CONTENTS ENVELOPE 2160 Cylinder 2160/1

TENEMENT: S.M.L. 717 - Yudnamutana.

TENEMENT HOLDER: Utah Development Company.

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UTAH DEVELOPMENT COMPANY

QUARTERLY REPORT - SPECIAL MINING LEASE No. 717

YUDNAMUTANA AREA

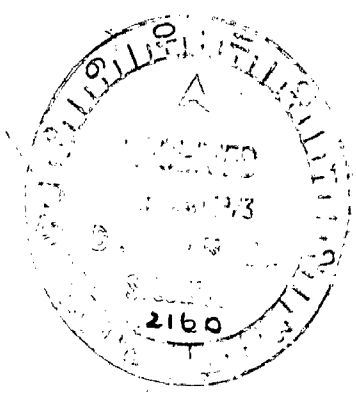
PERIOD ENDING DECEMBER 25, 1972

SUMMARY

During the quarter under review, the Company has suspended operations while an effort has been made to assess the impact of the State Planning Authority's Flinders Ranges Development Plan.

Although convinced of the security of the Company's title in the Yudnamutana area, we have remained unwilling to start the planned [illegible] rotary percussion drilling programme for fear of precipitating a public squabble with conservationists that could be damaging to the Company far beyond its interests in the immediate Yudnamutana area.

An itemised expenditure statement to accompany this summary will be submitted early in the New Year.



UTAH DEVELOPMENT COMPANY

QUARTERLY REPORT - SPECIAL MINING LEASE NO: 717

YUDNAMUTANA AREA

PERIOD ENDING MARCH 25, 1973

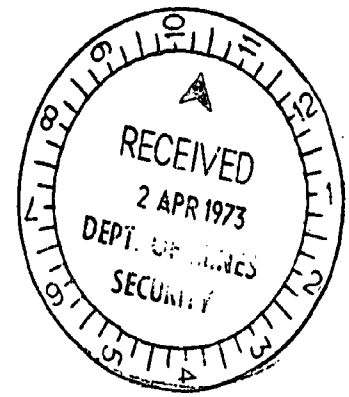
No fieldwork was carried out during this Quarter.

The Company has now resolved, that it will continue exploration in SML717.

Accordingly, the contract for a 9,500 foot rotary percussion drilling programme has been let. This programme is for 14 holes. It will test the Wywyana Formation. The first hole will be collared on Monday, April 2nd, 1973. The programme is scheduled to be completed within 9 weeks of this date.

Landowners have been notified of the impending programme, and a base camp has been established.

An expenditure statement for the Quarter under review will be forwarded under seperate cover.



UTAH DEVELOPMENT COMPANY

REPORT ON EXPLORATION IN SML 717, S.A.

Period June 24th, 1972 to June 23rd, 1973

by R. G. Chuck.

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Pl V - Rotary Percussion Drill Hole Cross-sections - Wheal Austin Area.

INTRODUCTION

This report is submitted to the Mines Department in fulfillment of conditions of the Mining Act. It serves as an Annual Report for SML717 (formerly SML601) for the period 24/6/72 to 24/6/73.

Examination of the detailed expenditure will show that the Company has fulfilled its exploration committments.

Exploration work has indicated that further detailed evaluation of this tenement is necessary. Accordingly Utah has applied for an extension of 12 months tenure over the area currently covered by SML717. The Director of Mines has informed Utah that this application has been granted. At the time of writing the number of the new EL was not known.

Figures 1 and 2 show the location and boundaries of SML 717.

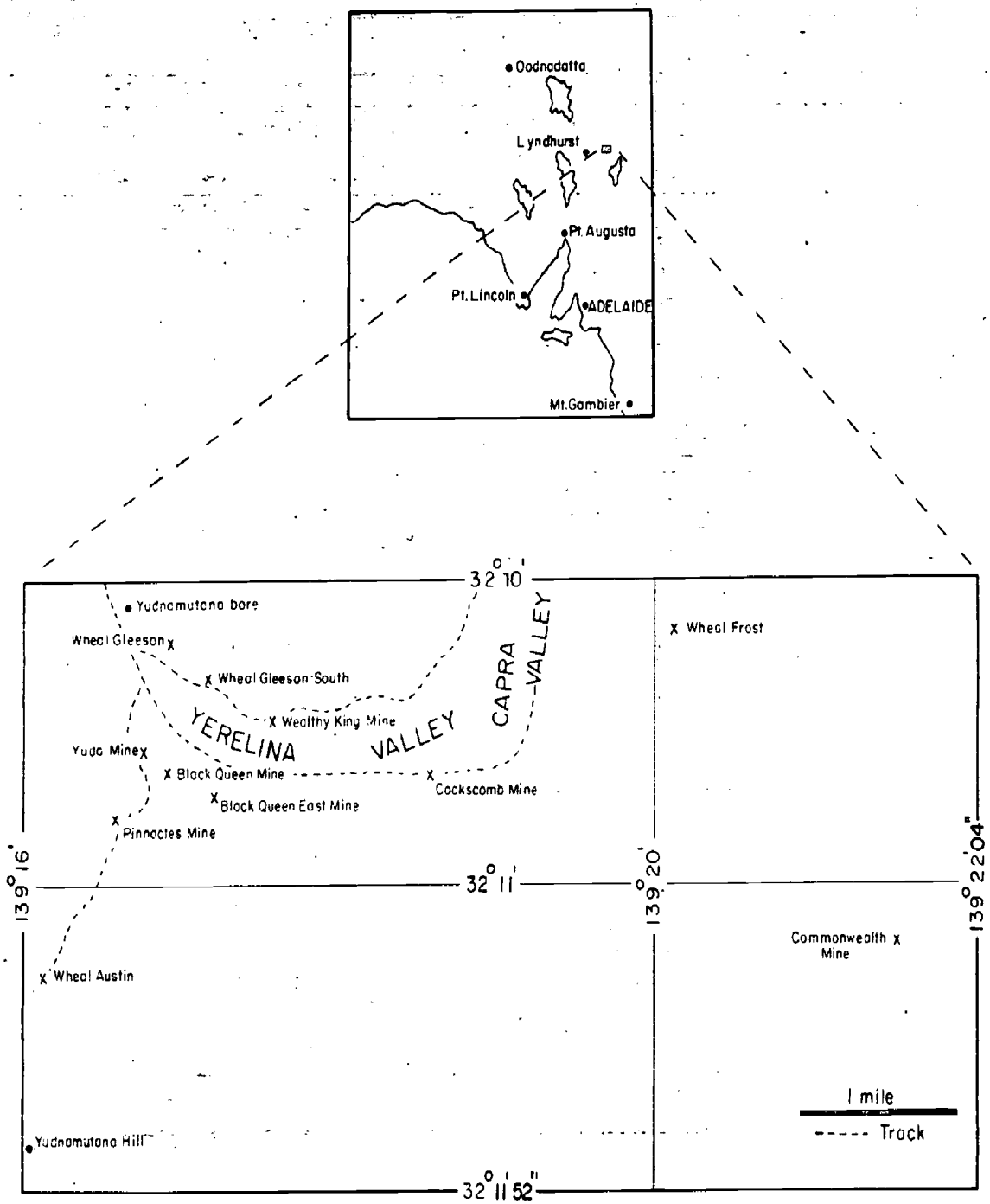
Plate 1 summarizes the exploration effort during the year under review.

LOCALITY PLAN

SPECIAL MINING LEASE NO. 717

0009

YUDNAMUTANA – SOUTH AUSTRALIA

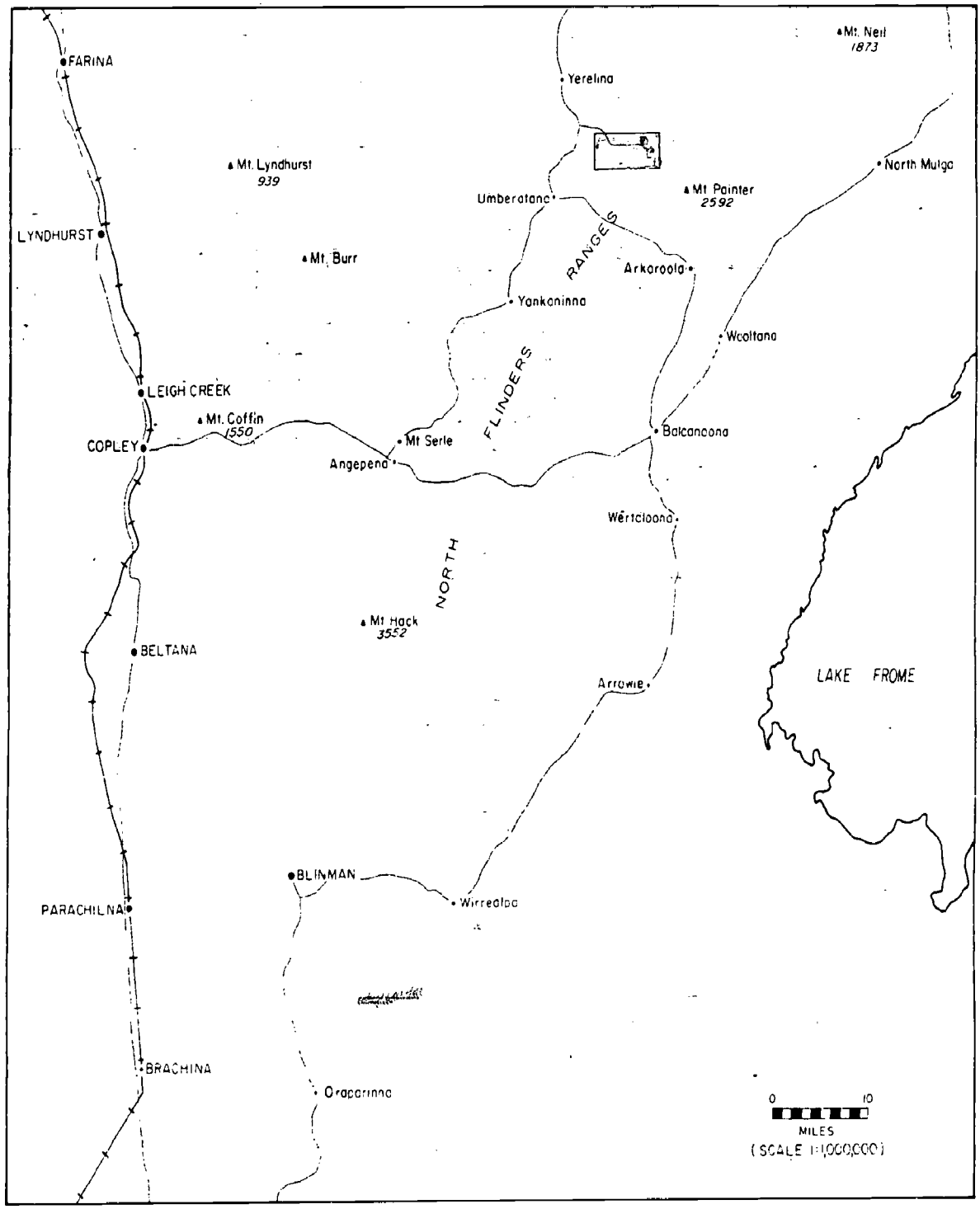


S.M.L 717 in area is approximately 31 sq. kilometres and is situated approximately 96·6 kilometres east of Lyndhurst.

FIGURE 1
Report No.
R.G.Chuck
Adelaide
June 1973

UTAH DEVELOPMENT COMPANY
(Exploration Department)

9A



ACCESS PLAN

SPECIAL MINING LEASE NO. 717

YUDNAMUTANA – SOUTH AUSTRALIA

UTAH DEVELOPMENT COMPANY
(Exploration Department)

0010

LOGISTICS OF FIELD WORK:

The following table summarizes all work carried out in SML717 during the twelve month period to 23/6/73.

	This Quarter	This Year
No. Rotary Percussion Holes Drilled	22	22
Total Footage of Percussion Drilling	10,490	10,490
Total No. of PDH samples assayed	2,098	2,098
No. sludge samples assayed	13	13
No. rock chip traverses	5	5
No. rock chip samples assayed	128	128
No. costeans 'dozed	2	2
Total footage of costeaning	275	275
No. trench samples from costeans assayed	48	48
No. samples taken for petrological study	241	241
Total No. samples assayed	2,287	2,287
Area gridded at 50' interval (sq. miles)	0.05	0.05
Area of detailed mapping (1"240) (sq. miles)	0.05	0.05
Length of track improvement (miles)	1.7	1.7

PERSONNEL:

Staffing of the exploration programme in SML717 during the year has consisted of:

Geologists	3
Field Assistants	2
Female Tracer/Typist	1
Cook	1
Contract Drillers	5
'Dozer Driver	1

DETAILED EXPENDITURE STATEMENT :

This will be forwarded under separate cover when available.

FIELD INVESTIGATIONS:

Mapping at a scale of 1:240 was carried out in an area gridded at 50 foot intervals, just west of, and adjoining, the original grid in the Pinnacles Mine area. (c.f. U.D.C Report No. 199).

Plate 2 contains the results of this mapping, and an interpretative map of the Pinnacles Mine Area will be forwarded when available.

All specimens described in McPhar Geophysics report No. 1252 (Appendix III) were taken from this area.

Two costeans were 'dozed in the same area, and a rock chip traverse was done along an old miner's trench. The relevant field and assay sheets for this sampling are contained in Appendix I. The costeans and channel chip traverse can be located on Plate 2.

0012

DRILLING INVESTIGATIONS:

(a) DRILLING:

A total of 22 rotary percussion holes were drilled, and the total footage for this drilling was 10,490. All drilling was sampled at 5 feet intervals, and samples were assayed by Labtech Pty. Ltd., of Perth. Boring Enterprises, Hahndorf were the drilling contractors.

All drilling details, hole collar positions, etc. can be found in Appendix IV and V.

Plates 4 and 5 contain cross-sections of YX 07 to 11 and YX16, 22, 23 and 24 respectively. Plate 3 should be referred to as a legend when studying all cross-sections in this report.

The remaining cross-sections for all holes will be forwarded under separate cover when drafting is complete.

(b) THE GEOLOG SYSTEM OF LOGGING.

All holes have been logged using a computer-based system known as "Geolog". It is stressed that all future logging of the U. D. C. Copper Project will be with this system. The rules required to understand the log sheets appear in Appendix II of this report and these should be referred to for all future logging.

Future reports will NOT contain these rules.

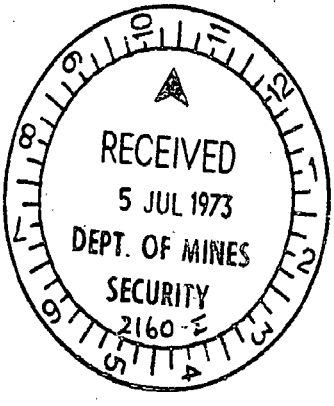
(c) DETAILED ASSAY AND LITHOLOGICAL DATA.

Geolog sheets for all holes will be forwarded under separate cover when available. These will contain lithological information "married" to assay values for each 5ft. drilling interval.

APPENDIX I (1)

FIELD AND ASSAY SHEETS FOR

ROCK CHIP AND TRENCH SAMPLES.



