbonate veinlets. Minor talc on joint facings.	1161886	203.5	205.3			
					Peridotite fractured and altered by k-feldspar-quartz pegmatite bands. Peridotite next to	1161887	205.3	206.6			
					pegmatite bands intensely chloritised. Very rare xenoliths of quartz-k-feldspar porphyry and	1161888	209.6	211.0			
					k-feldspar-quartz-biotite gneiss	1161889	211.0	212.3			
					203.5 -205.3 Chloritic altered section with discontinuous pegmatite bands to 20cm thick				204.5	2500	2.96
					205.3 -206.4 Chloritic altered section with thin carbonate veinlets						
					206.4 -206.7 As 203.5-205.3m						
					206.7 -209.6 Peridotite						
					209.6 -212.3 Intensely chloritised section with discontinuous wisps and bands to 50cm of				210.0	6000	
					quartz-k-feldspar-biotite-chlorite porphyry. Porphyroblasts of k-feldspar to 4mm.						
					Biotite forms a crude foliation which maybe contorted in parts.						
					212.3 -220.2 Peridotite	1161890	212.3	213.8	215.0	2500	3.68
					220.2 -220.7 Chloritised peridotite with pegmatite bands containing talc				220.0	2500	
						1161891	216.0	218.0			
					221.1 Quartz-talc band at 90° LCA						
					222.3 -223.8 Chloritised peridotite with irregular pegmatite bands. Minor talc	1161892	220.2	220.7			
					223.8 -227.8 Peridotite with chloritically altered sections surrounding pegmatite bands to 30cm	1161893	222.3	223.8	225.0	4000	3.30
					thick	1161894	223.8	225.0			
					230.15-230.35 Pegmatite band with chlorite halo at 30° LCA	1161895	225.0	227.8	230.0	1500	
					231.0 -231.3 As above	1161896	227.8	229.2			
					231.75-231.9 As above	1161897	229.2	231.0			
					232.9 -233.6 As above, contact at 30° LCA	1161898	231.0	231.9	233.0	3000	
					234.4 Thin pegmatite band				235.0		3.00
					235.6 Thin pegmatite band at 45° LCA						
					236.9 -239.8 Peridotite chloritically and carbonate altered in parts with pegmatite bands at	1161899	236.9	238.5	238.0	4000	
					237.0-237.1 and 238.25-238.45. Talc with pegmatite bands	1161900	238.5	239.8			
					240.7 -240.75 Pegmatite band with chlorite alteration haloes						
					241.7 -241.85 As above				242.0	3700	
					242.1 -242.3 As above						
					244.3 -244.7 As above	949180	244.3	244.7			
					245.0 -245.15 As above	949181	244.7	246.2	245.0		2.25
					245.75-246.2 As above	949182	246.2	247.8			
					246.2 0247.8 Weak to moderate carbonate altered peridotite with thin carbonate veinlets	949183	247.8	248.1	248.0	700	
					containing traces chalcopyrite	949184	248.1	249.0			

SUMMARY

LOGGED BY SP SUGDEN DATE 26/05/88

SHEET 7 OF 8

SAo 4187

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

HOLE No. DD88ME2

SAMPLE Nos. 1161885-1161900, 949180-949184 DPO Nos 37540,

DEPTH FROM 199.30 TO 249.0m LABS. ANALABS,

Sample	Au ppm	Pt ppm	Pd ppm	As ppm	W ppm	Sn ppm	Ag ppm	Pb ppm	Zn ppm	Ba ppm	Cu ppm	Ni ppm	Co ppm	Cr ppm	La ppm	Ce ppm	Nb ppm	U ppm	Th ppm	Fe %	P ppm	Mn ppm	Mo ppm	
1161885	0.010	<0.005	<0.001	10	20	<3	<5	10	63	72	248	402	77	1300	7	<15	<10	<3	72	5.80	150	1140	<20	
1161886	0.008	<0.005	<0.001	<2	<20	<3	<5	<10	77	388	119	285	57	900	25	35	11	<3	81	4.59	102	1110	<20	
1161887	0.009	<0.005	0.001	<2	<20	<3	<5	<10	61	47	278	442	85	1480	8	<15	<10	<3	69	5.84	<100	1150	<20	
1161888	0.006	<0.005	0.001	<2	<20	<3	<5	<10	100	299	146	326	65	1170	29	51	13	<3	82	5.31	371	1290	24	✗
1161889	<0.005	<0.005	<0.001	<2	<20	<3	<5	<10	117	704	112	167	39	503	150	39	17	<3	127	4.12	1060	1030	<20	✗
1161890	0.008	<0.005	<0.001	<2	<20	<3	<5	<10	59	48	313	431	76	1650	7	<15	<10	<3	74	5.39	103	1100	<20	
1161891	0.010	<0.005	0.001	<2	<20	<3	<5	<10	57	53	257	410	79	1800	5	<15	<10	<3	79	5.62	152	1180	<20	
1161892	0.009	<0.005	0.001	<2	<20	4	<5	<10	96	292	138	334	62	1200	20	33	10	5	80	4.84	252	1200	<20	
1161893	<0.005	<0.005	<0.001	<2	<20	<3	<5	35	74	772	149	229	49	711	41	74	14	<3	99	3.63	275	867	<20	✗
1161894	0.010	<0.005	0.001	<2	<20	4	<5	<10	59	53	234	426	85	1780	6	<15	<10	<3	77	5.79	<100	1190	<20	
1161895	0.007	<0.005	0.001	9	<20	<3	<5	<10	77	34	216	396	75	1610	7	15	<10	<3	77	5.39	142	1210	<20	
1161896	<0.005	<0.005	0.001	<2	<20	<3	<5	25	109	146	179	332	61	1410	61	108	13	<3	107	5.23	202	1460	<20	✗
1161897	0.010	<0.005	<0.001	<2	<20	<3	<5	10	73	99	242	342	64	1660	48	80	10	<3	91	5.03	156	1190	<20	✗
1161898	<0.005	<0.005	0.001	<2	<20	<3	<5	<10	93	85	182	324	61	1750	8	<15	<10	<3	70	4.92	<100	1300	<20	
1161899	<0.005	<0.005	<0.001	<2	<20	<3	<5	10	82	203	210	341	67	1500	11	17	<10	<3	74	4.73	160	1050	<20	
1161900	0.013	<0.005	0.001	<2	50	<3	<5	<10	83	77	217	397	78	1360	<5	<15	<10	<3	<10	5.62	188	1190	<20	
949180	<0.005	<0.005	0.001	<2	<20	8	<5	<10	69	191	183	304	64	983	13	19	<10	4	72	5.14	111	1280	<20	
949181	<0.005	<0.005	<0.001	<2	<20	<3	<5	<10	78	296	181	339	68	1260	18	33	11	<3	91	5.44	578	1160	<20	✗
949182	<0.005	<0.005	0.001	<2	<20	<3	<5	<10	67	24	184	375	64	1250	7	<15	<10	<3	57	5.05	<100	1110	<20	
949183	<0.005	<0.005	0.001	<2	<20	<3	<5	10	96	756	148	177	49	604	31	55	10	<3	137	5.80	535	1270	<20	✗
949184	0.006	<0.005	<0.001	<2	<20	<3	<5	<10	89	64	181	398	74	1590	19	27	12	<3	73	5.54	162	1210	<20	
	5ppm	0.005ppm	0.001ppm	2ppm	20ppm	3ppm	5ppm	10ppm	5ppm	5ppm	5ppm	10ppm	5ppm	10ppm	5ppm	15ppm	10ppm	3ppm	10ppm	0.01%	100ppm	15ppm	20ppm	
	FIRE ASSAY (337)	CARBON	Rock	XRF (401)	XRF (401)	XRF (401)	ICP (201)	XRF (401)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)	XRF (201)	ICP (201)	ICP (201)	ICP (201)	ICP (201)		