Date:— SML 717

Any queries please quote Lab. Sheet Number:— 5799/1 0015

SAMPLE	CU
Y049.00/001P	400
Y049.00/002P	150
Y049.00/003P	180
Y049.00/004P	280
Y049.00/005P	440
Y049.00/006P	480
Y049.00/007P	4000
Y049.00/008P	840
Y049.00/009P	450
Y049.00/010P	5300
Y049.00/011P	12T
Y049.00/012P	3300
Y049.00/013P	3100
Y049.00/014P	3450
Y049.00/015P	3500
Y049.00/016P	5600
Y049.00/017P	2900
Y049.00/018P	2850
Y049.00/019P	450
Y049.00/020P	3000
Y049.00/021P	7500
Y049.00/022P	3400
Y049.00/023P	7800
Y049.00/024P	72T
Y049.00/025P	13T
Y049.00/026P	9800
Y049.00/027P	11T
Y049.00/028P	6200
Y049.00/029P	5600
Y049.00/030P	1500
Y049.00/031P	2000
Y049.00/032P	3400
Y049.00/033P	2800
Y049.00/034P	4150
Y049.00/035P	8000
Y049.00/036P	4800
Y049.00/037P	3850
Y049.00/038P	3200
Y049.00/039P	12T
Y049.00/040P	3400
Y049.00/041P	2500
Y049.00/042P	5800
Y049.00/043P	6200
Y049.00/044P	6700
Y049.00/045P	2700
Y049.00/046P	1100
Y049.00/047P	1400
Y049.00/048P	1700
Y049.00/049P	850
Y049.00/050P	1650
METHOD	1018

30 May 73

FS 49406

Line 011 45

XX 24

70' 0.09%

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G.P.O. Box U1938, Perth, Western Australia, 6001
Telephone: 74 2566 • Telegrams: "Exserv" Perth

Line No.:— U11.45

Project/Charge/ Despatch Note No.:— YX24

Date:— SML717

Any queries please quote Lab. Sheet Number:— 5799/2 30 May 73

0.16

FS no 49407

SAMPLE	CU
Y049.00/051P	1900
Y049.00/052P	6100
Y049.00/053P	3400
Y049.00/054P	315
Y049.00/055P	1250
Y049.00/056P	1200
Y049.00/057P	1850
Y049.00/058P	2100
Y049.00/059P	580
Y049.00/060P	610
Y049.00/061P	350
Y049.00/062P	400
Y049.00/063P	300
Y049.00/064P	350
Y049.00/065P	510
Y049.00/066P	340
Y049.00/067P	145
Y049.00/068P	140
Y049.00/069P	215
Y049.00/070P	495
Y049.00/071P	670
Y049.00/072P	840
Y049.00/073P	560
Y049.00/074P	770
Y049.00/075P	700
Y049.00/076P	490
Y049.00/077P	230
Y049.00/078P	230
Y049.00/079P	375
Y049.00/080P	400
Y049.00/081P	300
Y049.00/082P	210
Y049.00/083P	295
Y049.00/084P	360
Y049.00/085P	420
Y049.00/086P	300
Y049.00/087P	225
Y049.00/088P	210
Y049.00/089P	265
Y049.00/090P	240
Y049.00/091P	235
Y049.00/092P	370
Y049.00/093P	125
Y049.00/094P	85
Y049.00/095P	180
Y049.00/096P	110
Y049.00/097P	95
Y049.00/098P	145
Y049.00/099P	165
Y049.00/100P	215
METHOD	101R

WARNING - THIS IS SIRAL - TOLLOW MOTHOD AND ALWAYS KEEP AT LEAST 2 CM FROM EDGE OF THE PLATE WHEN STIRRING, AVOID SPLASHING

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30-MAY-73

Field Sheet No:— 49408

Line No.:— 011.45

Project/Charge/ Despatch Note No.:— YX24

Date:— SML717

0017

Any queries please quote Lab. Sheet Number:— 5799/3

SAMPLE	CU
Y049.00/101P	310
Y049.00/102P	470
Y049.00/103P	230
Y049.00/104P	190
Y049.00/105P	210
Y049.00/106P	160
Y049.00/107P	145
Y049.00/108P	170
Y049.00/109P	175
Y049.00/110P	340
Y049.00/111P	320
Y049.00/112P	245
Y049.00/113P	205
049.00/114P	170
Y049.00/115P	120
Y049.00/116P	145
Y049.00/117P	185
Y049.00/118P	130
Y049.00/119P	160
ETHOD	101B

WARNING - THIS IS NOT A PLEASANT-SMELLING, UNSTABLE AND NOT TOXIC

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/26

0018

SAMPLE	CU
Y051.40/001P	220
Y051.40/002P	820
Y051.40/003P	3350
Y051.40/004P	3000
Y051.40/005P	1900
Y051.40/006P	7500
Y051.40/007P	6400
Y051.40/008P	950
Y051.40/009P	2550
Y051.40/010P	800
Y051.40/011P	290
Y051.40/012P	830
Y051.40/013P	1550
Y051.40/014P	2100
Y051.40/015P	8200
Y051.40/016P	11T
Y051.40/017P	1150
Y051.40/018P	14T
Y051.40/019P	21T
Y051.40/020P	3600
Y051.40/021P	1350
Y051.40/022P	550
Y051.40/023P	350
Y051.40/024P	440
Y051.40/025P	320
Y051.40/026P	350
Y051.40/027P	220
Y051.40/028P	280
Y051.40/029P	240
Y051.40/030P	175
Y051.40/031P	175
Y051.40/032P	160
Y051.40/033P	490
Y051.40/034P	570
Y051.40/035P	250
Y051.40/036P	180
Y051.40/037P	130
Y051.40/038P	145
Y051.40/039P	155
Y051.40/040P	720
Y051.40/041P	410
Y051.40/042P	320
Y051.40/043P	380
Y051.40/044P	265
Y051.40/045P	275
Y051.40/046P	280
Y051.40/047P	210
Y051.40/048P	270
Y051.40/049P	440
Y051.40/050P	450
METHOD	1018

FSno 494d
Lineno 015
YX 22

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Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/28

0019

SAMPLE	CU
Y051.40/001P	135
Y051.40/002P	160
Y051.40/003P	75
Y051.40/004P	85
Y051.40/005P	65
Y051.40/006P	65
Y051.40/007P	75
Y051.40/008P	210
Y051.40/009P	315
Y051.40/010P	230
Y051.40/011P	80
Y051.40/012P	155
Y051.40/013P	225
Y051.40/014P	200
Y051.40/015P	200
Y051.40/016P	70
Y051.40/017P	145
Y051.40/018P	215
Y051.40/019P	420
Y051.40/020P	500
Y051.40/021P	950
Y051.40/022P	4300
Y051.40/023P	535
Y051.40/024P	235
Y051.40/025P	140
Y051.40/026P	85
Y051.40/027P	85
Y051.40/028P	80
Y051.40/029P	85
Y051.40/030P	145
Y051.40/031P	65
Y051.40/032P	75
Y051.40/033P	80
Y051.40/034P	2500
Y051.40/035P	2800
Y051.40/036P	1900
Y051.40/037P	1700
Y051.40/038P	2500
Y051.40/039P	13T
Y051.40/040P	2250
Y051.40/041P	570
Y051.40/042P	1400
Y051.40/043P	650
Y051.40/044P	2400
Y051.40/045P	530
Y051.40/046P	6200
Y051.40/047P	2500
Y051.40/048P	350
Y051.40/049P	120
Y051.40/050P	1300
METHOD	1018

Field Sheet No 4/403
Line no 013 30
YX-23

WARNING NOTICE - THIS IS NOT A PAPER-WALLED ANOMALY, BUT CLEAN OF OTHER NO

SAMPLE	CU
Y051.40/051P	6000
Y051.40/052P	4100
Y051.40/053P	1500
Y051.40/054P	1600
Y051.40/055P	5100
Y051.40/056P	3500
Y051.40/057P	740
Y051.40/058P	4300
Y051.40/059P	16T
Y051.40/060P	80T
Y051.40/061P	19T
Y051.40/062P	18T
Y051.40/063P	20T
Y051.40/064P	6800
Y051.40/065P	6400
Y051.40/066P	8200
Y051.40/067P	5400
Y051.40/068P	3150
Y051.40/069P	3200
Y051.40/070P	2100
Y051.40/071P	4900
Y051.40/072P	1750
Y051.40/073P	690
Y051.40/074P	780
Y051.40/075P	740
Y051.40/076P	920
Y051.40/077P	410
Y051.40/078P	620
Y051.40/079P	580
Y051.40/080P	400
Y051.40/081P	600
Y051.40/082P	575
Y051.40/083P	570
Y051.40/084P	360
Y051.40/085P	1200
Y051.40/086P	470
Y051.40/087P	620
Y051.40/088P	1350
Y051.40/089P	2000
Y051.40/090P	310
Y051.40/091P	315
Y051.40/092P	520
Y051.40/093P	375
Y051.40/094P	800
Y051.40/095P	1200
Y051.40/096P	550
Y051.40/097P	620
Y051.40/098P	495
Y051.40/099P	580
Y051.40/100P	365
METHOD	101B

Field sheet no 49404
Lino no 01335
YK 23

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Field Sheet No:— 49402

Line No.:— 051

Project/Charge/ Despatch Note No.:— YX22

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/27

SAMPLE	CU
Y051•40/051P	350
Y051•40/052P	1700
Y051•40/053P	620
Y051•40/054P	700
Y051•40/055P	1600
Y051•40/056P	535
Y051•40/057P	690
Y051•40/058P	670
Y051•40/059P	1300
Y051•40/060P	500
Y051•40/061P	460
Y051•40/062P	450
Y051•40/063P	330
Y051•40/064P	345
Y051•40/065P	370
Y051•40/066P	340
Y051•40/067P	630
Y051•40/068P	600
Y051•40/069P	525
Y051•40/070P	400
Y051•40/071P	170
Y051•40/072P	125
Y051•40/073P	410
Y051•40/074P	105
METHOD	101B

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Line No.:— 013.30

Project/Charge/ Despatch Note No.:— XY23

Date:— 6-JUNE-7[illegible]022

Any queries please quote Lab. Sheet Number:— 5799/30

SAMPLE	CU
Y051.40/101P	670
Y051.40/102P	400
Y051.40/103P	480
Y051.40/104P	800
Y051.40/105P	360
Y051.40/106P	475
Y051.40/107P	1100
Y051.40/108P	660
Y051.40/109P	1100
Y051.40/110P	1600
Y051.40/111P	1400
Y051.40/112P	1300
Y051.40/113P	850
Y051.40/114P	470
Y051.40/115P	630
Y051.40/116P	575
Y051.40/117P	700
Y051.40/118P	280
METHOD	101B

RS. 49405

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Field Sheet No:— 49336 0023

Line No.:— 014

Project/Charge/ Despatch Note No.:— YX16

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/25

SAMPLE	CU
Y051•40/101P	650
Y051•40/102P	260
Y051•40/103P	470
Y051•40/104P	590
Y051•40/105P	480
Y051•40/106P	410
Y051•40/107P	215
Y051•40/108P	130
Y051•40/109P	175
Y051•40/110P	165
METHOD	101B

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Line No.:— 025.60

Project/Charge/ Despatch Note No.:— YX12

Date:— SML A024

Any queries please quote Lab. Sheet Number:— 5752/1

SAMPLE	CU
Y067.80/001P	140
Y067.80/002P	30
Y067.80/003P	50
Y067.80/004P	55
Y067.80/005P	200
Y067.80/006P	135
Y067.80/007P	110
Y067.80/008P	55
Y067.80/009P	120
Y067.80/010P	30
Y067.80/011P	30
Y067.80/012P	150
Y067.80/013P	35
Y067.80/014P	30
Y067.80/015P	125
Y067.80/016P	95
Y067.80/017P	115
Y067.80/018P	70
Y067.80/019P	1900
Y067.80/020P	1200
Y067.80/021P	380
Y067.80/022P	850
Y067.80/023P	1600
Y067.80/024P	900
Y067.80/025P	850
Y067.80/026P	1000
Y067.80/027P	900
Y067.80/028P	3800
Y067.80/029P	2200
Y067.80/030P	2000
Y067.80/031P	2000
Y067.80/032P	1500
Y067.80/033P	1650
Y067.80/034P	1600
Y067.80/035P	1300
Y067.80/036P	1700
Y067.80/037P	1600
Y067.80/038P	1650
Y067.80/039P	2100
Y067.80/040P	1700
Y067.80/041P	1650
Y067.80/042P	2350
Y067.80/043P	7500
Y067.80/044P	4300
Y067.80/045P	3500
Y067.80/046P	2100
Y067.80/047P	1550
Y067.80/048P	1200
Y067.80/049P	1500
Y067.80/050P	2100
	1019

n/Footage

001P
002P
003P
004P
005P
006P
007P
008P
009P
010P
011P
012P
013P
014P
015P
016P
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042P
043P
044P
045P
046P
047P
048P
049P
050P

AMMUNITION - THIS IS NOT PAPER - WHEN AMMO IS NOT IN USE KEEP IT CLEAN OF DI

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27 APR 1973

Field Sheet No:— 44071

Line No.:— 025.60

Project/Charge/ Despatch Note No.:— YX12

Date:— SML717

Any queries please quote Lab. Sheet Number:— 5752/2

SAMPLE	CU
Y067.80/051P	1000
Y067.80/052P	1500
Y067.80/053P	1450
Y067.80/054P	1700
Y067.80/055P	1550
Y067.80/056P	1900
Y067.80/057P	1700
Y067.80/058P	2300
Y067.80/059P	1600
Y067.80/060P	1000
Y067.80/061P	1800
Y067.80/062P	2000
Y067.80/063P	2100
Y067.80/064P	2550
Y067.80/065P	2200
Y067.80/066P	200
Y067.80/067P	1350
Y067.80/068P	2250
Y067.80/069P	4600
Y067.80/070P	2950
Y067.80/071P	2500
Y067.80/072P	2500
Y067.80/073P	2000
Y067.80/074P	1650
METHOD	1013

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Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/31

SAMPLE	CU
Y091•00/001P	140
Y091•00/002P	85
Y091•00/003P	45
Y091•00/004P	25
Y091•00/005P	20
Y091•00/006P	25
Y091•00/007P	40
Y091•00/008P	10
Y091•00/009P	15
Y091•00/010P	10
Y091•00/011P	10
Y091•00/012P	10
Y091•00/013P	25
Y091•00/014P	30
Y091•00/015P	265
Y091•00/016P	300
Y091•00/017P	220
Y091•00/018P	10
Y091•00/019P	10
Y091•00/020P	35
Y091•00/021P	20
Y091•00/022P	360
Y091•00/023P	55
Y091•00/024P	55
Y091•00/025P	45
Y091•00/026P	25
Y091•00/027P	240
Y091•00/028P	315
Y091•00/029P	360
Y091•00/030P	680
Y091•00/031P	260
Y091•00/032P	85
Y091•00/033P	460
Y091•00/034P	780
Y091•00/035P	500
Y091•00/036P	195
Y091•00/037P	310
Y091•00/038P	2200
Y091•00/039P	480
Y091•00/040P	1650
Y091•00/041P	1700
Y091•00/042P	900
Y091•00/043P	560
Y091•00/044P	820
Y091•00/045P	1150
Y091•00/046P	620
Y091•00/047P	1200
Y091•00/048P	1200
Y091•00/049P	1500
Y091•00/050P	550
METHOD	1018

0026

FS no 49337
4 no 132
Y/X 17

WARNING - THIS IS NOT A PAPER-VEIN AND NOT ALTHOUGH IT LOOKS LIKE IT COULD BE

FORM 52

Telephone: 74 2566 • Telegrams: "Exserv" Perth

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/32

0027

SAMPLE	CU
Y091.00/051P	495
Y091.00/052P	1100
Y091.00/053P	650
Y091.00/054P	440
Y091.00/055P	215
Y091.00/056P	15
Y091.00/057P	45
Y091.00/058P	10
Y091.00/059P	5
Y091.00/060P	10
Y091.00/061P	10
Y091.00/062P	5
Y091.00/063P	10
Y091.00/064P	15
Y091.00/065P	10
Y091.00/066P	5
Y091.00/067P	10
Y091.00/068P	15
Y091.00/069P	5
Y091.00/070P	5
Y091.00/071P	10
Y091.00/072P	10
Y091.00/073P	5
Y091.00/074P	5
Y091.00/075P	5
Y091.00/076P	10
Y091.00/077P	10
Y091.00/078P	10
Y091.00/079P	10
Y091.00/080P	20
Y091.00/081P	20
Y091.00/082P	10
Y091.00/083P	10
Y091.00/084P	10
Y091.00/085P	15
Y091.00/086P	15
Y091.00/087P	25
Y091.00/088P	490
Y091.00/089P	320
Y091.00/090P	115
Y091.00/091P	115
Y091.00/092P	50
Y091.00/093P	45
Y091.00/094P	25
Y091.00/095P	25
Y091.00/096P	30
Y091.00/097P	50
Y091.00/098P	50
Y091.00/099P	150
Y091.00/100P	55
HOD	1018

FSNO 49338
LIMNO C32
YXIZ

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No.—

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/33

0028

SAMPLE	CU
Y092.50/001P	410
Y092.50/002P	930
Y092.50/003P	310
Y092.50/004P	160
Y092.50/005P	75
Y092.50/006P	10
Y092.50/007P	15
Y092.50/008P	210
Y092.50/009P	25
Y092.50/010P	55
Y092.50/011P	25
Y092.50/012P	15
Y092.50/013P	5
Y092.50/014P	5
Y092.50/015P	5
Y092.50/016P	25
Y092.50/017P	15
Y092.50/018P	5
Y092.50/019P	5
Y092.50/020P	5
Y092.50/021P	10
Y092.50/022P	5
Y092.50/023P	5
Y092.50/024P	5
Y092.50/025P	50
Y092.50/026P	30
Y092.50/027P	15
Y092.50/028P	30
Y092.50/029P	30
Y092.50/030P	55
Y092.50/031P	10
Y092.50/032P	5
Y092.50/033P	5
Y092.50/034P	5
Y092.50/035P	5
Y092.50/036P	5
Y092.50/037P	10
Y092.50/038P	15
Y092.50/039P	10
Y092.50/040P	5
Y092.50/041P	5
Y092.50/042P	5
Y092.50/043P	185
Y092.50/044P	710
Y092.50/045P	460
Y092.50/046P	400
Y092.50/047P	230
Y092.50/048P	360
Y092.50/049P	240
Y092.50/050P	45
METHOD	101B

FS No. 49339
Line No. 132
YX18

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Project/Charge/ Despatch Note No.:— YX18

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/34

0029

FSno. 49340

Lineno 132

SAMPLE	CU
Y092•50/051P	150
Y092•50/052P	155
Y092•50/053P	510
Y092•50/054P	1000
Y092•50/055P	1200
Y092•50/056P	760
Y092•50/057P	620
Y092•50/058P	720
Y092•50/059P	1350
Y092•50/060P	1200
Y092•50/061P	1100
Y092•50/062P	830
Y092•50/063P	790
Y092•50/064P	680
Y092•50/065P	820
Y092•50/066P	880
Y092•50/067P	660
Y092•50/068P	460
Y092•50/069P	465
Y092•50/070P	460
Y092•50/071P	275
Y092•50/072P	175
Y092•50/073P	75
Y092•50/074P	80
Y092•50/075P	85
Y092•50/076P	50
Y092•50/077P	35
Y092•50/078P	55
Y092•50/079P	90
Y092•50/080P	120
Y092•50/081P	130
Y092•50/082P	40
Y092•50/083P	215
Y092•50/084P	2450
Y092•50/085P	3400
Y092•50/086P	1450
Y092•50/087P	900
Y092•50/088P	2500
Y092•50/089P	1850
Y092•50/090P	1150
Y092•50/091P	1500
Y092•50/092P	870
Y092•50/093P	900
Y092•50/094P	1100
Y092•50/095P	395
Y092•50/096P	280
Y092•50/097P	275
Y092•50/098P	270
Y092•50/099P	30
Y092•50/100P	35
METHOD	101B

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Field Sheet No:— 49341

Line No.:— 132

Project/Charge/ Despatch Note No.:— YX18 0030

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/35

SAMPLE	CU
Y092.50/101P	15
Y092.50/102P	15
Y092.50/103P	5
Y092.50/104P	115
Y092.50/105P	25
Y092.50/106P	305
Y092.50/107P	40
Y092.50/108P	280
Y092.50/109P	25
Y092.50/110P	20
Y092.50/111P	40
Y092.50/112P	10
Y092.50/113P	45
Y092.50/114P	95
Y092.50/115P	20
Y092.50/116P	15
Y092.50/117P	10
Y092.50/118P	5
Y092.50/119P	10
Y092.50/120P	15
METHOD	1018

WARNING - THESE RESULTS ARE FOR PAPER-WORK PURPOSES ONLY AND ARE NOT TO BE USED FOR LEGAL PURPOSES

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Line No.:— 014

Project/Charge/ Despatch Note No.:— YX16

Date:— 6-JUNE-73 0031

Any queries please quote Lab. Sheet Number:— 5799/24

SAMPLE	CU
Y051•40/051P	1600
Y051•40/052P	1750
Y051•40/053P	1450
Y051•40/054P	3600
Y051•40/055P	1300
Y051•40/056P	2500
Y051•40/057P	415
Y051•40/058P	1500
Y051•40/059P	1300
Y051•40/060P	820
Y051•40/061P	870
Y051•40/062P	1300
Y051•40/063P	1500
Y051•40/064P	1300
Y051•40/065P	2000
Y051•40/066P	1150
Y051•40/067P	270
Y051•40/068P	200
Y051•40/069P	135
Y051•40/070P	125
Y051•40/071P	100
Y051•40/072P	50
Y051•40/073P	45
Y051•40/074P	90
Y051•40/075P	115
Y051•40/076P	145
Y051•40/077P	115
Y051•40/078P	250
Y051•40/079P	150
Y051•40/080P	180
Y051•40/081P	170
Y051•40/082P	190
Y051•40/083P	115
Y051•40/084P	250
Y051•40/085P	230
Y051•40/086P	240
Y051•40/087P	135
Y051•40/088P	140
Y051•40/089P	120
Y051•40/090P	75
Y051•40/091P	120
Y051•40/092P	120
Y051•40/093P	105
Y051•40/094P	65
Y051•40/095P	70
Y051•40/096P	100
Y051•40/097P	70
Y051•40/098P	120
Y051•40/099P	165
Y051•40/100P	560

49385

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Project/Charge/Despatch Note No.:— YX16

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/23 0032

FS no 44050
Line 014

SAMPLE	CU
Y051•40/001P	810
Y051•40/002P	2100
Y051•40/003P	3100
Y051•40/004P	3000
Y051•40/005P	2350
Y051•40/006P	2400
Y051•40/007P	2750
Y051•40/008P	2100
Y051•40/009P	1250
Y051•40/010P	1300
Y051•40/011P	3750
Y051•40/012P	2100
Y051•40/013P	28T
Y051•40/014P	11T
Y051•40/015P	2200
Y051•40/016P	3300
Y051•40/017P	48T
Y051•40/018P	17T
Y051•40/019P	16T
Y051•40/020P	7600
Y051•40/021P	4400
Y051•40/022P	1200
Y051•40/023P	480
Y051•40/024P	2500
Y051•40/025P	8800
Y051•40/026P	1200
Y051•40/027P	900
Y051•40/028P	580
Y051•40/029P	380
Y051•40/030P	650
Y051•40/031P	1800
Y051•40/032P	1600
Y051•40/033P	1450
Y051•40/034P	2500
Y051•40/035P	2100
Y051•40/036P	1700
Y051•40/037P	1700
Y051•40/038P	1850
Y051•40/039P	2200
Y051•40/040P	3600
Y051•40/041P	1250
Y051•40/042P	2100
Y051•40/043P	2450
Y051•40/044P	2500
Y051•40/045P	3000
Y051•40/046P	2750
Y051•40/047P	1350
Y051•40/048P	1700
Y051•40/049P	1500
Y051•40/050P	900
METHOD	101B

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Field Sheet No:— 49348

Line No.:— 072

Project/Charge/ Despatch Note No.:— YX20

Date:— 4-JUNE-73

0033

Any queries please quote Lab. Sheet Number:— 5799/22

SAMPLE	CU
Y083.00/101P	145
Y083.00/102P	310
Y083.00/103P	250
Y083.00/104P	160
Y083.00/105P	230
Y083.00/106P	85
Y083.00/107P	40
Y083.00/108P	115
Y083.00/109P	80
Y083.00/110P	300
METHOD	101B

WARNING - THIS IS NOT A PAPER NOTE. ALTHOUGH, KEEPING IT CLEAN OF

Any queries please quote Lab. Sheet Number:— 5799/20

0034

SAMPLE	CU
Y083.00/001P	75
Y083.00/002P	45
Y083.00/003P	85
Y083.00/004P	25
Y083.00/005P	20
Y083.00/006P	30
Y083.00/007P	165
Y083.00/008P	45
Y083.00/009P	15
Y083.00/010P	5
Y083.00/011P	15
Y083.00/012P	15
Y083.00/013P	15
Y083.00/014P	15
Y083.00/015P	35
Y083.00/016P	15
Y083.00/017P	65
Y083.00/018P	460
Y083.00/019P	25
Y083.00/020P	5
Y083.00/021P	5
Y083.00/022P	15
Y083.00/023P	2650
Y083.00/024P	440
Y083.00/025P	750
Y083.00/026P	700
Y083.00/027P	400
Y083.00/028P	170
Y083.00/029P	2600
Y083.00/030P	130
Y083.00/031P	10
Y083.00/032P	20
Y083.00/033P	30
Y083.00/034P	35
Y083.00/035P	640
Y083.00/036P	350
Y083.00/037P	175
Y083.00/038P	45
Y083.00/039P	20
Y083.00/040P	110
Y083.00/041P	195
Y083.00/042P	110
Y083.00/043P	350
Y083.00/044P	610
Y083.00/045P	470
Y083.00/046P	820
Y083.00/047P	600
Y083.00/048P	770
Y083.00/049P	610
Y083.00/050P	125
METHOD	1013

FS no. 493464
Line No 072
YX 20

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Field Sheet No:— 49325

Line No.:— 051.60

Project/Charge/ Despatch Note No.:— YX21

Date:— 4-JUNE-73

0038

Any queries please quote Lab. Sheet Number:— 5799/19

SAMPLE	CU
Y082.50/051P	2200
Y082.50/052P	2100
Y082.50/053P	1950
Y082.50/054P	1850
METHOD	101B

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Date:— 4-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/18

0036

SAMPLE	CU	
Y082.50/001P	40	
Y082.50/002P	70	
Y082.50/003P	65	
Y082.50/004P	180	
Y082.50/005P	60	
Y082.50/006P	350	
Y082.50/007P	400	
Y082.50/008P	175	
Y082.50/009P	135	
Y082.50/010P	25	
Y082.50/011P	160	
Y082.50/012P	610	
Y082.50/013P	810	
Y082.50/014P	495	
Y082.50/015P	215	
Y082.50/016P	80	
Y082.50/017P	210	
Y082.50/018P	210	
Y082.50/019P	40	
Y082.50/020P	15	
Y082.50/021P	15	
Y082.50/022P	5	
Y082.50/023P	5	
Y082.50/024P	5	
Y082.50/025P	35	
Y082.50/026P	10	
Y082.50/027P	100	
Y082.50/028P	75	
Y082.50/029P	40	
Y082.50/030P	15	
Y082.50/031P	10	
Y082.50/032P	15	
Y082.50/033P	15	
Y082.50/034P	35	
Y082.50/035P	40	
Y082.50/036P	30	
Y082.50/037P	535	
Y082.50/038P	2300	
Y082.50/039P	1700	
Y082.50/040P	2100	
Y082.50/041P	2500	.25%
Y082.50/042P	2600	
Y082.50/043P	1850	
Y082.50/044P	1650	
Y082.50/045P	1750	
Y082.50/046P	2150	
Y082.50/047P	2450	
Y082.50/048P	2950	.27%
Y082.50/049P	2600	
Y082.50/050P	2300	
METHOD	101B	

PS no. 49349
Line no. 051.60.
YX21

WARNING NOTICE - THIS IS NOT A PATENT. KEEP IT CLEAN OF OTHER NOTE

Telephone: 74 2566 • Telegrams: "Exserv" Perth

Date:— 4-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/17

0037

SAMPLE	CU
Y080•60/051P	40
Y080•60/052P	50
Y080•60/053P	20
Y080•60/054P	20
Y080•60/055P	15
Y080•60/056P	15
Y080•60/057P	15
Y080•60/058P	20
Y080•60/059P	55
Y080•60/060P	85
Y080•60/061P	40
Y080•60/062P	25
Y080•60/063P	20
Y080•60/064P	30
Y080•60/065P	55
Y080•60/066P	65
Y080•60/067P	45
Y080•60/068P	15
Y080•60/069P	15
Y080•60/070P	25
Y080•60/071P	25
Y080•60/072P	45
Y080•60/073P	230
Y080•60/074P	65
Y080•60/075P	15
Y080•60/076P	5
Y080•60/077P	5
Y080•60/078P	5
Y080•60/079P	5
Y080•60/080P	5
Y080•60/081P	5
Y080•60/082P	5
Y080•60/083P	15
Y080•60/084P	20
Y080•60/085P	190
Y080•60/086P	135
Y080•60/087P	95
Y080•60/088P	55
Y080•60/089P	55
Y080•60/090P	75
Y080•60/091P	85
Y080•60/092P	80
Y080•60/093P	80
Y080•60/094P	75
Y080•60/095P	980
Y080•60/096P	390
Y080•60/097P	125
Y080•60/098P	75
Y080•60/099P	55
Y080•60/100P	75
METHOD	101B

FSNO. 49343

LINENO. 072

YX19

ALL ENQUIRIES AND CORRESPONDENCE TO BE ADDRESSED TO THE ANALYSTS, NOT TO ANY OTHER MEMBER OF THE STAFF

Date:— 4-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/16

SAMPLE	CU
Y080•60/001P	365
Y080•60/002P	135
Y080•60/003P	185
Y080•60/004P	240
Y080•60/005P	300
Y080•60/006P	360
Y080•60/007P	940
Y080•60/008P	3500 .35%
Y080•60/009P	660
Y080•60/010P	3100 .31%
Y080•60/011P	2200
Y080•60/012P	970
Y080•60/013P	1950
Y080•60/014P	2600 .26%
Y080•60/015P	1500
Y080•60/016P	2200
Y080•60/017P	4600 .46%
Y080•60/018P	1450
Y080•60/019P	2000
Y080•60/020P	2750
Y080•60/021P	2500 .27%
Y080•60/022P	2950
Y080•60/023P	2100
Y080•60/024P	2200
Y080•60/025P	1600
Y080•60/026P	1300
Y080•60/027P	1350
Y080•60/028P	740
Y080•60/029P	1600
Y080•60/030P	1600
Y080•60/031P	1700
Y080•60/032P	780
Y080•60/033P	1600
Y080•60/034P	660
Y080•60/035P	1400
Y080•60/036P	1200
Y080•60/037P	820
Y080•60/038P	660
Y080•60/039P	330
Y080•60/040P	90
Y080•60/041P	150
Y080•60/042P	135
Y080•60/043P	220
Y080•60/044P	260
Y080•60/045P	900
Y080•60/046P	360
Y080•60/047P	105
Y080•60/048P	340
Y080•60/049P	50
Y080•60/050P	75
METHOD	101B

0038

FSno. 4932

Lno 072

YX 19

WARNING NOTICE - THIS IS NOT A PAPER TOWEL - WHEN ANNOTATING, KEEP IT CLEAN OF GREASE AND OIL

FORM S34

LABTECH PTY. LTD.
ANALYSTS
(Formerly Analytical Division of Sampey Exploration Services)
[illegible] Great Eastern Highway, Midland
P.O. Box U1938, Perth, Western Australia, 6001
Telephone: [illegible] 74 2566 • Telegrams: "Exserv" Perth

Field Sheet No:— 49413

Line No.:— 023

Project/Charge/ Despatch Note No.:— YX26

Date:— 4-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/15

SAMPLE	CU
Y69,50/101P	50
Y69,50/102P	40
Y69,50/103P	25
ETHOD	101B

WARNING - THIS IS NOT A PERMANENT RECORD - WHEN ANALYSING TEMP OF 61

Box U1938, Western Australia 6001
Telephone: 74 2566 • Telegrams: "Exserv" Perth

Despatch Note No.:—

Date:— 4-JUNE-73

— Any queries please quote Lab. Sheet Number:— 5799/14

SAMPLE	CU
Y069.50/051P	1750
Y069.50/052P	2500
Y069.50/053P	2900
Y069.50/054P	2250
Y069.50/055P	840
Y069.50/056P	1400
Y069.50/057P	500
Y069.50/058P	980
Y069.50/059P	1500
Y069.50/060P	1450
Y069.50/061P	630
Y069.50/062P	850
Y069.50/063P	600
Y069.50/064P	650
Y069.50/065P	820
Y069.50/066P	950
Y069.50/067P	1500
Y069.50/068P	2000
Y069.50/069P	2400
Y069.50/070P	1200
Y069.50/071P	840
Y069.50/072P	1350
Y069.50/073P	1800
Y069.50/074P	1500
Y069.50/075P	2300
Y069.50/076P	3300
Y069.50/077P	2100
Y069.50/078P	1200
Y069.50/079P	1600
Y069.50/080P	1450
Y069.50/081P	2600
Y069.50/082P	3800
Y069.50/083P	4500
Y069.50/084P	1900
Y069.50/085P	1400
Y069.50/086P	640
Y069.50/087P	460
Y069.50/088P	740
Y069.50/089P	740
Y069.50/090P	770
Y069.50/091P	1450
Y069.50/092P	1550
Y069.50/093P	3800
Y069.50/094P	1700
Y069.50/095P	1350
Y069.50/096P	760
Y069.50/097P	620
Y069.50/098P	800
Y069.50/099P	1450
Y069.50/100P	370
METHOD	1018