6532-56

Sheet 7 of 8

Plan No SAo 4187b

CRA EXPLORATION PTY. LIMITED.

DD88ME2 DRILL LOG

PROJECT L.LABYRINTH PROSPECT, MT. EBA EL 1315

CO-ORDINATES 502200mE 6607768mN | AZIMUTH Grid South | DRILLERS MATHEWS DRILLING | COMMENCED 19/04/88 | DEPTH 302.5m | HOLE No.

RL COLLAR | INCLINATION -60° | DRILL TYPE LONGYEAR 44 | COMPLETED 27/05/88 | CASING LEFT 0-72 HW 60-75 HQ | DPO Nos. 37534, 37535, 37539, 37540

DEPTH From	DEPTH To	CORE REC	CORE SIZE	LOG	GEOLOGY	SAMPLE NUMBER	FROM (m)	TO (m)	REC (m)	GEOPHYSICS MAG SUS x10⁻⁵ SI	GEOPHYSICS 5.6 g/cc
			NQ		247.8 -248.1 Distinct fine grained mafic band with chloritised garnets?? Lower contact 30° LCA	949185	249.0	250.75			
						949186	250.75	252.2	251.9	800	
					248.1 -249.0 Carbonate altered peridotite	919874	247.8	247.90	(PET)		
					249.0 -250.75 Dolerite? Medium-fine grained green grey feldspar-biotite-pyroxene rock with clasts of k-feldspar quartz-biotite gneiss. From 250.0m amphibole phenocrysts. Upper contact 80° LCA.						
					250.75-252.5 Strongly chloritically and variably carbonate altered peridotite with clasts and wisps of k-feldspar-quartz gneiss						
					252.5 -257.5 Peridotite				255.00		2.89
					257.5 -257.6 Fractured quartz chlorite vein or band				258.0	3000	
					259.75-260.0 Pegmatite band	949187	259.75	260.6			
					260.0 -260.6 Chlorite altered peridotite	949188	260.6	262.0			
					260.6 -269.05 Periodotite				264.0	5000	3.00
					269.05-269.1 Quartz-plagioclase-amphibole-chlorite pegmatite band				267.3	4400	
					269.1 -270.6 Peridotite						
					270.6 -270.7 Amphibole-plagioclase-quartz-carbonate pegmatite band at 50° LCA				270.3	6800	
					270.7 -279.9 Peridotite				273.3	5000	
					279.9 -282.3 Very weakly chloritically altered peridotite with chlorite-plagioclase vein at	949189	279.9	280.9	275.00		2.39
					280.9-281.1m	949190	280.9	282.3	276.5	6500	
					282.3 -285.4 Peridotite				279.6	7200	
					285.4 -287.0 Core fractured with weak carbonate alteration and veining	949191	285.4	287.0	282.7	7500	
									285.3	2000	2.58
					287.0 -292.55 Peridotite with fine wispy carbonate veins				288.6	5000	
					292.55-294.6 Peridotite with rare thin chloritic shear zones and weakly chloritic altered				291.1	3800	
					294.6 -295.9 Peridotite	949192	294.6	295.9	295.00		2.57
					295.9 -296.4 K-feldspar quartz pegmatite band	949193	295.9	296.4	296.0	10	
					296.4 -300.3 Peridotite						
					300.3 -301.1 Carbonate altered peridotite	949194	300.3	301.1			
					301.1 -302.5 Peridotite	949195	301.1	302.5	302.2	2000	3.21
					E.O.H. 302.5m						

SUMMARY :

LOGGED BY S.P. SLIGDEN DATE 26/05/88

SHEET 8 OF 8

SAe 4187

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

CRA EXPLORATION PTY. LIMITED.