0.27 %

0.33 %

0.345 %

0.389 %

0040

FSno 4942

Lno 023

YY 26

CAUTION NOTICE-THIS IS HIGH PAPER-WHEN ANNOTATING, KEEP IT CLEAR OF OTHER

Telegrams: "Exserv" Perth

Patch Note No:— A20

Date:— 4-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/13

	CU		
F			
50/001P	65		
50/002P	20		
50/003P	30		
50/004P	25		
50/005P	35		
50/006P	20		
50/007P	110		
50/008P	320		
50/009P	80		
50/010P	60		
50/011P	800		
50/012P	2600	55	
50/013P	3600		
50/014P	5100	0.352%	
50/015P	3000		
50/016P	3300	80	
50/017P	2100		
50/018P	1950		
50/019P	2950	90	
50/020P	3450		
50/021P	3700		
50/022P	3900		
50/023P	2700		
50/024P	2750	0.373%	
50/025P	4100		
50/026P	5150		
50/027P	5000	135	
50/028P	480		
50/029P	3800	140	
50/030P	6500		
50/031P	5700	0.451%	
50/032P	2750		
50/033P	3800	165	
50/034P	1700		
50/035P	3100	170	
50/036P	3000		
50/037P	2600	0.283%	
50/038P	2600		
50/039P	1900	190	
50/040P	2700		
50/041P	4400	195	
50/042P	4800		
50/043P	8100	0.43%	
50/044P	3200		
50/045P	2600	235	
50/046P	1600		
50/047P	1950		
50/048P	1450		
50/049P	2500	240 0.25%	
50/050P	1400		
METHOD	101B		

#S no 4941 0041

Ln 023

Yx 26

WARNING NOTICE - THIS IS NOT A PAPER-WHITE, ANGLO-SAXON, KEEP OFF THE GRASS, PLEASE DO NOT FOLD OR MUTILATE

Any queries please quote Lab. Sheet Number:— 5799/12

SAMPLE	CU
Y068.00/051P	1700
Y068.00/052P	1250
Y068.00/053P	680
Y068.00/054P	310
Y068.00/055P	175
Y068.00/056P	70
Y068.00/057P	40
Y068.00/058P	520
Y068.00/059P	45
Y068.00/060P	65
Y068.00/061P	600
Y068.00/062P	620
Y068.00/063P	610
Y068.00/064P	1500
Y068.00/065P	840
Y068.00/066P	950
Y068.00/067P	940
Y068.00/068P	710
Y068.00/069P	265
Y068.00/070P	160
Y068.00/071P	130
Y068.00/072P	70
Y068.00/073P	85
Y068.00/074P	60
Y068.00/075P	15
Y068.00/076P	25
Y068.00/077P	20
Y068.00/078P	20
Y068.00/079P	30
Y068.00/080P	25
Y068.00/081P	35
Y068.00/082P	25
Y068.00/083P	15
Y068.00/084P	20
Y068.00/085P	20
Y068.00/086P	15
Y068.00/087P	20
Y068.00/088P	15
Y068.00/089P	15
Y068.00/090P	15
Y068.00/091P	10
Y068.00/092P	25
Y068.00/093P	15
Y068.00/094P	15
Y068.00/095P	15
Y068.00/096P	15
Y068.00/097P	20
Y068.00/098P	20
Y068.00/099P	25
Y068.00/100P	40
METHOD	101B

FS no. 44046
C/no. 024.16
XX 14.
4 June.

WARNING NOTICE—THIS IS NOW PAPER-WEAN AMMONIATING. KEEP IT CLEAN OF OTHER MSS

FORM S34

FOR METHOD DETAILS SEE PRICE LIST

Telephone: 74 2566 • Telegrams: "Exserv" Perth

Date:— 4-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/11

SAMPLE	CU
Y068.00/001P	5400
Y068.00/002P	5600
Y068.00/003P	535
Y068.00/004P	75
Y068.00/005P	70
Y068.00/006P	1200
Y068.00/007P	370
Y068.00/008P	180
Y068.00/009P	70
Y068.00/010P	25
Y068.00/011P	15
Y068.00/012P	25
Y068.00/013P	25
Y068.00/014P	15
Y068.00/015P	10
Y068.00/016P	15
068.00/017P	25
Y068.00/018P	10
Y068.00/019P	5
068.00/020P	5
Y068.00/021P	10
068.00/022P	10
068.00/023P	30
068.00/024P	20
068.00/025P	10
068.00/026P	20
068.00/027P	15
068.00/028P	40
068.00/029P	520
068.00/030P	25
068.00/031P	15
068.00/032P	50
068.00/033P	95
068.00/034P	275
068.00/035P	115
068.00/036P	390
068.00/037P	250
068.00/038P	215
068.00/039P	120
068.00/040P	80
068.00/041P	10
068.00/042P	10
068.00/043P	15
068.00/044P	10
068.00/045P	40
068.00/046P	110
068.00/047P	65
068.00/048P	1100
068.00/049P	2750
068.00/050P	2600
METHOD	101B

0043

FSm 44045
Lu No. 02410
XX14

WARNING - THIS IS NOT A PAPER-WRAPPED ANHYDROUS, ICELIP IT CLEAN OF OTHER MA

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237 Great Eastern Highway, Midland

G.P.O. Box U1938, Perth, Western Australia, 6001

Telephone: 74 2566 • Telegrams: "Exserv" Perth

30-MAY-73

Field Sheet No:— 44072

Line No.:— 025•60

Project/Charge/ Despatch Note No.:— YX12

Date:— SML717 0044

Any queries please quote Lab. Sheet Number:— 5799/10

SAMPLE	CU
Y067•80/075P	1650
Y067•80/076P	1600
Y067•80/077P	1900
067•80/078P	1500
Y067•80/079P	940
067•80/080P	860
067•80/081P	780
067•80/082P	620
067•80/083P	760
067•80/084P	700
067•80/085P	390
067•80/086P	275
067•80/087P	200
067•80/088P	260
067•80/089P	195
067•80/090P	190
067•80/091P	140
67•80/092P	210
67•80/093P	105
067•80/094P	75
67•80/095P	640
67•80/096P	385
067•80/097P	240
67•80/098P	185
067•80/100P	145
67•80/101P	70
67•80/102P	140
67•80/103P	130
67•80/104P	85

WARNING - THIS IS NOT A PLEASURE - YOU ARE NOT AUTHORISED, EXCEPT BY DULEAN

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Telephone: 74 2566 • Telegrams: "Exserv" Perth

30-MAY-73

Field Sheet No:— 44047

Line No.:— 024.50

Project/Charge/ Despatch Note No.:— YX15

Date:— SML717

Any queries please quote Lab. Sheet Number:— 5799/9

0045

SAMPLE	CU
Y067.40/001P	1400
Y067.40/002P	85
Y067.40/003P	20
Y067.40/004P	25
Y067.40/005P	20
Y067.40/006P	25
Y067.40/007P	20
Y067.40/008P	20
Y067.40/009P	90
Y067.40/010P	315
Y067.40/011P	250
Y067.40/012P	1250
Y067.40/013P	980
Y067.40/014P	640
Y067.40/015P	910
Y067.40/016P	700
Y067.40/017P	680
Y067.40/018P	3800
Y067.40/019P	1950
Y067.40/020P	2050
Y067.40/021P	1500
Y067.40/022P	860
Y067.40/023P	1100
Y067.40/024P	180
Y067.40/025P	260
Y067.40/026P	95
Y067.40/027P	75
Y067.40/028P	60
Y067.40/029P	45
METHOD	101B

WARNING: THIS SIGN IS NOT TO BE REMOVED. KEEP IT CLEAN AND LEGIBLE

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237 Great Eastern Highway, Midland

G.P.O. Box U1938, Perth, Western Australia, 6001

Telephone: 74 2566 • Telegrams: "Exserv" Perth

30-MAY-73

Field Sheet No:— 44075

Line No.:— 024•80

Project/Charge/ Despatch Note No.:— YX13 0046

Date:— SML717

Any queries please quote Lab. Sheet Number:— 5799/8

SAMPLE	CU
Y067•00/101P	40
Y067•00/102P	10
Y067•00/103P	20
Y067•00/104P	15
Y067•00/105P	10
Y067•00/106P	55
Y067•00/107P	15
Y067•00/108P	15
Y067•00/109P	20
Y067•00/110P	110
Y067•00/111P	580
Y067•00/112P	490
Y067•00/113P	110
Y067•00/114P	295
METHOD	101B

WARNING NOTICE-THIS IS NOT A PAPER-WHEN AMOUNTS ARE STATED, KEE

Date:—

Any queries please quote Lab. Sheet Number:— 5799/7

SAMPLE	CU
Y067.00/051P	15
Y067.00/052P	20
Y067.00/053P	25
Y067.00/054P	65
Y067.00/055P	25
Y067.00/056P	115
Y067.00/057P	810
Y067.00/058P	1400
Y067.00/059P	1450
Y067.00/060P	1350
Y067.00/061P	920
Y067.00/062P	850
Y067.00/063P	900
Y067.00/064P	910
Y067.00/065P	330
Y067.00/066P	105
Y067.00/067P	125
Y067.00/068P	55
Y067.00/069P	50
Y067.00/070P	55
Y067.00/071P	20
Y067.00/072P	15
Y067.00/073P	10
Y067.00/074P	20
Y067.00/075P	115
Y067.00/076P	30
Y067.00/077P	25
Y067.00/078P	15
Y067.00/079P	15
Y067.00/080P	25
Y067.00/081P	15
Y067.00/082P	65
Y067.00/083P	35
Y067.00/084P	15
Y067.00/085P	55
Y067.00/086P	30
Y067.00/087P	35
Y067.00/088P	20
Y067.00/089P	5
Y067.00/090P	165
Y067.00/091P	15
Y067.00/092P	15
Y067.00/093P	55
Y067.00/094P	175
Y067.00/095P	35
Y067.00/096P	60
Y067.00/097P	20
Y067.00/098P	20
Y067.00/099P	15
Y067.00/100P	155
METHOD	1018

0047
FS NO. 44074
LIM NO. 024 80
YX13
SML 717

WARNING NOTICE - THIS IS NOT A PEER-WHITE AMENDMENT, KEEP AT ALL TIMES OF OTHER USER

FORM S34

FOR METHOD DETAILS SEE PRICE

237 Great Eastern Highway, Midland
G.P.O., Box U1938, Perth, Western Australia, 6001
Telephone: 74 2566 • Telegrams: "Exserv" Perth

Project/Charge/
Despatch Note No.:— YX13 Line no. 02480

Date:— SML717 FS No. 44073

Any queries please quote Lab. Sheet Number:— 5799/6

0048

SAMPLE	CU
Y067.00/001P	4300
Y067.00/002P	6700
Y067.00/003P	1900
Y067.00/004P	2600
Y067.00/005P	220
Y067.00/006P	1300
Y067.00/007P	360
Y067.00/008P	140
Y067.00/009P	920
Y067.00/010P	55
Y067.00/011P	25
Y067.00/012P	25
Y067.00/013P	125
Y067.00/014P	15
Y067.00/015P	20
Y067.00/016P	10
Y067.00/017P	10
Y067.00/018P	45
Y067.00/019P	15
Y067.00/020P	10
Y067.00/021P	25
Y067.00/022P	20
Y067.00/023P	30
Y067.00/024P	45
Y067.00/025P	40
Y067.00/026P	35
Y067.00/027P	15
Y067.00/028P	185
Y067.00/029P	235
Y067.00/030P	175
Y067.00/031P	200
Y067.00/032P	75
Y067.00/033P	45
Y067.00/034P	25
Y067.00/035P	10
Y067.00/036P	20
Y067.00/037P	50
Y067.00/038P	430
Y067.00/039P	315
Y067.00/040P	140
Y067.00/041P	165
Y067.00/042P	860
Y067.00/043P	880
Y067.00/044P	750
Y067.00/045P	700
Y067.00/046P	435
Y067.00/047P	255
Y067.00/048P	250
Y067.00/049P	160
Y067.00/050P	75
METHOD	101B

WARNING — THIS IS NOT A PERMANENT — WHEN ANOTHER KEEP IT CLEAN OF OTHER

74 2566 • Telegrams: "Exserv" Perth

Date:— SNL717

Any queries please quote Lab. Sheet Number:— 5799/S

30 May 73

FS 49410
Line 014
Y x 25

SAMPLE	CU
Y055.40/051P	25
Y055.40/052P	40
Y055.40/053P	75
Y055.40/054P	90
Y055.40/055P	150
Y055.40/056P	380
Y055.40/057P	300
Y055.40/058P	3600
Y055.40/059P	7500
Y055.40/060P	1200
Y055.40/061P	980
Y055.40/062P	360
Y055.40/063P	2200
Y055.40/064P	1300
Y055.40/065P	60
Y055.40/066P	50
Y055.40/067P	880
Y055.40/068P	930
Y055.40/069P	330
Y055.40/070P	110
Y055.40/071P	50
Y055.40/072P	55
Y055.40/073P	45
Y055.40/074P	35
Y055.40/075P	15
Y055.40/076P	15
Y055.40/077P	35
Y055.40/078P	430
Y055.40/079P	125
Y055.40/080P	1550
Y055.40/081P	900
Y055.40/082P	475
Y055.40/083P	490
Y055.40/084P	390
Y055.40/085P	145
Y055.40/086P	135
Y055.40/087P	125
Y055.40/088P	40
Y055.40/089P	1200
Y055.40/090P	390
Y055.40/091P	1200
Y055.40/092P	335
Y055.40/093P	145
Y055.40/094P	60
Y055.40/095P	55
Y055.40/096P	40
Y055.40/097P	85
Y055.40/098P	55
Y055.40/099P	100
Y055.40/100P	275
METHOD	1018

15' - 419

WARNING - THIS IS NOT PAPER - WHEN ANALYSIS ARE COMPLETE KEEP IT CLEAN OF CHEMICALS NOT

30 May 73

FS no. 49409
Line 014
Y6 25

SAMPLE	CU
Y055.40/001P	200
Y055.40/002P	130
Y055.40/003P	185
Y055.40/004P	75
Y055.40/005P	55
Y055.40/006P	30
Y055.40/007P	10
Y055.40/008P	10
Y055.40/009P	15
Y055.40/010P	50
Y055.40/011P	15
Y055.40/012P	20
Y055.40/013P	10
Y055.40/014P	5
Y055.40/015P	10
Y055.40/016P	15
Y055.40/017P	25
Y055.40/018P	45
Y055.40/019P	25
Y055.40/020P	5
Y055.40/021P	10
Y055.40/022P	5
Y055.40/023P	5
Y055.40/024P	15
Y055.40/025P	25
Y055.40/026P	1350
Y055.40/027P	1750
Y055.40/028P	55
Y055.40/029P	100
Y055.40/030P	240
Y055.40/031P	95
Y055.40/032P	240
Y055.40/033P	130
Y055.40/034P	55
Y055.40/035P	30
Y055.40/036P	15
Y055.40/037P	10
Y055.40/038P	15
Y055.40/039P	15
Y055.40/040P	15
Y055.40/041P	25
Y055.40/042P	40
Y055.40/043P	45
Y055.40/044P	10
Y055.40/045P	10
Y055.40/046P	65
Y055.40/047P	85
Y055.40/048P	20
Y055.40/049P	720
Y055.40/050P	40
METHOD	101B

WARNING - THIS IS NOT PAPER-WHEN ANNOTATING, KEEP TO CLEAR OF OTHER DATA

SAMPEY EXPLORATION SERVICES
237 Great Eastern Highway, Midland,
Western Australia, 6056
P.O. Box 134, Midland
Phone: 74 2566 Cables: Exserv Perth

Field Sheet No:— 43003
Line No.:— 076
0051
Project/Charge/ Despatch Note No.:— YX05
Date:— 8AL717

Any queries please quote Lab. Sheet Number:— 5731/1

SAMPLE	CU
Y076.50/001P	15
Y076.50/002P	15
Y076.50/003P	15
Y076.50/004P	15
Y076.50/005P	25
Y076.50/006P	50
Y076.50/007P	60
Y076.50/008P	35
Y076.50/009P	65
Y076.50/010P	470
Y076.50/011P	95
Y076.50/012P	10
Y076.50/013P	20
Y076.50/014P	25
Y076.50/015P	15
Y076.50/016P	15
Y076.50/017P	15
Y076.50/018P	15
Y076.50/019P	15
Y076.50/020P	5
Y076.50/021P	5
Y076.50/022P	35
Y076.50/023P	75
Y076.50/024P	55
Y076.50/025P	40
Y076.50/026P	5
Y076.50/027P	5
Y076.50/028P	15
METHOD	1015

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SAMPEY EXPLORATION SERVICES
237 Great Eastern Highway, Midland,
Western Australia, 6056
P.O. Box 134, Midland
Phone: 74 2566 Cables: Exserv Perth

Field Sheet No:— 43994
Line No.:— 120
Project/Charge/ Despatch Note No.:— YX06 0052
Date:— SNL717

Any queries please quote Lab. Sheet Number:— 5731/19

SAMPLE	CU
Y086.00/001P	95
Y086.00/002P	40
Y086.00/003P	30
Y086.00/004P	25
Y086.00/005P	15
Y086.00/006P	20
Y086.00/007P	15
Y086.00/008P	15
Y086.00/009P	15
Y086.00/010P	15
Y086.00/011P	10
Y086.00/012P	15
Y086.00/013P	5
Y086.00/014P	90
Y086.00/015P	3700
Y086.00/016P	2400
Y086.00/017P	2200
Y086.00/018P	3550
Y086.00/019P	3000
Y086.00/020P	5300
Y086.00/021P	4700
Y086.00/022P	3250
Y086.00/023P	3500
Y086.00/024P	1900
Y086.00/025P	2650
Y086.00/026P	1750
Y086.00/027P	1550
Y086.00/028P	1350
Y086.00/029P	1600
Y086.00/030P	1500
Y086.00/031P	880
Y086.00/032P	1250
Y086.00/033P	1200
Y086.00/034P	750
Y086.00/035P	275
Y086.00/036P	260
Y086.00/037P	880
Y086.00/038P	1200
Y086.00/039P	390
Y086.00/040P	205
Y086.00/041P	290
Y086.00/042P	205
Y086.00/043P	170
Y086.00/044P	400
Y086.00/045P	85
Y086.00/046P	75
Y086.00/047P	150
Y086.00/048P	170
Y086.00/049P	280
Y086.00/050P	220
METHOD	1018

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FOR METHOD DETAILS SEE PRICE LIST

SAMPEY EXPLORATION SERVICES
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Western Australia, 6056
P.O. Box 134, Midland
Phone: 74 2566 Cables: Exserv Perth

Field Sheet No:— 43395
Line No.:— 120
Project/Charge/ Despatch Note No.:— YX06 0053
Date:— 5.6.717

Any queries please quote Lab. Sheet Number:— 5731

SAMPLE	CU
Y086.00/051P	55
Y086.00/052P	50
Y086.00/053P	50
Y086.00/054P	55
Y086.00/055P	30
Y086.00/056P	30
Y086.00/057P	45
Y086.00/058P	35
Y086.00/059P	65
Y086.00/060P	25
Y086.00/061P	20
Y086.00/062P	35
Y086.00/063P	35
Y086.00/064P	40
Y086.00/065P	20
Y086.00/066P	20
Y086.00/067P	20
Y086.00/068P	25
Y086.00/069P	35
Y086.00/070P	355
Y086.00/071P	85
Y086.00/072P	20
Y086.00/073P	15
Y086.00/074P	10
Y086.00/075P	10
Y086.00/076P	10
Y086.00/077P	10
Y086.00/078P	15
Y086.00/079P	10
Y086.00/080P	10
Y086.00/081P	10
Y086.00/082P	25
Y086.00/083P	30
Y086.00/084P	15
Y086.00/085P	25
Y086.00/086P	10
Y086.00/087P	15
Y086.00/088P	20
Y086.00/089P	15
Y086.00/090P	10
Y086.00/091P	10
Y086.00/092P	10
Y086.00/093P	10
Y086.00/094P	5
Y086.00/095P	10
Y086.00/096P	10
METHOD	1018

15
75' - 125'

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SAMPEY EXPLORATION SERVICES
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P.O. Box 134, Midland
Phone: 74 2566 Cables: Exserv Perth

Field Sheet No:— 44063
Line No.:— 084 0054
Project/Charge/ Despatch Note No.:— YX07
Date:— SML717

Any queries please quote Lab. Sheet Number:— 5731/7

SAMPLE	CU
Y084.00/001P	80
Y084.00/002P	40
Y084.00/003P	25
Y084.00/004P	25
Y084.00/005P	90
Y084.00/006P	40
Y084.00/007P	480
Y084.00/008P	240
Y084.00/009P	55
Y084.00/010P	35
Y084.00/011P	65
Y084.00/012P	35
Y084.00/013P	25
Y084.00/014P	275
Y084.00/015P	50
Y084.00/016P	285
Y084.00/017P	335
Y084.00/018P	215
Y084.00/019P	640
Y084.00/020P	280
Y084.00/021P	210
Y084.00/022P	2100
Y084.00/023P	4500
Y084.00/024P	335
Y084.00/025P	510
Y084.00/026P	360
Y084.00/027P	160
Y084.00/028P	80
Y084.00/029P	60
Y084.00/030P	115
Y084.00/031P	60
Y084.00/032P	120
Y084.00/033P	105
Y084.00/034P	125
Y084.00/035P	45
Y084.00/036P	50
Y084.00/037P	85
Y084.00/038P	590
Y084.00/039P	150
Y084.00/040P	100
Y084.00/041P	100
Y084.00/042P	65
Y084.00/043P	80
Y084.00/044P	100
Y084.00/045P	240
Y084.00/046P	95
Y084.00/047P	70
Y084.00/048P	60
Y084.00/049P	30
Y084.00/050P	180
METHOD	1018

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SAMPEY EXPLORATION SERVICES
237 Great Eastern Highway, Midland,
Western Australia, 6056
P.O. Box 134, Midland
Phone: 74 2566 Cables: Exserv Perth

Field Sheet No:— 44064
Line No.:— 084 0055
Project/Charge/ Despatch Note No.:— YX07
Date:— 5JL717

Any queries please quote Lab. Sheet Number:— 5731/2

SAMPLE	CU
Y084.00/051P	2200
Y084.00/052P	850
Y084.00/053P	320
Y084.00/054P	360
Y084.00/055P	245
Y084.00/056P	125
Y084.00/057P	110
Y084.00/058P	110
Y084.00/059P	250
Y084.00/060P	2600
Y084.00/061P	1300
Y084.00/062P	140
Y084.00/063P	70
Y084.00/064P	1200
Y084.00/065P	170
Y084.00/066P	65
Y084.00/067P	90
Y084.00/068P	65
Y084.00/069P	150
Y084.00/070P	75
Y084.00/071P	60
Y084.00/072P	40
Y084.00/073P	35
Y084.00/074P	15
Y084.00/075P	10
Y084.00/076P	15
Y084.00/077P	15
Y084.00/078P	15
Y084.00/079P	55
Y084.00/080P	95
Y084.00/081P	365
Y084.00/082P	290
Y084.00/083P	400
Y084.00/084P	110
Y084.00/085P	165
Y084.00/086P	95
Y084.00/087P	175
Y084.00/088P	195
Y084.00/089P	235
Y084.00/090P	430
Y084.00/091P	1250
Y084.00/092P	1300
Y084.00/093P	700
Y084.00/094P	1650
Y084.00/095P	2700
Y084.00/096P	1350
Y084.00/097P	3000
Y084.00/098P	1700
Y084.00/099P	1600
Y084.00/100P	760
METHOD	1018

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SAMPEY EXPLORATION SERVICES
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Phone: 74 2566 Cables: Exserv Perth

Field Sheet No:— 44065
Line No.:— 084 0056
Project/Charge/ Despatch Note No.:— YX07
Date:— SAL717

Any queries please quote Lab. Sheet Number:— 5731 /1

SAMPLE	CU	Sludge						
Y084.00/101P	450							
Y084.00/102P	310	450						
Y084.00/103P	580	1150						
Y084.00/104P	610	860						
Y084.00/105P	640	950						
Y084.00/106P	630	820						
Y084.00/107P	550	670						
Y084.00/108P	510	720						
Y084.00/109P	720	1900						
Y084.00/110P	700	1400						
Y084.00/102S	450							
Y084.00/103S	1150							
Y084.00/104S	860							
Y084.00/105S	950							
Y084.00/106S	820							
Y084.00/107S	670							
Y084.00/108S	720							
Y084.00/109S	1900							
Y084.00/110S	1400							
METHOD	101B							

Sludge

See graph.

300 → 1700

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SAMPEY EXPLORATION SERVICES
237 Great Eastern Highway, Midland,
Western Australia, 6056
P.O. Box 134, Midland
Phone: 74 2566 Cables: Exserv Perth

Field Sheet No:— 44139
Line No.:— 084
Project/Charge/ Despatch Note No.:— YX03 0057
Date:— 9 JUL 717

Any queries please quote Lab. Sheet Number:— 5731 /6

SAMPLE	CU
Y081.50/051P	60
Y081.50/052P	360
Y081.50/053P	365
Y081.50/054P	340
Y081.50/055P	285
Y081.50/056P	275
Y081.50/057P	280
Y081.50/058P	260
Y081.50/059P	285
Y081.50/060P	200
Y081.50/061P	120
Y081.50/062P	110
Y081.50/063P	135
Y081.50/064P	110
Y081.50/065P	45
Y081.50/066P	75
Y081.50/067P	60
Y081.50/068P	195
Y081.50/069P	390
Y081.50/070P	140
Y081.50/071P	80
Y081.50/072P	140
Y081.50/073P	45
Y081.50/074P	40
Y081.50/075P	65
Y081.50/076P	40
Y081.50/077P	370
Y081.50/078P	485
Y081.50/079P	200
Y081.50/080P	460
Y081.50/081P	610
Y081.50/082P	40
Y081.50/083P	45
Y081.50/084P	35
Y081.50/085P	70
Y081.50/086P	50
Y081.50/087P	120
Y081.50/088P	250
Y081.50/089P	275
Y081.50/090P	320
Y081.50/091P	310
Y081.50/092P	235
Y081.50/093P	320
Y081.50/094P	100
Y081.50/095P	20
Y081.50/096P	15
Y081.50/097P	95
Y081.50/098P	220
Y081.50/099P	150
Y081.50/100P	65
METHOD	1018

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FOR METHOD DETAILS SEE PRICE LIST

SAMPEY EXPLORATION SERVICES
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P.O. Box 134, Midland
Phone: 74 2566 Cables: Exserv Perth

Field Sheet No:— 44138
Line No.:— 034
Project/Charge/ Despatch Note No.:— YX03 0058
Date:— SML717

Any queries please quote Lab. Sheet Number:— 5731/5

SAMPLE	CU						
Y081.50/001P	25						
Y081.50/002P	15						
Y081.50/003P	35						
Y081.50/004P	15						
Y081.50/005P	25						
Y081.50/006P	350						
Y081.50/007P	75						
Y081.50/008P	30						
Y081.50/009P	130						
Y081.50/010P	195						
Y081.50/011P	310						
Y081.50/012P	880						
Y081.50/013P	4000						
Y081.50/014P	2850						
Y081.50/015P	2200						
Y091.50/016P	4700						
Y081.50/017P	4147	6/31350 527	3/22300 72	0.72% (15')			
Y081.50/018P	3600						
Y081.50/019P	1800						
Y081.50/020P	1750						
Y081.50/021P	2300						
Y081.50/022P	1400						
Y081.50/023P	920						
Y081.50/024P	780						
Y081.50/025P	2900						
Y081.50/026P	1950						
Y081.50/027P	2000						
Y081.50/028P	1450						
Y081.50/029P	2000						
Y081.50/030P	1900						
Y081.50/031P	1300						
Y081.50/032P	1250						
Y081.50/033P	1360						
Y081.50/034P	900						
Y081.50/035P	1250						
Y081.50/036P	1500						
Y081.50/037P	1090						
Y081.50/038P	900						
Y081.50/039P	1550						
Y081.50/040P	1450						
Y081.50/041P	1350						
Y081.50/042P	960						
Y081.50/043P	640						
Y081.50/044P	700						
Y081.50/045P	860						
Y091.50/046P	1000						
Y081.50/047P	830						
Y081.50/048P	780						
Y081.50/049P	920						
Y081.50/050P	1300						
METHOD	1018						

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SAMPEY EXPLORATION SERVICES
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Perth

Field Sheet No:— 43996
Line No.:— 084
Project/Charge/ Despatch Note No.:— YX09 0059
Date:— SML717

Any queries please quote Lab. Sheet Number:— 5731

SAMPLE	CU
Y079.00/001P	25
Y079.00/002P	55
Y079.00/003P	140
Y079.00/004P	40
Y079.00/005P	10
Y079.00/006P	10
Y079.00/007P	10
Y079.00/008P	115
Y079.00/009P	100
Y079.00/010P	65
Y079.00/011P	125
Y079.00/012P	115
Y079.00/013P	50
Y079.00/014P	35
Y079.00/015P	50
Y079.00/016P	60
Y079.00/017P	70
Y079.00/018P	10
Y079.00/019P	25
Y079.00/020P	5
Y079.00/021P	85
Y079.00/022P	45
Y079.00/023P	25
Y079.00/024P	65
Y079.00/025P	20
Y079.00/026P	40
Y079.00/027P	5
Y079.00/028P	10
Y079.00/029P	15
Y079.00/030P	30
Y079.00/031P	115
Y079.00/032P	65
Y079.00/033P	30
Y079.00/034P	65
Y079.00/035P	65
Y079.00/036P	50
Y079.00/037P	30
Y079.00/038P	30
Y079.00/039P	10
Y079.00/040P	10
Y079.00/041P	5
Y079.00/042P	5
Y079.00/043P	10
Y079.00/044P	10
Y079.00/045P	5
Y079.00/046P	10
Y079.00/047P	10
Y079.00/048P	10
Y079.00/049P	60
Y079.00/050P	25
METHOD	101B

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SAMPEY EXPLORATION SERVICES
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Field Sheet No:— 43997
Line No.:— 084 0060
Project/Charge/ Despatch Note No.:— YX09
Date:— SML717

Any queries please quote Lab. Sheet Number:— 5731/3

SAMPLE	CU
Y079.00/051P	90
Y079.00/052P	20
Y079.00/053P	45
Y079.00/054P	25
Y079.00/055P	100
Y079.00/056P	30
Y079.00/057P	75
Y079.00/058P	75
Y079.00/059P	75
Y079.00/060P	220
Y079.00/061P	570
Y079.00/062P	250
Y079.00/063P	2950
Y079.00/064P	1800
Y079.00/065P	400
Y079.00/066P	460
Y079.00/067P	680
Y079.00/068P	360
Y079.00/069P	800
Y079.00/070P	680
Y079.00/071P	620
Y079.00/072P	2400
Y079.00/073P	800
Y079.00/074P	2200
Y079.00/075P	750
Y079.00/076P	1700
Y079.00/077P	1500
Y079.00/078P	850
Y079.00/079P	740
Y079.00/080P	880
Y079.00/081P	495
Y079.00/082P	290
Y079.00/083P	265
Y079.00/084P	185
Y079.00/085P	600
Y079.00/086P	1000
Y079.00/087P	145
Y079.00/088P	90
Y079.00/089P	80
Y079.00/090P	75
Y079.00/091P	85
Y079.00/092P	95
Y079.00/093P	55
Y079.00/094P	40
Y079.00/095P	50
Y079.00/096P	120
Y079.00/097P	115
Y079.00/098P	115
Y079.00/099P	130
Y079.00/100P	105
METHOD	1010

63
313

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Perth

Field Sheet No:— 43099
Line No.:— 064
Project/Charge/ Despatch Note No.:— YX09 0061
Date:— SEL717

Any queries please quote Lab. Sheet Number:— 5731/

SAMPLE	CU
Y079.00/101P	70
Y079.00/102P	80
Y079.00/103P	115
Y079.00/104P	100
Y079.00/105P	85
Y079.00/106P	95
Y079.00/107P	2600
Y079.00/108P	400
Y079.00/109P	620
Y079.00/110P	355
Y079.00/111P	95
Y079.00/112P	300
Y079.00/113P	110
Y079.00/114P	80
Y079.00/115P	45
Y079.00/116P	70
Y079.00/117P	95
Y079.00/118P	65
Y079.00/119P	75
Y079.00/120P	85
METHOD	1016

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LABTECH PTY. LTD.
ANALYSTS
(Formerly Analytical Division of Sampey Exploration Services)
237 Great Eastern Highway, Midland
G.P.O. Box U1938, Perth, Western Australia, 6001
Telephone: 74 2566 • Telegrams: "Exserv" Perth