GEOCHEMICAL RESULTS

PROJECT LAKE LABYRINTH PROSPECT MT EBA EL1315

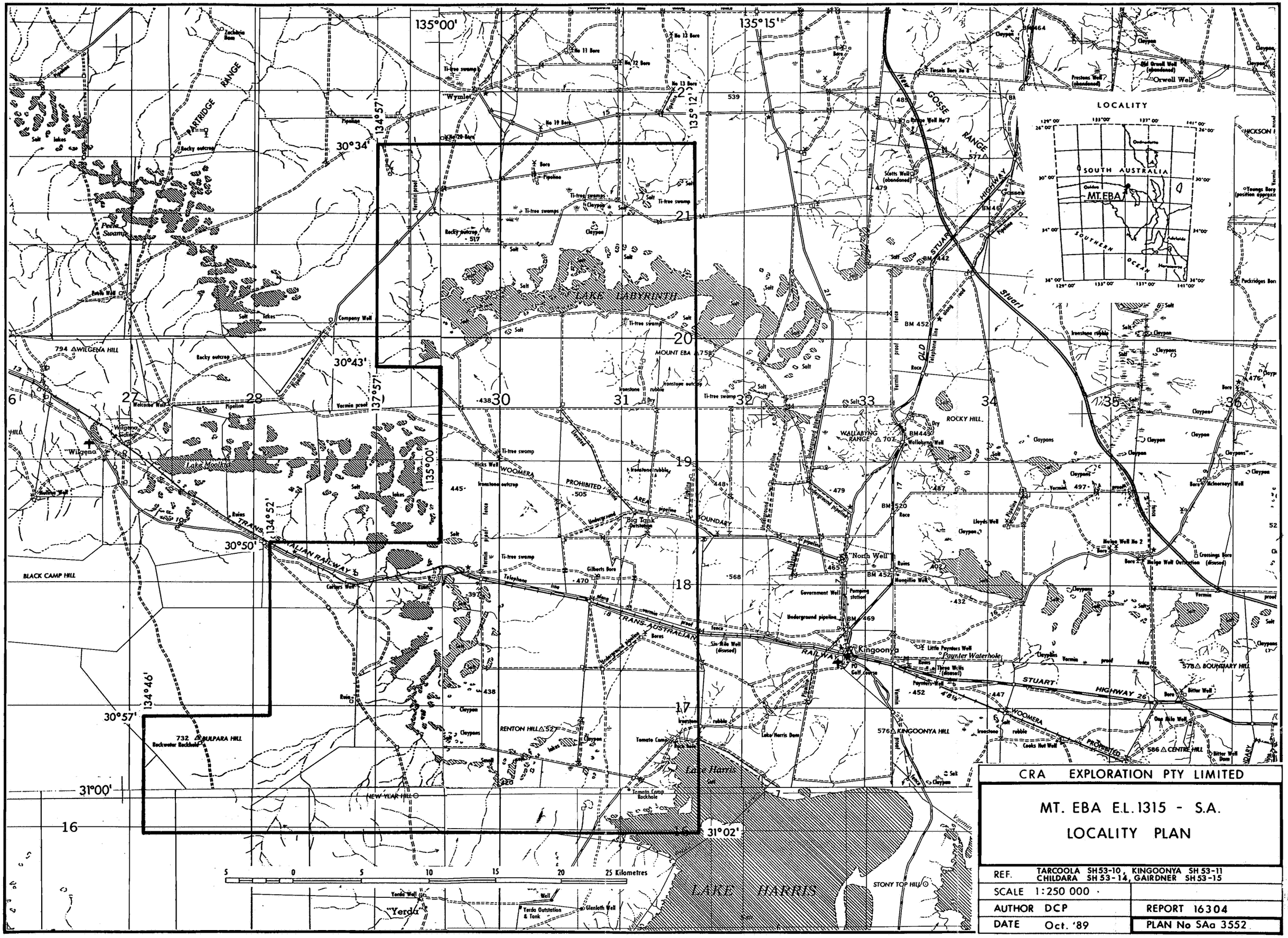
HOLE No. DD88ME2

SAMPLE Nos 949185 - 949195 | DPO Nos 37540, 37541

DEPTH FROM 249.00m TO 302.50m | LABS. ANALABS

| Au | Pt | Pd | As | W | Sn | Ag | Pb | Zn | Ba | Cu | Ni | Co | Cr | La | Ce | Nb | U | Th | Fe% | P | Mn | Mo | | | | | | | | |

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."



CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.

LOCALITY PLAN

REF. TARCOOLA SH53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15	
SCALE 1:250 000	
AUTHOR DCP	REPORT 16304
DATE Oct. '89	PLAN No SAa 3552

03156

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

134°45'
30°30'
135°00'
135°15'
135°30'
30°34'
30°45'
30°50'
31°00'
31°02'
137°57'
135°12'
134°46'

PARTRIDGE
5836 I

LABYRINTH
5936 IV

GOSSE
5936 I

MOOLKRA
5836 II

RENTON
5936 III

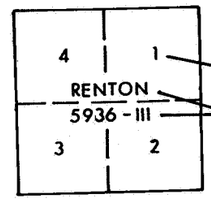
KINGOONYA
5936 II

YERDA
5835 I

COORITTA
5935 IV

133 129 125 121 092 096 100 104 078 074 070 066 037 041 045 049 023 019 015 011

1 2 3 4



104 Photo centre and number

Boundary of Survey

5 0 5 10 15

CRA EXPLORATION PTY LIMITED

MOUNT EBA EL 1315
AIRBORNE GEOPHYSICAL SURVEY
SURVEY BOUNDARY AND
SHEET INDEX

REF.	TARCOOLA SH 53-10, KINGOONYA SH53-11 CHILDARA SH 53-14, GAIRDNER SH53-15		
SCALE	1 : 250 000		
AUTHOR	G.P.J	REPORT	16304
DATE	MAR. 86	PLAN No	SAa 3765

0316

INDEX TO 1:100000 SHEETS

Bulgunnia 5837	Ban Ban 5937	Eba 6037
Tarcoola 5836	Kingoonya 5936	Vivian 6036
Meelera 5835	Kokatha 5935	Coondambo 6035

G.N.
T.N.
M.N.