Field Sheet No:— 44367

Line No.:— 634 0062

Project/Charge/ Despatch Note No.:— YX23

Date:— 5.11.77

Any queries please quote Lab. Sheet Number:— 5752

SAMPLE	CU
Y073o00/0[illegible]P	[illegible]
Y073o00/0032P	35
Y073o00/0033P	25
Y073o00/0034P	10
Y073o00/0035P	5
Y073o00/0036P	5
Y073o00/0037P	15
Y073o00/0038P	55
Y073o00/0039P	60
Y073o00/0040P	30
Y073o00/0011P	5
Y073o00/0012P	10
Y073o00/0013P	60
Y073o00/0014P	15
Y073o00/0015P	10
Y073o00/0016P	10
Y073o00/0017P	5
Y073o00/0018P	10
Y073o00/0019P	5
Y073o00/0020P	5
Y073o00/0021P	55
Y073o00/0022P	60
Y073o00/0023P	25
Y073o00/0024P	45
Y073o00/0025P	25
Y073o00/0026P	50
Y073o00/0027P	10
Y073o00/0028P	15
Y073o00/0029P	35
Y073o00/0030P	65
Y073o00/0031P	30
Y073o00/0032P	60
Y073o00/0033P	35
Y073o00/0034P	45
Y073o00/0035P	30
Y073o00/0036P	45
Y073o00/0037P	20
Y073o00/0038P	15
Y073o00/0039P	40
Y073o00/0040P	25
Y073o00/0041P	10
Y073o00/0042P	60
Y073o00/0043P	20
Y073o00/0044P	15
Y073o00/0045P	25
Y073o00/0046P	20
Y073o00/0047P	120
Y073o00/0048P	115
Y073o00/0049P	90
Y073o00/0050P	95
STD	101

FOR METHOD DETAILS SEE PRICE LIST

FORM S34

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ANALYSTS
(Formerly Analytical Division of Sampey Exploration Services)
237 Great Eastern Highway, Midland
G.P.O. Box U1938, Perth, Western Australia, 6001
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Field Sheet No:— 44068

Line No.:— 084 0063

Project/Charge/ Despatch Note No.:— YX11

Date:— SEL717

Any queries please quote Lab. Sheet Number:— 5752

SAMPLE	CU
Y073.00/051P	80
Y073.00/052P	55
Y073.00/053P	50
Y073.00/054P	25
Y073.00/055P	30
Y073.00/056P	35
Y073.00/057P	20
Y073.00/058P	30
Y073.00/059P	35
Y073.00/060P	45
Y073.00/061P	20
Y073.00/062P	30
Y073.00/063P	35
Y073.00/064P	35
Y073.00/065P	20
Y073.00/066P	20
Y073.00/067P	15
Y073.00/068P	15
Y073.00/069P	15
Y073.00/070P	15
Y073.00/071P	20
Y073.00/072P	45
Y073.00/073P	20
Y073.00/074P	25
Y073.00/075P	30
Y073.00/076P	40
Y073.00/077P	30
Y073.00/078P	55
Y073.00/079P	55
Y073.00/080P	50
Y073.00/081P	30
Y073.00/082P	25
Y073.00/083P	10
Y073.00/084P	15
Y073.00/085P	30
Y073.00/086P	60
Y073.00/087P	30
Y073.00/088P	25
Y073.00/089P	15
Y073.00/090P	15
Y073.00/091P	35
Y073.00/092P	20
Y073.00/093P	20
Y073.00/094P	25
Y073.00/095P	25
Y073.00/096P	15
Y073.00/097P	25
Y073.00/098P	25
Y073.00/099P	20
METHOD	1013

FORM S34

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ANALYSTS

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237 Great Eastern Highway, Midland

G.P.O. Box U1938, Perth, Western Australia, 6001

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Field Sheet No:— [illegible]

Line No.:— 034

Project/Charge/ Despatch Note No.:— YX11 0064

Date:— 5/12/77

Any queries please quote Lab. Sheet Number:— 5752/..

SAMPLE	CU
Y076.00/[illegible]P	205
Y076.00/[illegible]P	335
Y076.00/[illegible]P	215
Y076.00/[illegible]P	90
Y076.00/[illegible]P	360
Y076.00/[illegible]P	390
Y076.00/[illegible]P	490
Y076.00/[illegible]P	690
Y076.00/[illegible]P	290
Y076.00/[illegible]P	130
Y076.00/[illegible]P	355
Y076.00/[illegible]P	360
Y076.00/[illegible]P	365
Y076.00/[illegible]P	300
Y076.00/[illegible]P	200
Y076.00/[illegible]P	150
Y076.00/[illegible]P	180
Y076.00/[illegible]P	95
Y076.00/[illegible]P	160
Y076.00/[illegible]P	255
Y076.00/[illegible]P	620
Y076.00/[illegible]P	190
Y076.00/[illegible]P	150
Y076.00/[illegible]P	300
Y076.00/[illegible]P	210
Y076.00/[illegible]P	255
Y076.00/[illegible]P	200
Y076.00/[illegible]P	195
Y076.00/[illegible]P	210
Y076.00/[illegible]P	235
Y076.00/[illegible]P	110
Y076.00/[illegible]P	110
Y076.00/[illegible]P	95
Y076.00/[illegible]P	130
Y076.00/[illegible]P	135
Y076.00/[illegible]P	140
Y076.00/[illegible]P	230
Y076.00/[illegible]P	225
Y076.00/[illegible]P	200
Y076.00/[illegible]P	105
Y076.00/[illegible]P	185
Y076.00/[illegible]P	185
Y076.00/[illegible]P	110
Y076.00/[illegible]P	10
Y076.00/[illegible]P	15
Y076.00/[illegible]P	310
Y076.00/[illegible]P	400
Y076.00/[illegible]P	90
Y076.00/[illegible]P	15
Y076.00/[illegible]P	10
STD	1017

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G.P.O. Box U1938, Perth, Western Australia, 6001

Telephone: 74 2566 • Telegrams: "Exserv" Perth

Field Sheet No:— Rec'd Mar. 78 4000

Line No.:— 084 0065

Project/Charge/ Despatch Note No.:— YX10

Date:— SML717

Any queries please quote Lab. Sheet Number:— 3752

SAMPLE	CU
Y076.00/051P	15
Y076.00/052P	25
Y076.00/053P	75
Y076.00/054P	10
Y076.00/055P	10
Y076.00/056P	5
Y076.00/057P	5
Y076.00/058P	5
Y076.00/059P	5
Y076.00/060P	5
Y076.00/061P	5
Y076.00/062P	10
Y076.00/063P	55
Y076.00/064P	15
Y076.00/065P	25
Y076.00/066P	10
Y076.00/067P	10
Y076.00/068P	10
Y076.00/069P	5
Y076.00/070P	85
Y076.00/071P	60
Y076.00/072P	55
Y076.00/073P	65
Y076.00/074P	75
Y076.00/075P	105
Y076.00/076P	55
Y076.00/077P	30
Y076.00/078P	55
Y076.00/079P	25
Y076.00/080P	95
Y076.00/081P	35
Y076.00/082P	25
Y076.00/083P	30
Y076.00/084P	55
Y076.00/085P	30
Y076.00/086P	15
Y076.00/087P	20
Y076.00/088P	65
Y076.00/089P	95
Y076.00/090P	80
RE Y076.00/090P	1015

WARNING: SAMPLES ARE DISPOSED OF 30 DAYS AFTER REPORTING UNLESS OTHERWISE REQUESTED

FOR METHOD DETAILS SEE PRICE LIST

FIELD SAMPLE SHEET

FIELD COPY

SAMPEY EXPLORATION SER
237 Gt. Eastern Highway, M
Western Australia,
Phone: 74
Cables: Exserv

No 44066

Mark "X" here if data required on Results Sheet.

- [X] No. shown above
- [X] LINE 0841
- [X] Project/~~Charge~~/Despatch Note/No.
- [X] AREA SM1471

PHOTO RUN ____ No. ____

BEARING OF LINE ____

MAP SHEET ____

SAMPLED BY PMG

SAMPLE TYPE Channel Chips

DATE 11 APR 73 (DAY MONTH YEAR)

REMARKS: Channel Chips between Yx07-9

Calculate?

Small gouge

Sample No./Location/Footage
Y083.40/050Z
Y083.35/050Z
Y083.30/050Z
Y083.25/050Z
Y083.20/050Z
Y082.55/050Z
Y082.10/050Z
Y082.05/050Z
Y082.00/050Z
Y081.95/050Z
Y081.90/050Z
Y081.70/050Z
Y081.65/050Z
Y081.50/050Z
Y081.45/050Z
Y081.40/050Z
Y081.35/050Z
Y081.30/050Z
Y081.25/050Z
Y081.20/050Z
Y081.15/050Z
Y081.10/050Z
Y080.80/050Z
Y080.70/050Z
Y080.65/050Z
Y080.60/050Z
Y080.30/050Z
Y080.25/050Z
Y080.20/050Z
Y080.15/050Z
Y080.10/050Z
Y080.05/050Z
Y080.00/050Z
Y079.95/050Z
Y079.90/050Z
Y079.85/050Z
Y079.65/050Z
Y079.60/050Z

COMPLETE SAMPLE DESPATCH FORM (S24) FOR ANALYTICAL INSTRUCTIONS

USE ONE LINE CONSECUTIVELY FOR EACH

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2nd-May-73

Field Sheet No:— 44066

Line No.:— 084

Project/Charge/Despatch Note No.:— SML717

Date:— 5752/5

Any queries please quote Lab. Sheet Number:—

SAMPLE		CU
Y083.40/050Z	S	110
Y083.35/050Z	S	80
Y083.30/050Z	S	385
Y083.25/050Z	S	275
Y083.20/050Z	S	175
Y082.55/050Z	S	70
Y082.10/050Z	S	20
Y082.05/050Z	S	20
Y082.00/050Z	S	20
Y081.95/050Z	S	15
Y081.90/050Z	S	15
Y081.70/050Z	S	10
Y081.65/050Z	S	25
Y081.50/050Z	S	15
Y081.45/050Z	S	10
Y081.40/050Z	S	10
Y081.35/050Z	S	15
Y081.30/050Z	S	10
Y081.25/050Z	S	10
Y081.20/050Z	S	25
Y081.15/050Z	S	55
Y081.10/050Z	S	70
Y080.80/050Z	S	510
Y080.70/050Z	S	1800
Y080.65/050Z	S	22T
Y080.60/050Z	S	14T
Y080.30/050Z	S	1350
Y080.25/050Z	S	400
Y080.20/050Z	S	760
Y080.15/050Z	S	930
Y080.10/050Z	S	1800
Y080.05/050Z	S	1250
Y080.00/050Z	S	1450
Y079.95/050Z	S	610
Y079.90/050Z	S	760
Y079.85/050Z	S	1350
Y079.65/050Z	S	520
Y079.60/050Z	S	45
RETIOO	S	1018

MANGANESE ICP - THIS IS NOW A PAPER-WHEN ANALYSIS IS CLEARED IT WILL BE ADDED TO OUR OTHER DATA

0000

FIELD SAMPLE SHEET

FIELD COPY

SAMPEY EXPLORATION SERVICE
237 Gt. Eastern Highway, Midlar
Western Australia, 605
Phone: 74 256
Cables: Exserv Pert

No 49431

Mark "X" here if data required on Results Sheet

- [X] No. shown above
- [X] LINE 1132
- [ ] Project/Charge/Despatch Note/No.
- [X] AREA SHZ717

PHOTO RUN No.

BEARING OF LINE

MAP SHEET

SAMPLED BY PMG

SAMPLE TYPE Channel Chi

DATE 15 MAY 73 (DAY MONTH YEAR)

REMARKS	Sample No./Location/Footage
	Y088·00/05·0Z
	Y088·05/05·0Z
	Y088·10/05·0Z
	Y088·15/05·0Z
	Y088·20/05·0Z
	Y088·25/05·0Z
	Y088·30/05·0Z
	Y088·35/05·0Z
	Y088·40/05·0Z
	Y088·45/05·0Z
	Y088·50/05·0Z
	Y088·55/05·0Z
	Y088·60/05·0Z
	Y088·65/05·0Z
	Y088·70/05·0Z
	Y088·75/05·0Z
	Y088·80/05·0Z
	Y088·85/05·0Z
	Y088·90/05·0Z
	Y088·95/05·0Z
	Y089·00/05·0Z
	Y089·05/05·0Z
	Y089·10/05·0Z
	Y089·15/05·0Z
	Y089·20/05·0Z
	Y089·25/05·0Z
	Y089·30/05·0Z
	Y089·35/05·0Z
	Y089·40/05·0Z
	Y089·45/05·0Z
	Y089·50/05·0Z
	Y089·55/05·0Z
	Y089·60/05·0Z
	Y089·65/05·0Z
	Y090·60/05·0Z
	Y090·65/05·0Z
	Y090·70/05·0Z
	Y090·75/05·0Z
	Y090·80/05·0Z
	Y090·85/05·0Z
	Y090·90/05·0Z
	Y090

COMPLETE SAMPLE DESPATCH FORM (S24) FOR ANALYTICAL INSTRUCTIONS

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G.P.O. Box U1938, Perth, Western Australia, 6001
Telephone 74 2566 • Telegrams: "Exserv" Perth

Field Sheet No:— 49431

Line No.:— 132

Project/Charge/Despatch Note No.:—

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/40

SAMPLE	CU
Y088•00/050Z	1250
Y088•05/050Z	2900
Y088•10/050Z	1250
Y088•15/050Z	4800
Y088•20/050Z	1300
Y088•25/050Z	1400
Y088•30/050Z	850
Y088•35/050Z	350
Y088•40/050Z	4700
Y088•45/050Z	7600
Y088•50/050Z	4900
Y088•55/050Z	11T
Y088•60/050Z	8400
Y088•65/050Z	6600
Y088•70/050Z	3600
Y088•75/050Z	1150
Y088•80/050Z	540
Y088•85/050Z	1200
Y088•90/050Z	860
Y088•95/050Z	6000
Y089•00/050Z	3850
Y089•05/050Z	4800
Y089•10/050Z	1650
Y089•15/050Z	1500
Y089•20/050Z	630
Y089•25/050Z	610
Y089•30/050Z	3250
Y089•35/050Z	460
Y089•40/050Z	1250
Y089•45/050Z	1050
Y089•50/050Z	360
Y089•55/050Z	540
Y089•60/050Z	5400
Y089•65/050Z	3550
Y090•60/050Z	65
Y090•65/050Z	95
Y090•70/050Z	115
Y090•75/050Z	70
Y090•80/050Z	15
Y090•85/050Z	20
Y090•90/050Z	15
METHOD	101B

4900

FIELD SAMPLE SHEET

SAMPEY EXPLORATION SERVICES
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Western Australia, 6056
Phone: 74 2566
Cables: Exserv Perth

No 49432
Mark "X" here if data required on Results Sheet

FIELD COPY

☒ No. shown above ◄
☐ LINE 072
☒ Project/Charge/Despatch Note/No
☒ AREA SM7117

PHOTO RUN ☐☐☐☐ No. ☐☐☐☐☐☐
BEARING OF LINE ☐☐☐☐
MAP SHEET ☐☐☐☐☐☐

SAMPLED BY PNG
SAMPLE TYPE Channel Chip
DATE 16 (DAY) MAY (MONTH) 73 (YEAR)

REMARKS	Sample No./Location/Footage
	Y076.50/050Z
	Y076.55/050Z
	Y076.60/050Z
	Y076.65/050Z
	Y076.70/050Z
	Y076.75/050Z
	Y076.80/050Z
	Y076.85/050Z
	Y076.90/050Z
	Y076.95/050Z
	Y077.00/050Z
	Y077.05/050Z
	Y077.10/050Z
	Y077.15/050Z
	Y077.20/050Z
	Y077.25/050Z
	Y077.30/050Z
	Y077.35/050Z
	Y077.45/050Z
	Y077.50/050Z
	Y077.55/050Z
	Y077.60/050Z
	Y077.65/050Z
	Y077.85/050Z
	Y078.00/050Z
	Y078.05/050Z
	Y078.10/050Z
	Y078.15/050Z
	Y078.20/050Z
	Y078.25/050Z
	Y078.30/050Z
	Y078.35/050Z
	Y078.40/050Z
	Y078.45/050Z
	Y078.50/050Z
	Y078.55/050Z
	Y078.60/050Z
	Y078.65/050Z
	Y078.70/050Z
	Y078.75/050Z
	Y078.80/050Z
	Y078.85/050Z
	Y078.90/050Z
	Y079.00/100Z
	Y079.10/100Z
	Y079.20/100Z
	Y079.30/100Z
	Y079.40/100Z
	Y079.50/100Z
	Y079.60/100Z

COMPLETE SAMPLE DESPATCH FORM (S24) FOR ANALYTICAL INSTRUCTIONS

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G.P.O. Box U1938, Perth, Western Australia, 6001
Telephone: 74 2566 • Telegrams: "Exserv" Perth

Field Sheet No:— 49432
Line No.:— 072
Project/Charge/Despatch Note No.:—
Date:— 6-JUNE-73
Any queries please quote Lab. Sheet Number:— 5799/37

SAMPLE	CU
Y076.50/050Z	15
Y076.55/050Z	25
Y076.60/050Z	25
Y076.65/050Z	10
Y076.70/050Z	5
Y076.75/050Z	5
Y076.80/050Z	10
Y076.85/050Z	5
Y076.90/050Z	10
Y076.95/050Z	5
Y077.00/050Z	20
Y077.05/050Z	10
Y077.10/050Z	35
Y077.15/050Z	50
Y077.20/050Z	30
Y077.25/050Z	75
Y077.30/050Z	1100
Y077.35/050Z	20
Y077.45/050Z	60
Y077.50/050Z	160
Y077.55/050Z	15
Y077.60/050Z	25
Y077.65/050Z	45
Y077.85/050Z	30
Y078.00/050Z	30
Y078.05/050Z	105
Y078.10/050Z	100
Y078.15/050Z	160
Y078.20/050Z	150
Y078.25/050Z	
Y078.30/050Z	1200
Y078.35/050Z	960
Y078.40/050Z	1250
Y078.45/050Z	750
Y078.50/050Z	760
Y078.55/050Z	1900
Y078.60/050Z	520
Y078.65/050Z	580
Y078.70/050Z	1900
Y078.75/050Z	1650
Y078.80/050Z	3400
Y078.85/050Z	1600
Y078.90/050Z	2100
Y079.00/100Z	1350
Y079.10/100Z	2150
Y079.20/100Z	2500
Y079.30/100Z	1600
Y079.40/100Z	510
Y079.50/100Z	700
Y079.60/100Z	860
METHOD	101B

0000

FIELD SAMPLE SHEET

FIELD COPY

SAMPEY EXPLORATION S
237 Gt. Eastern Highway,
Western Austral
Phone:
Cables: Exs

No 49429

Mark "X" here if data required on Results Sheet.

[X] No. shown above ◄

[X] LINE 120

[ ] Project/Charge/ Despatch Note/No.

[X] AREA SMLZ17

PHOTO RUN [ ] No. [ ]

BEARING OF LINE [ ]

MAP SHEET [ ]

SAMPLED BY PMG&GB

SAMPLE TYPE Channel R

DATE 10 MAY 7
DAY MONTH YE

REMARKS	Sample No./Location/Footage
	Y084·65/05:02
	Y084·70/05:02
	Y084·75/05:02
	Y084·80/05:02
	Y084·85/05:02
	Y084·90/05:02
	Y084·95/05:02
	Y085·00/05:02
	Y085·05/05:02
	Y085·10/05:02
	Y085·15/05:02
	Y085·20/05:02
	Y085·25/05:02
	Y085·30/05:02
	~~Y088·00/05:02~~
	~~Y088·05~~

COMPLETE SAMPLE DESPATCH FORM (S24) FOR ANALYTICAL INSTRUCTIONS

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Telephone: 74 2566 • Telegrams: "Exserv" Perth

Field Sheet No:— 49429

Line No.:— 120

Project/Charge/ Despatch Note No.:—

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/39

SAMPLE	CU
Y084•65/050Z	225
Y084•70/050Z	160
Y084•75/050Z	80
Y084•80/050Z	100
Y084•85/050Z	130
Y084•90/050Z	265
Y084•95/050Z	1300
Y085•00/050Z	1350
Y085•05/050Z	1400
Y085•10/050Z	1300
Y085•15/050Z	2100
Y085•20/050Z	2350
Y085•25/050Z	2150
Y085•30/050Z	4600
METHOD	101B

6900

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FIELD SAMPLE SHEET

SAMPEY EXPLORATION SERVICE
237 Gt. Eastern Highway, Midlan
Western Australia, 605
Phone: 74 256
Cables: Exserv Per

No. 49344

Mark "X" here if data required on Results Sheet.

FIELD COPY

- [X] No. shown above
- [ ] LINE
- [ ] Project/Charge/ Despatch Note/No.
- [X] AREA SMC717

PHOTO RUN [ ] No. [ ]

BEARING OF LINE [ ]

MAP SHEET [ ]

SAMPLED BY PMG

SAMPLE TYPE Trench

DATE 08 (DAY) MAY (MONTH) 73 (YEAR)

REMARKS	Sample No./Location/Footage
Peg Y068.5a/022 starting point	T001
	T002
	T003
	T004
	T005
	T006
	T007
	T008
	T009
	T010
	T011
	T012
	T013
	T014
	T015
5' samples	T016
	T017
	T018
	T019
	T020
	T021
	T022
	T023
	T024
	T025
	T026
	T027
	T028
	T029
	T030
	T031
	T032
	T033
	T034
	T035
	T036
	T037
	T038
	T039
	T040
	T041

USE ONLY

END OF LINE

COMPLETE SAMPLE DESPATCH FORM (S24) FOR ANALYTICAL INSTRUCTIONS

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Field Sheet No:— 49344

Line No.:—

Project/Charge/ Despatch Note No.:—

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/41

SAMPLE	CU
T001	25
T002	35
T003	20
T004	15
T005	85
T006	45
T007	95
T008	20
T009	25
T010	80
T011	60
T012	200
T013	30
T014	20
T015	25
T016	10
T017	40
T018	5
T019	25
T020	20
T021	15
T022	1400
T023	640
T024	470
T025	450
T026	195
T027	250
T028	105
T029	35
T030	230
T031	20
T032	15
T033	35
T034	30
T035	45
T036	25
T037	15
T038	20
T039	70
T040	210
T041	45
METHOD	101B

0070

FIELD SAMPLE SHEET

SAMPEY EXPLORATI
237 Gt. Eastern High
Western A
Ph
Cables

No 49345

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- [X] No. shown above ◄
- [ ] LINE
- [ ] Project/Charge/ Despatch Note/No.
- [X] AREA SML7117

FIELD COPY

PHOTO RUN [ ] No. [ ]

BEARING OF LINE [ ]

MAP SHEET [ ]

SAMPLED BY PMG

SAMPLE TYPE Trench

DATE 10 (DAY) MAY (MONTH)

REMARKS	Sample No./Location/Foota
Y067.00/023.70 Starting point.	T042
10' Samples	T043
	T044
	T045
	T046
	T047
	T048

COMPLETE SAMPLE DESPATCH FORM (S24) FOR ANALYTICAL INSTRUCTIONS

FORM S24 FOR METHOD DET. U.S. SEE PRICE LIST

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Field Sheet No:— 49345

Line No.:—

Project/Charge/ Despatch Note No.:—

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/42

SAMPLE	CU
T042	520
T043	900
T044	595
T045	2200
T046	1300
T047	3200
T048	1850
METHOD	101B

T4119

FIELD SAMPLE SHEET

No 49434

Mark "X" here if data required on Results Sheet.

FIELD COPY

SAMPEY EXPLORATION SERVI
237 Gt. Eastern Highway, Midl
Western Australia, 6
Phone: 74 2
Cables: Exserv P.

[X] No. shown above

[X] LINE 072

[ ] Project/Charge/ Despatch Note/No.

[X] AREA SM47117

PHOTO RUN [ ] No. [ ]

BEARING OF LINE [ ]

MAP SHEET [ ]

SAMPLED BY PMG

SAMPLE TYPE CHANNEL C

DATE 16 (DAY) MAY (MONTH) 73 (YEAR)

REMARKS	Sample No./Location/Footage
	Y079.70/10.0Z
	Y079.80/10.0Z
	Y079.90/10.0Z
	Y080.00/10.0Z
	Y080.10/10.0Z
	Y080.20/10.0Z
	Y080.30/10.0Z
	Y080.40/10.0Z
	Y080.50/10.0Z

COMPLETE SAMPLE DESPATCH FORM (S24) FOR ANALYTICAL INSTRUCTIONS

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237 Great Eastern Highway, Midland

G.P.O. Box U1938, Perth, Western Australia, 6001

Telephone: 74 2566 • Telegrams: "Exserv" Perth

Field Sheet No:— 49434

Line No.:— 072

Project/Charge/ Despatch Note No.:—

Date:— 6-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/38

SAMPLE	CU
Y079.70/100Z	105
Y079.80/100Z	300
Y079.90/100Z	760
Y080.00/100Z	2200
Y080.10/100Z	2900
Y080.20/100Z	530
Y080.30/100Z	265
Y080.40/100Z	165
Y080.50/100Z	190
METHOD	101B

0072

FIELD SAMPLE SHEET

FIELD COPY

SAMPEY EXPLORATION SERVICES
237 Gt. Eastern Highway, Midland
Western Australia, 6056
Phone: 74 2566
Cables: Exserv Perth

No 49415

Mark "X" here if data required on Results Sheet.

[X] No. shown above

[X] LINE 069·40

[ ] Project/Charge/Despatch Note/No.

[X] AREA SML717

PHOTO RUN [ ] No. [ ]

BEARING OF LINE [ ]

MAP SHEET [ ]

SAMPLED BY PMG

SAMPLE TYPE Channel Chip

DATE 17 MAM 73 (DAY MONTH YEAR)

REMARKS

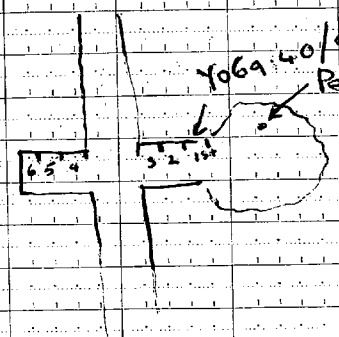
Sample No./Location/Footage

Y023·80/020Z
Y023·78/020Z
Y023·76/020Z
Y023·70/020Z
Y023·68/020Z
Y023·66/020Z

Y023·80/020Z (First sample)

Y069·40/023·80/02:07

Peg Y069·40/024



FOR LAB USE ONLY

COMPLETE SAMPLE DESPATCH FORM (S24) FOR ANALYTICAL INSTRUCTIONS

LABTECH PTY. LTD.

ANALYSTS

(Formerly Analytical Division of Sampey Exploration Services)
237 Great Eastern Highway, Midland
G.P.O. Box U1938, Perth, Western Australia, 6001
Telephone: 74 2566 • Telegrams: "Exserv" Perth

Field Sheet No:— 49415

Line No.:— 069·40

Project/Charge/Despatch Note No.:—

Date:— 5-JUNE-73

Any queries please quote Lab. Sheet Number:— 5799/36

SAMPLE	CU
Y023·80/020Z	3600
Y023·78/020Z	1400
Y023·76/020Z	1750
Y023·70/020Z	3950
Y023·68/020Z	5100
Y023·66/020Z	4100
METHOD	101B

8700

APPENDIX I (2)

Use of "Geolog" in Yerelina Valley Percussion Drilling Programme

Use of "Geolog" in Yerelina Valley Percussion Drilling

This is an appendix to the original Geolog rules, which describes its application to logging sediments, in principally diamond holes.

This appendix makes the calc-silicate metamorphics of SML717 amenable to Geolog input. Naturally, when logging percussion chips, some of the columns cannot be filled in.

3. INTERVAL DESIGNATION AND CARD TYPE

All measurements will be in FEET. The unit of measurement (FT) must be entered in the scales/names row of columns 1 and 2.

Hole Designation

All holes in the Yudnamutana SML will be prefixed "YX" and numbered in the order they were drilled, e.g., YX03 is the 3rd hole drilled.

The first hole to be logged using "Geolog" will be YX05.

Card Type

This has been explained in the original memo. Only four combinations are possible :-

L	=	LITHOLOGICAL DESCRIPTION
A	=	ASSAY INFORMATION (to be inserted when received) - sample taken.
LK	=	Comment applicable to ENTIRE lithological interval.
AC	=	Comment applicable to SPECIFIC assay interval.

4. ZONE

Weathering and mineralized zones must be used as per Table 2. These may not be applicable to the stratiform copper model.

6. ROCK TYPES

Table 14 is a running file of Yerelina lithologies.

7. LOMBARD NO:

Table 15 is the Local Standard Sequence for the Lower Callana Beds in the Yerelina Valley.

12. SEDIMENTARY ENVIRONMENT

From regional studies this is interpreted as NR (neritic) for the Yerelina Valley.

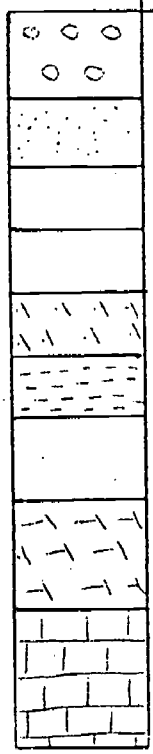
13. MINERALOGY

Table 16 lists some additional minerals which may be encountered during logging.

0077

TABLE 15 - LOCAL STANDARD SEQUENCE FOR LOWER CALLANA BEDS IN YERELINA VALLEY SML717

Designation on "Geolog" is "B" (to be entered in scales/names column 27).

	Lombard No	Lithology (Sedimentary Series)	Lithology (Greenschist facies)
	01	Conglomerate	
	02	C. g. arenite	
	03	m. g. arenite	
	04	f. g. arenite	
	05	calc-arenite	actinolitic sandstones
	06	argillite	hornfels
	07	calc-argillite	amphibolite and haematite bed
	08	marl	amphibolie and carbonate
	09	limestone	marbles

0078

TABLE 16 - MINERAL MNEMONICS - SUPPLEMENT TO TABLE 10

AC	actinolite (including tramolite)
EP	epidote
SC	scapolite
AP	apalite
KF	K-felspar
NF	Na-felspar
FL	felspar (general)
DØ	dolomite
CA	calcite
CB	carbonate

0079

TABLE 14 - MNEMONICS FOR LITHOLOGY

CASI	calc-silicate rock
SCHØ	scapolite-hornfels
SCHS	schist
HØRN	hornfels
SCSC	scapolite schist
HESC	haematite schist
ACSC	actinolite schist
MARB	marble
CBAC	carbonate rich amphibolite (actinolite)
GNES	gneiss
HEXX	haematite rock
HESI	silicified haematite
APVX	aplite vein
AMSC	amphibolite schist
QZAM	siliceous amphibolite
AMOQ	amphibolitic quartzite
OUBN	overburden

UTAH DEVELOPMENT COMPANY

(MINERAL DEVELOPMENT & GEOLOGY)

DATE: 7th June, 1973

COPIES TO: 0080

N.J.R.

TO: R. B. Kitch

FROM: G. Chuck

SUBJECT:

REFERENCE:

APPENDIX TO ACCOMPANY YERELINA VALLEY GEOLOG MEMO OF 29th MARCH, 1973.

The following should be referred to when using Geologs from SML 717:

(i) MINERAL MNEMONICS

AM denotes amphibole minerals in general excluding actinolite.

AS denotes asbestos (?) (See description of this this mineral from YX12 by I. Pontifex).

MB denotes molybdenite.

(ii) ROCK MNEMONICS

AMSC denotes amphibolite schist

QZAM denotes Siliceous amphibolite

AMOQ denotes amphibolitic quartzite

OVBN denotes overburden

SCHS denotes schist

(iii) COLOUR MNEMONICS

PNK denotes pink

0081

(iv) GENERAL

STND denotes stained

WEATH denotes weathered

SCHS denotes schistose

(v) Further Suggestions to IMPROVE GEOLOG:

(a) Allocate room on heading for total depth of hole.

(b) Have Allan make up a folder of suitable dimensions to carry Geolog Sheets.

(c) Compile a list of acceptable computer digits (e.g. %, ?, /, etc).

(d) Use @ or something in S-code to denote 15%.

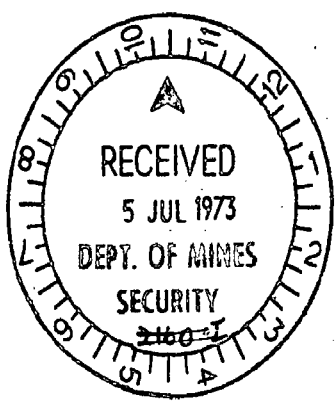
(e) Lighten tone of Geolog sheet to allow pencil to be used.

OPEN FILE

0082

APPENDIX II (1)

GEOLOG RULES



2160 ~~2350~~

THE "GEOLOG SYSTEM" -

A COMPUTER ORIENTED DRILL HOLE LOGGING METHOD

TO BE USED IN SOUTH AUST.