0 1 2 3 4 5 6 7 8 9 10 Km.

30°30' 134°45' 480000mE 134°50' 490000mE 135°00' 500000mE 135°10' 510000mE 135°20' 520000mE 530000mE 135°30' 540000mE 550000mE

6620000mN
6610000mN
30°40'
6600000mN
6590000mN
30°50'
6580000mN
6570000mN 31°00'

"Wilgena" H.S.
"Gosse" H.S.
"North Well" H.S.
Carters Well
LAKE LABYRINTH
LAKE HARRIS
MOUNT
Wallaching Range
Gosse Range
Highway
Stuart
Old
KINGOONYA
Landing ground
To "Wilgena" H.S.
To Glendambo
BULPARA HILL
RENTON HILL

Ptk Ets Ptp Etf Eh Pgs Eq4 AEm AEmb AEm8

MIDDLE PROTEROZOIC	Ptk	Hiltaba Granite		
	Ets	Sullivan Shale	TARCOOLA FORMATION	EQUIVALENT AGE
	Etf	Fabian Quartzite		
	Etp	Peela Conglomerate		
	Eq4	Wiltabee Volcanics	GAWLER RANGE VOLCANICS	
	Eq3	Carnding Rhyodacite		
	Eq2	Ealbara Rhyolite		
	Eq1	Konkaby Basalt		
	Ptk	Kimban Granites	KIMBAN OROGENY INTRUSIVES	
EARLY PROTEROZOIC	Eh	Wilgena Hill Jasperlite	HUTCHINSON GROUP	
ARCHAEAN	AEm8	Glenloth Granite	CRYSTALLINE BASEMENT	
	AEmb	Metagabbro and Mafic Schist		
	AEm	Mulgathing Complex Gneisses		

Sources : TARCOOLA 1:250000 Geological sheet – S.J. Daley 1985
KINGOONYA 1:100000 Prelim.Geol.sheet – W. Cowley 1986
CHILDARA 1:250000 Geological sheet – A.H. Blissett 1977
GAIRDNER 1:250000 Geological sheet – A.H. Blissett 1977

65/32-58

CRA EXPLORATION PTY. LIMITED.

MT. EBA E.L.1315 – S.A.

PROTEROZOIC AND ARCHEAN OUTCROP GEOLOGY

Ref. :	TARCOOLA SH 53-10 ; CHILDARA SH 53-14	KINGOONYA SH 53-11 ; GAIRDNER SH 53-15	
Scale	1:100000	Drawn	R.D.D.
Author	D.C.P.	Report No.	16304
Date	May. '89	Plan No.	SAg 4284

LAKE LABYRINTH WEST ANOMALY

SOUTH LAKE ANOMALY

GLENLOTH ANOMALY

AIRBORNE SURVEY SPECIFICATIONS

MAGNETOMETER :	Cesium Vapour optical absorption. Sensitivity : 0.04 nT
RECORDING INTERVAL :	0.2 sec (approx 13m sampling) at mean ground speed of 220 km/hour.
SPECTROMETER :	Nuclear Data 256 channel ADC Volume : 33.5 litres
TOTAL COUNT WINDOW :	0.8 - 3.00 MeV
AUX. URANIUM WINDOW :	1.048 - 1.21 MeV
POTASSIUM WINDOW :	1.36 - 1.56 MeV
URANIUM WINDOW :	1.66 - 1.86 MeV
THORIUM WINDOW :	2.42 - 2.82 MeV
RECORDING INTERVAL :	1.0 sec (approx 60m sampling) at mean ground speed of 220 km/hour.
DATA RECORDING :	Geoterrex MADACS acquisition system. Digital to magnetic tape.
NOMINAL TERRAIN CLEARANCE :	Both detectors in aircraft at 80m.
NOMINAL LINE SPACING :	Traverse lines 300 metres. Tie lines 4.0 km.
FLIGHT PATH NAVIGATION :	Visual, aided by SINGER KEARFOTT AN/ASN 128 Doppler navigation system with SPERRY C12 compass and VG14 vertical gyro
FLIGHT PATH RECORD :	Geocam 35mm continuous tracking camera and computed Doppler AMG coordinates
FLIGHT LINE RECOVERY :	Visually to 1:25,000 black & white enlargements of high level photography to control Doppler positioning

RESIDUAL MAGNETIC CONTOURS

Grid notation refers to Australian Map Grid Zone 53
Digitised from 1:25,000 black & white enlargements of high level photography.

Magnetics	:Diurnally levelled. :Aircraft heading subtracted
IGRF (1980)	:Removed. Datum 5000 nT added
Grid mesh size	:60 x 60 metres
Grid filter	:Polynomial, radius 90 metres
Contour Interval	10.50 and 500 nT

30 30 00S
31 07 30S
134 45 00E
135 15 00E

E1	E2	E3	
E4	E5	E6	
E7	E8	E9	E10
E11	E12	E13	E14
E15	E16	E17	E18

0 1 2 4 6 8 10 12 14 16 18 20 Km.
1 : 100000

6532-59

JOB NO : 87-329
Flown by GEOTERREX PTY LTD : JUNE 1986
Compiled by Geoterrex Pty Ltd., Sydney, NSW.
Processed by Engineering Computer Services, Bowral

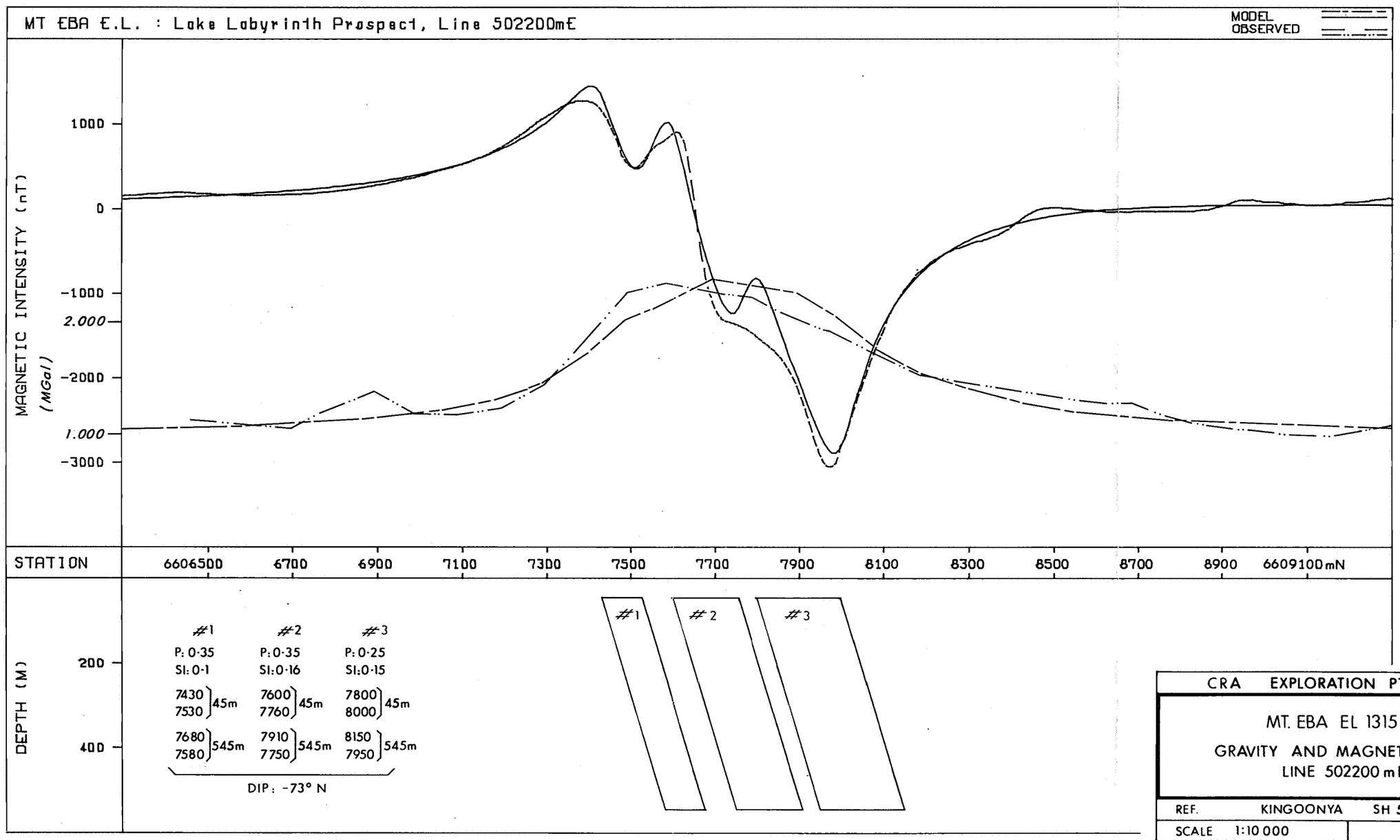
CRA EXPLORATION PTY LIMITED

MT EBA EL 1315 S.A.

MAGNETIC ANOMALIES

Ref. :	TARCOOLA SH 53-10, KINGOONYA SH 53-11 CHILDARA SH 53-14, GAIRDNER SH 53-15			
Date.	Mar '88	Author G.P.J.	Report No. 16304	Plan No. SAa 4481

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."



CRA EXPLORATION PTY LIMITED	
MT. EBA EL 1315 - S.A. GRAVITY AND MAGNETIC MODEL LINE 502200 m E	
REF. KINGOONYA SH 53-11	
SCALE 1:10 000	
AUTHOR G.L.M.	REPORT 16304
DATE June '88	PLAN No 4755

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

485000mE 490000mE 495000mE 500000mE 505000mE

6594000mN 30°45'

6590000mN 30°50'

6585000mN

6580000mN 30°55'

6575000mN

6571000mN 31°00'

134°55' 135°00'

496000mE 498000mE 500000mE 494000mE 498000mE

6586000mN 6584000mN 6580000mN 6577000mN

• Warna Rockhole

TARCOOLA 29Km

VERMIN PROOF FENCE

TRANS AUSTRALIAN RAILWAY

Carters Well

Tank (disused)

Earea Dam

4734

ML 5361

ML 5362

ML 5363

KINGOONYA 26·5 Km

SOUTH LAKE

salt

salt lakes

HOPEFUL HILL

approx. position

approx position

Kenella Well

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA EL 1315 Relinquished Area 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

SIROTEM COVERAGE

0 5km 10km

1:50 000

6532-60

CRA EXPLORATION PTY LIMITED

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT
GRID LOCATIONS AND SIROTEM COVERAGE

REF.	TARCOOLA SH 53-10		
SCALE	1:50 000	DRAWN	F.R.
AUTHOR	G.L.M.	REPORT	16304
DATE	Oct '89	PLAN NO.	SAa 4762

INDEX TO 1:100000 SHEETS

Bulgunnya 5837	Bon Bon 5937	Elea 6037
Tarcoola 5836	Kingoonya 5936	Vivian 6036
Mealera 5835	Kokatha 5935	Coondambo 6035

GN TN MN

0 1 2 3 4 5 6 7 8 9 10 Km

134°45' 134°50' 135°00' 135°10' 135°20' 135°30'

480000 mE 490000 mE 500000 mE 510000 mE 520000 mE 530000 mE 540000 mE 550000 mE

6620000 mN 30°30' 6610000 mN 30°40' 6600000 mN 6590000 mN 30°50' 6580000 mN 6570000 mN 31°00'

Wilgunnia Hill

Gawler Range

"Gawler" HS

LAKE LABYRINTH

COMPANY WELL

1159715 1159716 1159717 1159728 1159714

1159725 919383 1159727 MOUNT EBA 919384

1159719 919385 1159723 919356

1159720 1159726 1159722 1159721

WALLABING RANGE GRID SEE PLAN SAa 4051

10000 E 10000 N

1159724

RELINQUISHED AREA

Highway

Wallabing Range

919382 919357

Rocky Hill

Stuart

1159718

To Yalgoma HS

Carters Well

642 652 656 653 654 657 658 642-650

"North Shaft" ACE 5

Old

KINGOONYA

Landing ground

To Glendambo

1159706 1159708 1159709 1159704 1159705 919353,4,5 1159703 1159702

SOUTH LAKE PROSPECT (See Plan No. SAa 4894)

BENTON HILL

BULPARA HILL

919498 919499 919497 919823 919822 919495-96 919500 919821 919493-94

LAKE HARRIS

MT. EBA EL 1315

260m 250m 200m 150m 100m 50m 0m

919382 381 919380 379 378 377 376 375 374 373 372 371 919370 369 368 367 366 365 364 363 362 361 919360 359 358 919357

N 1:2500

○ 1159723 1985 Sample Locations
● 919382 1986 Sample Locations — CRAE
× 919498 1987 Sample Locations
• 642–652 654–658 1987 S.A.D.M.E. Sample Locations

6532-61

CRA EXPLORATION PTY. LIMITED.

MT. EBA EL.1315 – S.A.

ROCK CHIP SAMPLE LOCATIONS

Ref. :	TARCOOLA SH 53-10 CHILDARA SH 53-14	KINGOONYA SH 53-11 GAMDONES SH 53-15	
Scale	1 : 100000	Drawn.	R.D.D.
Author	S.P.S.	Report No.	16304
Date	May '89	Plan No.	SAa 3763

6590000 mN

490000 mE

495000 mE

500000 mE

505000 mE

MT. EBA E.L. 1315

30° 50'

salt

498000 mE

TRANS AUSTRALIAN RAILWAY

Carters Well

Tank (disused)

Earea Dam

4734

ML 5361

ML 5342

VERMIN FENCE

6586000 mN

6585000 mN

6584000 mN

SOUTH LAKE

6580000 mN

30°55'

approx. position

Kenella Well

494000 mE

HOPEFUL HILL

6575000 mN

salt lakes

134°55'

135°00'

31°00'

0 500m 1 2 3 4 5 Km.

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

6532-62

CRA EXPLORATION PTY. LIMITED.

MT. EBA E.L.1315 – S.A.
SOUTH LAKE PROSPECT

Ref	TARCOOLA SH 53-10		
Scale	1 : 25000	Drawn	
Author	D.C.P.	Report No.	16304
Date	Oct. '89	Plan No.	SAa 4893

6590000 mN

490000 mE

495000 mE

500000 mE

505000 mE

MT. EBA E.L. 1315

30° 50'

salt

498000 mE

TRANS AUSTRALIAN RAILWAY

Carters Well

Tank (disused)

Earea Dam

4734

VERMIN FENCE

6586000 mN

6585000 mN

ML 5341

ML 5342

1164144

1164145

6584000 mN

Enlarged Grid See Plan SAa 118

SOUTH LAKE

TIN MINE

AUST. DEV. RAB HOLES

1164141 - 1164143

1164139-1164140

1164138

1164137

1164119-1164120

1164136

1164134-1164135

1164133

6580000 mN

30°55'

1164121

1164131

1164132

1164127

1164128

1164123

1164124

1164125

1164126

1164130

1164129

1164122

approx. position

Kenella Well

494000 mE

498000 mE

499200 mE

6577000 mN

950902 950903

950901 950901

HOPEFUL HILL

6575000 mN

salt lakes

1:100000 SHEET INDEX

BULGUNNIA 5837	BON BON 5937	EBA 6037
TARCOOLA 5836	KINGOONYA 5936	VIVIAN 6036
MEELERA 5835	KOKATHA 5935	COONDAMBO 6035

AREA OF INTEREST

1159702 - 1159709	1985 Rock Samples	see plan SAa 3763
919353 - 919355	1986 Rock Samples	
11624119 - 11624145	1988 Rock Samples	
950900 - 950903	1989 Rock Samples	

0 500m 1 2 3 4 5 Km.

134°55'

135°00'

31°00'

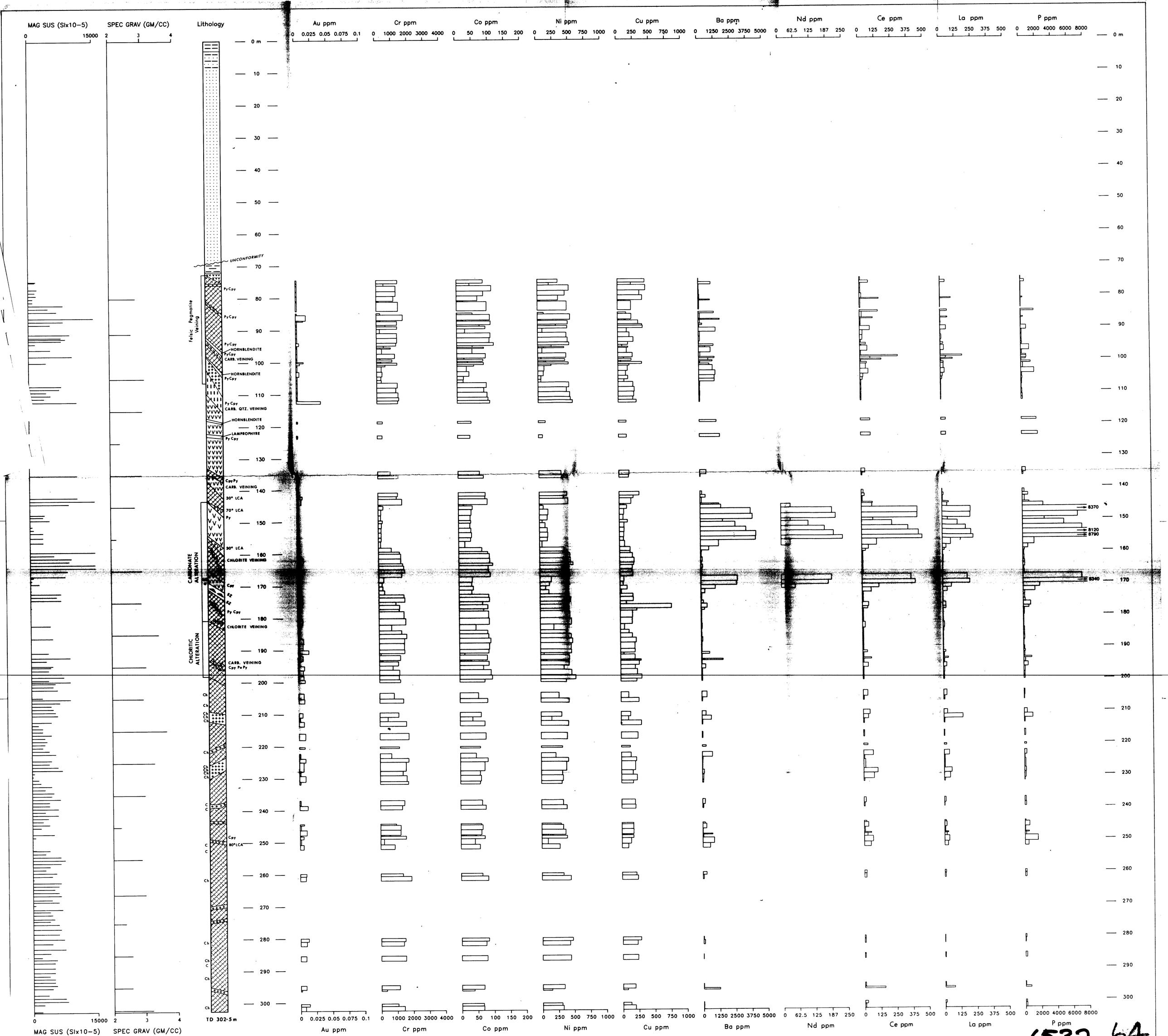
6532-63

CRA EXPLORATION PTY. LIMITED.

MT. EBA E.L.1315 - S.A.
SOUTH LAKE PROSPECT

ROCK SAMPLE LOCATION PLAN

Ref. :	TARCOOLA SH 53-10		
Scale	1 : 25 000	Drawn	
Author	D.C.P.	Report No.	16304
Date	Oct '89	Plan No.	SAa 4894



* HOLE BLOCKAGE AT 72·0m PREVENTED DOWNHOLE LOGGING.

MESOZOIC
- CLAYSTONE
- SANDSTONE

UNCONFORMITY

PROTEROZOIC?
- WEATHERED BASEMENT
- PYROXENITE
- PERIDOTITE

- ACID INTRUSIVES (Dacites)
- BASALT (Vesicular)
- TRACHYANDESITE
- K-FELDSPAR-QUARTZ PEGMATITE
- BRECCIA

Ch Chloritic Alteration
C Carbonate Alteration

Cpy Chalcopyrite
Po Pyrrhotite
Py Pyrite
Qtz Quartz

VEINING
SZ Shear Zone

* WHOLE ROCK ANALYSIS
- SiO_2% - 45·5
- Al_2O_3% - 12·4
- CaO% - 8·4
- K_2O% - 3·5
- Fe_2O_3% - 10·5
- MgO% - 5·8
- Na_2O% - 2·2
- TiO_2% - 2·3
- MnO % - 0·13
- P_2O_5% - 2·2
- LOI % - 7·00

(168·38 - 168·44m)

6532-64

CRA EXPLORATION PTY LIMITED

MT.EBA EL 1315 – SA

Lake Labyrinth West Prospect

Drillhole Logs – DD88ME2

REFERENCE KINGOONYA SH53-11	
SCALE 1:500	DRAWN DCP
AUTHOR DCP	REPORT 16304
DATE 20 DEC 88	PLAN No SAa 5004

"CRA CONFIDENTIAL
MATION – UNAUTHORISED USE PROHIBITED."

AMG NORTH (m)

6577000 mN 77500 78000 78500 79000 79500 6580000 mN

T.M.I. (nT) 62000 60000 58000 56000

498400 mE

T.M.I. (nT) 62000 60000 58000 56000 BOUG GRAV (mgal) -31.0 -32.0 -33.0 -34.0 -35.0

498800 mE

T.M.I. (nT) 62000 60000 58000 56000 BOUG GRAV (mgal) -31.0 -32.0 -33.0 -34.0 -35.0

499000 mE

T.M.I. (nT) 62000 60000 58000 BOUG GRAV (mgal) -31.0 -32.0 -33.0 -34.0 -35.0

499200 mE

T.M.I. (nT) 62000 60000 58000 BOUG GRAV (mgal) -31.0 -32.0 -33.0 -34.0 -35.0

499400 mE

T.M.I. (hT) 62000 60000 58000 56000 BOUG GRAV (mgal) -31.0 -32.0 -33.0 -34.0 -35.0

499600 mE

T.M.I. (nT) 62000 60000 58000 56000 BOUG GRAV (mgal) -31.0 -32.0 -33.0 -34.0 -35.0

499800 mE

T.M.I. (nT) 62000 60000 58000 56000

6577000 mN 6577500 6578000 6578500 6579000 6579500 6580000 mN

AMG NORTH (m)

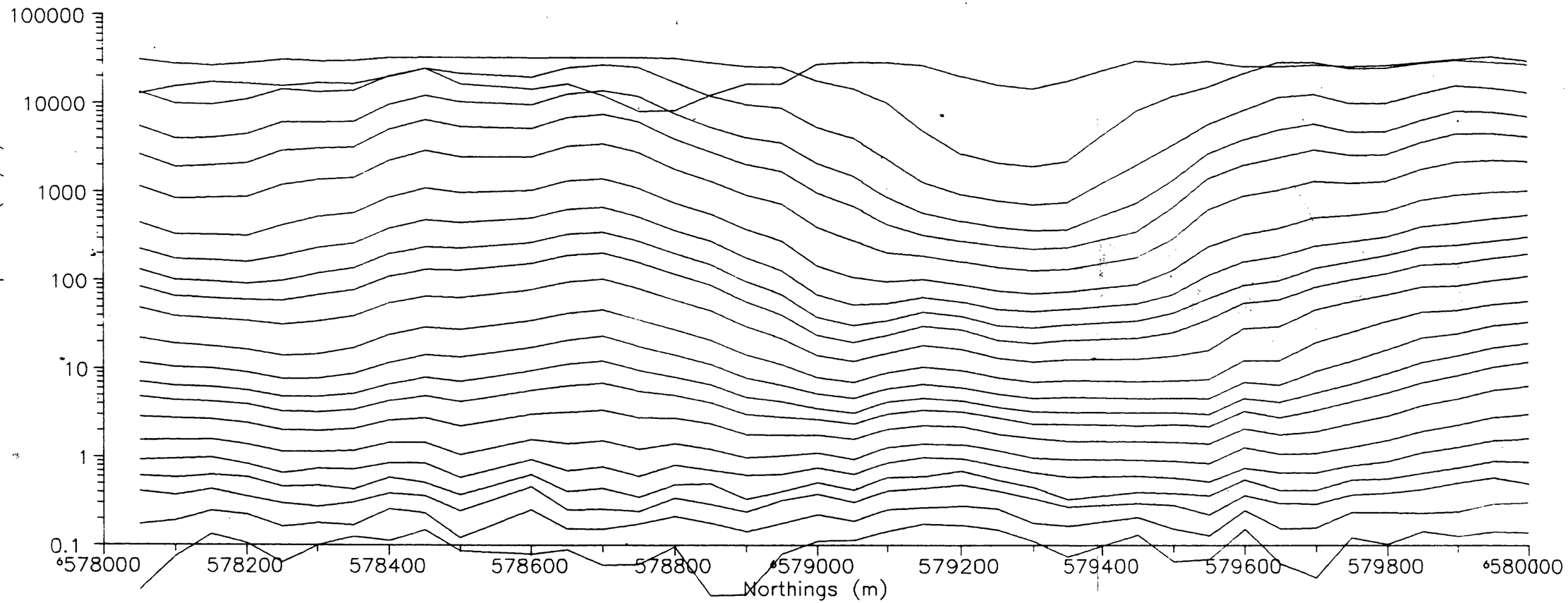
6532-65

0 100 200 300 400 500 600 700 800 900 1000 m.

CRA EXPLORATION PTY LTD	
MT EBA E.L. 1315 SOUTH LAKE PROSPECT BOUGUER GRAVITY AND MAGNETIC PROFILES	
REFERENCE TARCOOLA SH 53–10	
SCALE 1:10,000	DRAWN GLM
AUTHOR GLM	REPORT 16304
DATE Oct. 89	PLAN No SAa 5028

"CRA CONFIDENTIAL INFORMATION – UNAUTHORISED USE PROHIBITED."

LINE 499200E SOUTH LAKE PROSPECT, S.A..



SIROTEM SURVEY: OCTOBER, 1988

SEARCH EXPLORATION SERVICES PTY. LTD.

CRA EXPLORATION PTY LIMITED	
MT. EBA E.L. 1315 - S.A. SOUTH LAKE PROSPECT SIROTEM PROFILE LINE 499200mE	
Ref. : TARCOOLA SH 53-10	
Scale 1 : 5000	
Author G.L.M.	Report No. 16304
Date DEC '88	Plan No. SAa 5050

0318

INDEX TO 1:100000 SHEETS

Bulgunnia 5837	Bon Bon 5937	Elba 6037
Tarcoola 5836	Kingoonya 5936	Vivian 6036
Meeler-ie 5835	Kokatha 5935	Coondambo 6035

G.N.
T.N.
M.N.

0 1 2 3 4 5 6 7 8 9 10 Km.

480000mE 490000mE 500000mE 510000mE 520000mE 530000mE 540000mE 550000mE

135°00' 135°10' 135°20' 135°30'

134°45' 134°50'

6620000mN
30°30'
6610000mN
30°40'
6600000mN
6590000mN
30°50'
6580000mN
6570000mN
31°00'

Whyalla N.S.

Gawler Ranges

Gawler N.S.

517S
502N
499S
507S
498N
506N
538N
512N(2)
LAKE LABYRINTH
484S(2)
488S
487N
489N
512N(1)
482S
485N

MOUNT EBA

Stuart Highway
Old Stuart Highway

Rocky Hill

Wallaringa Range

To Wallgeno N.S.

Carters Well

"North Well" N.E. 45

To Glendambo

KINGOONYA
Landing ground

432S
476S(2)
476S(1)
462S(1)

416N
422N
BULPARA HILL

RENTON HILL
500N
492N
496N
493S
484S(1)

LAKE HARRIS

6532-66

CRA EXPLORATION PTY. LIMITED.

MT. EBA E.L.1315 – S.A.

RADIOMETRIC ANOMALIES

Ref.:	TARCOOLA SH 53-10 ; CHILDARA SH 53-14 ;	KINGOONYA SH 53-11 ; GAIRDNER SH 53-15	
Scale	1 : 100000	Drawn	R.D.D.
Author	S.P.S.	Report No.	16304
Date	Oct. '86	Plan No.	SAa 4370