LIST OF ILLUSTRATIONS

DIAGRAM	I	Gravel - sand - mud	Triangular lithological diagrams
	II	Sand - silt - clay	
	III	Quartz - feldspar - rock fragments	
	IV	Sand - mud - carbonate	
	V	Silica - mud - carbonate	
	VI	Degree of sorting	

TABLE	1.	Location of features described by Geolcg System
	2.	Mnemonic for mineralogical zones in stratiform copper model
	3.	Genesis and provenance mnemonics for conglomerates and breccias
	4.	Local standard sequence for SML 671 and lombard No. (River Wakefield Group only)
	5.	Grain size codes
	6.	Sphericity and roundness codes
	7.	Codes for describing colour
	8.	Tables for determining percentage abundance of mineral grains
	9.	S-code
	10.	Two place code for describing mineral species
	11.	Codes to describe mode of occurrence of minerals
	12.	Mnemonics for describing texture
	13.	Mnemonics for describing sedimentary structures

APPENDICES

Log sheet - blank
Log sheet - completed
Octahedron of lithologies with mnemonics

THE "GEOLOG SYSTEM" - A COMPUTER ORIENTED DRILL HOLE LOGGING METHOD TO BE USED IN SOUTH AUSTRALIA

INTRODUCTION

The "Geolog System" outlined in this report has been adapted from a similar scheme designed for use in porphyry copper-type deposits. This earlier system has been outlined in Blanchet and Godwin (1972)*.

We have modified the "Geolog System" to handle core or cuttings from all types of drill holes intersecting sediments It can be readily modified to handle date from the other types of mineral deposits. The flexibility of the "Geolog System" is one of its most outstanding features.

The advantages of the "Geolog System" of recording geological data are adequately appraised in the above paper. A comparison of this new technique with classical descriptive logging techniques, will indicate the desirability of making Geolog operational.

The "Geolog System" outlined in this memo will be used to log all rotary, percussion, and diamond holes drilled in U. D. C's South Australian Stratiform Copper Search. Consideration has also been given to adapting the technique to record systematic field data when geological mapping is being undertaken.

This memo sets out RULES to be followed by U. D. C. geologists logging drill cuttings/core in S. A.

* Blanchet P. H. and Godwin C. I. (1972). "Geolog System" for Computer and Manual Analysis of Geolog Data from Porphyry and Other deposits. Econ. Geol. 67 pp 796-813

0086

Main Features of Geolog System

A copy of the logging sheet is appended to this report.

The logging sheet is an 80 column input sheet ready for key punching and subsequent computer processing. The format of the sheet has been arranged, so that it can be incorporated into reports, in much the same way as the old-style descriptive logs.

Table 1 lists the features described by the System, and their location of the logging sheet. Rules for quantifying these features arelaid out in this report.

A 40 column sub-sheet has been added to the left hand side of the sheet. This is used to handle all assay data.
A 120 column print out facility is available from the computer, which will enable ALL of the 108 columns to be displayed on the printout sheet.

TABLE 1

LOCATION OF FEATURES DESCRIBED BY GEOLOG SYSTEM 0087

FEATURE		ASPECT	LOCATION IN GEOLOG
1.	Assays		Columns (1-28)
2.	Interval described	Hole designation	1-4 (29-32)
		Depth to bottom of interval	5-9 (33-37)
		Length of interval	10-12 (38-40)
		(Spare)	13-16
3.	Card type		17-18
4.	Zone		19
5.	Contacts		20-21
6.	Rock type	Rock type	22-25
		Lombard No.	26-27
		Grain size	28-29
		Sorting	30
		Sphericity, roundedness	31-32
		Colour	33-36
		Environment of deposition	37-38
7.	Mineralogy		39-52
8.	Economic mineral species		53-62
9.	Physical Characteristics	Porosity	63
		Cementation	64-66
		Induration	67
		Texture	68
		Sedimentary structures	69-72
10.	Mechanical characteristics	Core Recovery	73-74
		No. of pieces $\frac{1}{2}$"	75-76
		Fracturing coeff.	77-78
		(spare)	79-80
11.	Comments for key punching (for Litho comments)		19-80

TABLE 1 (continued)

0088

FEATURE	ASPECT	LOCATION IN GEOLOG
12. Comments not for key punching (for Assay intervals)		19-50

(Columns in brackets refer to columns on sub-sheet - left hand side).

RULES FOR COMPILING GEOLOGS

0089

1. Scales and Names Row

This provides flexibility to the system, and is used to designate minor changes to some of the column headings, and to select more appropriate scales for certain features.

Entries in this row have PRECEDENCE over any other column heading. Attempts should be made to use these names/scales consistently throughout the entire length of any given hole.

2. Assays

Seven sets of columns are provided. This enables assay data of seven elements to be recorded on the log. The chemical symbol for each particular element must be entered in names/scales row on the first sheet.

Assays are given to THREE significant figures and a "letter modifier" is placed in the fourth column after the assay significant figures.

The modifiers used are:-

(blank) ppm
P - assays in percentage with one decimal place implied
T - in parts per thousand (ppm/1000)
C - in parts per ten thousand (ppm. 100)
B - in parts per billion
D - in ppb/10

In general, and for minor elements occurring in concentrations less than 1000ppm, the modifier will be left blank to indicate ppm.

The other modifier to be used will be "C" (parts per ten thousand). This will enable assays from 10% to 0.01% to be handled.

Hopefully we will be able to use the "P"-modifier also!

0090

3. Interval designation and card type

The interval designation used is the familiar 12 digit system. Since Sampey is currently developing a 16 digit system, space has been provided on our Geolog sheet in anticipation of this 16 digit system.

The unit of measurement (ft or m) must be entered in the scale/name row.

a) Hole Designation

This follows the form:-

ED08
E - SML 671
D - diamond drill hole
08 - eighth hole collared in SML

b) Depth to bottom of interval

This is of the form:-

e.g. 0105.0
indicating 105.0 ft (m) to the bottom of the particular interval being described

c) Length of interval

This is of the form:-
e.g. 05.0
indicating a 5.0 ft (m) interval situated above the depth set out previously

e.g. ED08/0105.0/05.0
specifies the 5 ft intersection from 100 ft - 105 ft in ED08.

d) Card Type

This is incorporated into the format mainly for the benefit of the key punchers.

Column 17 indicates whether the interval designation on that particular row relates to a lithological description o f that

0091

interval or whether it relates an assay interval. An L or A are placed in column 17, and have the above respective implications.
Column 18 is used to designate whether the comments appearing in column's 19-80 relate to:-
(i) the entire (lithological) interval - general K
(ii) a particular(assay) interval - specific C
The designations K and C are used respectively for these purposes.

An example of a completed log sheet is appended to this memo. This will clarify the use of the card type designators.

e) Sampling of Core

The geologist specifies the sampling interval on the Geolog Sheet. Field assistants then sample the core, according to the geologists instructions, by reference to the logging sheet. Sample numbers are numbered in the same way as assay intervals. This is a very important point.

4. ZONE

This is to show the mineralogical/sedimentological/weathering zone of the intersection. The zones chosen are those suggested by the model for stratiform syngenetic copper mineralization. A copy of our conceptual stratiform copper model is appended.

A single character mnemonic is used. This is based on the visibly predominant mineral species in that particular zone.

5. Contacts

This describes the lower contact of the interval being logged. A one place code will be used as follows:-

C	sharp/conformable
G	gradational over 2 cm
H	gradational over 30 cm
S	slumped
U	unconformable
E	epigenetic vein contact

TABLE 2

MNEMONICS FOR MINERALOGICAL ZONES IN STRATIFORM COPPER MODEL

Weathered Zone / Mineralogical Zone	Oxidized (weathered)	Supergene (enriched)	Primary (weathered)
Barren Zone	W - (weathered)	S - (supergene)	U (unweathered)
Pyrite Zone	L - (limonite)	G - (geothite)	P -(pyrite)
Chalcopyrite Zone	M - (malachite)	N - (native Cu)	C (Chalcopyrite)
Bornite-Chalcocite	A	D	B (bornite)

CONTACTS

C	Sharp/ conformable
G	Gradational (over 2 cm)
H	Gradational (over 30 cm)
S	Slumped
U	Unconformable
E	Epigenetic vein contact

0093

6. Rock Types

A four letter mnemonic is used to describe lithology.

Five trian gular diagrams are presented illustrating the various fields between these diagrams.

Diagram I	Gravel - sand - mud (silt and clay)
II	Sand - silt - clay
III	Quartz - feldspar - rock fragments
IV	Sand - mud - carbonate
V	Silica - mud - carbonate

A visual aid during logging is the "Octahedron of Lithologies" a copy of which is appended to this memo. Construction of this device is "a la Weeties box". (ask any seven year old for "Tab. A in Slot B" advice).

During logging, a sediment, when veiwed under the binocular microscope, should be broken into its three major components, and alloted a field on the triangular diagram, which best describes the rock.

This field is given a two place code which is filled in on column 22 and 23 (upper case letters should be used).

(i) For conglomerates and breccias, columns 24 and 25 are used for genesis and provenance respectively (see Table 3).

e. g. GSXX is a pebbly arenite (general)
GSSq is a pebbly arenite having a sedimentary provenance

(ii) For all remaining rocks the last two characters are reserved for minor components of the rock.

e. g.

carbonaceous (graphitic)	C
ferrugineous	F
gypsiferous	G
micaceous	M
chloritic	L
detritals (magnetite etc)	D

e. g. DZCX - carbonaceous dolomitic siltstone
FSDF - ferrugineous, heavy mineral banded feldspathic sandstone.

TABLE 3

GENESIS AND PROVENANCE MNEMONICS FOR CONGLOMERATES AND BRECCIAS

GENESIS	PROVENANCE
C collapse/solution	1 50% cratonic
D dyke	3 50% metamorphic
F fault	5 50% volcanic
M metamorphic	7 50% pyroclastic
P plutonic	9 50% sedimentary
T clastic	0 50% mixed provenance
V Volcanic	
Y pyroclastic	
X unspecified	

TRIANGULAR DIAGRAMS

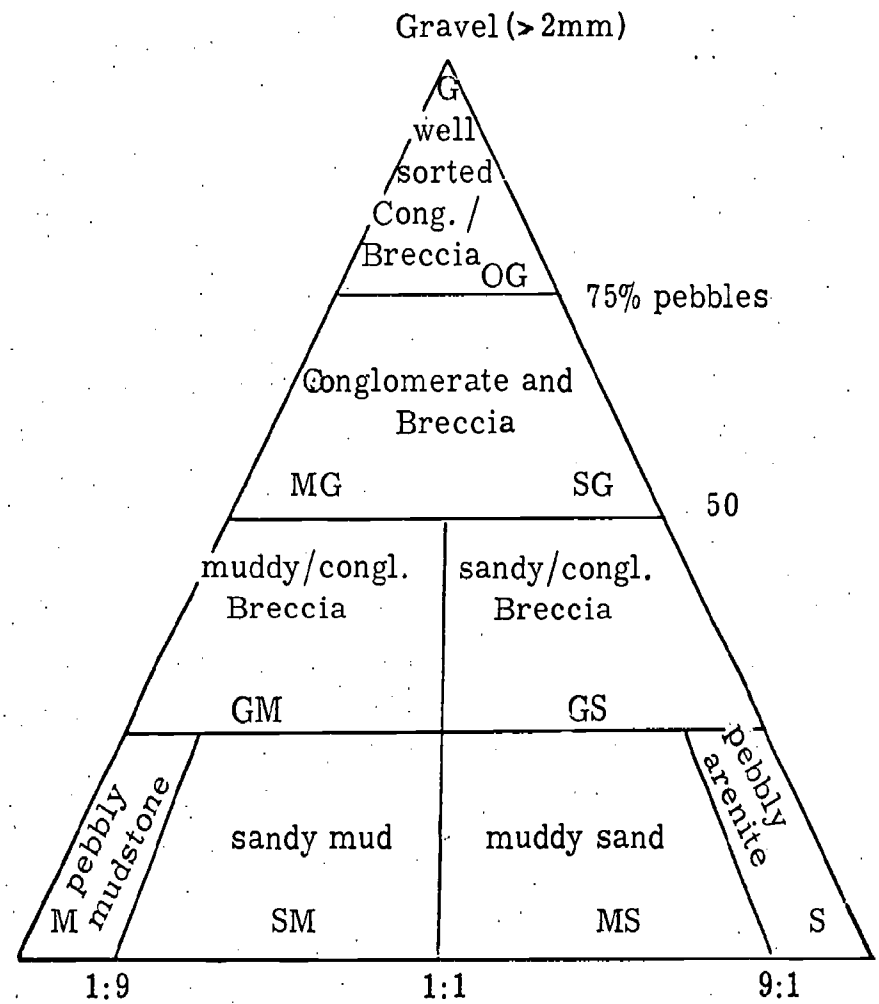
0095

I CONGLOMERATES AND BRECCIAS

100% Clastics

(no chemical component)

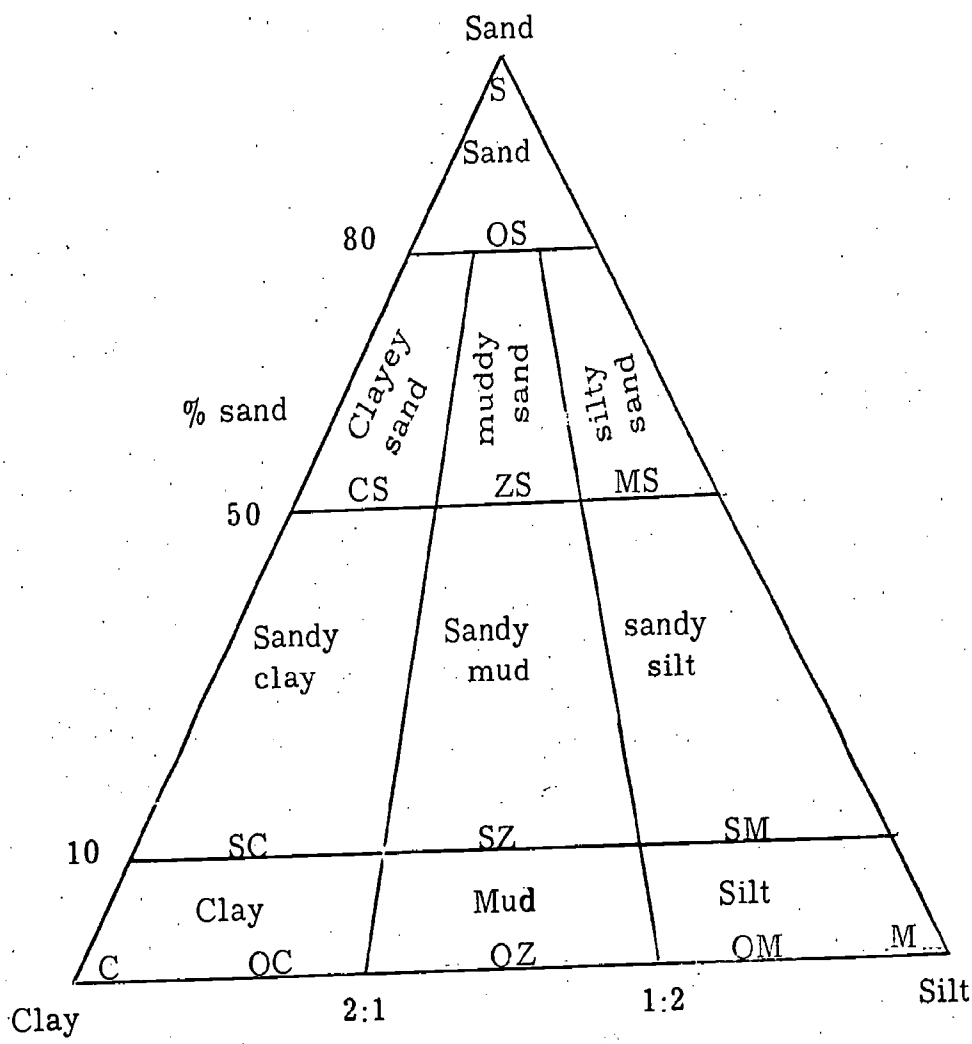
DIAGRAM I



0096

Unindurated	Indurated	Fissile
Silt	Siltstone	Silt-shale
Mud	Mudstone	Mud-shale
Clay	Claystone	Clay-shale
	Argillite (intensely indurated)	

DIAGRAM II



ref: Folk (1954) Journal Geol. 62 Pp 345 - 351

III SANDSTONES AND WACKES

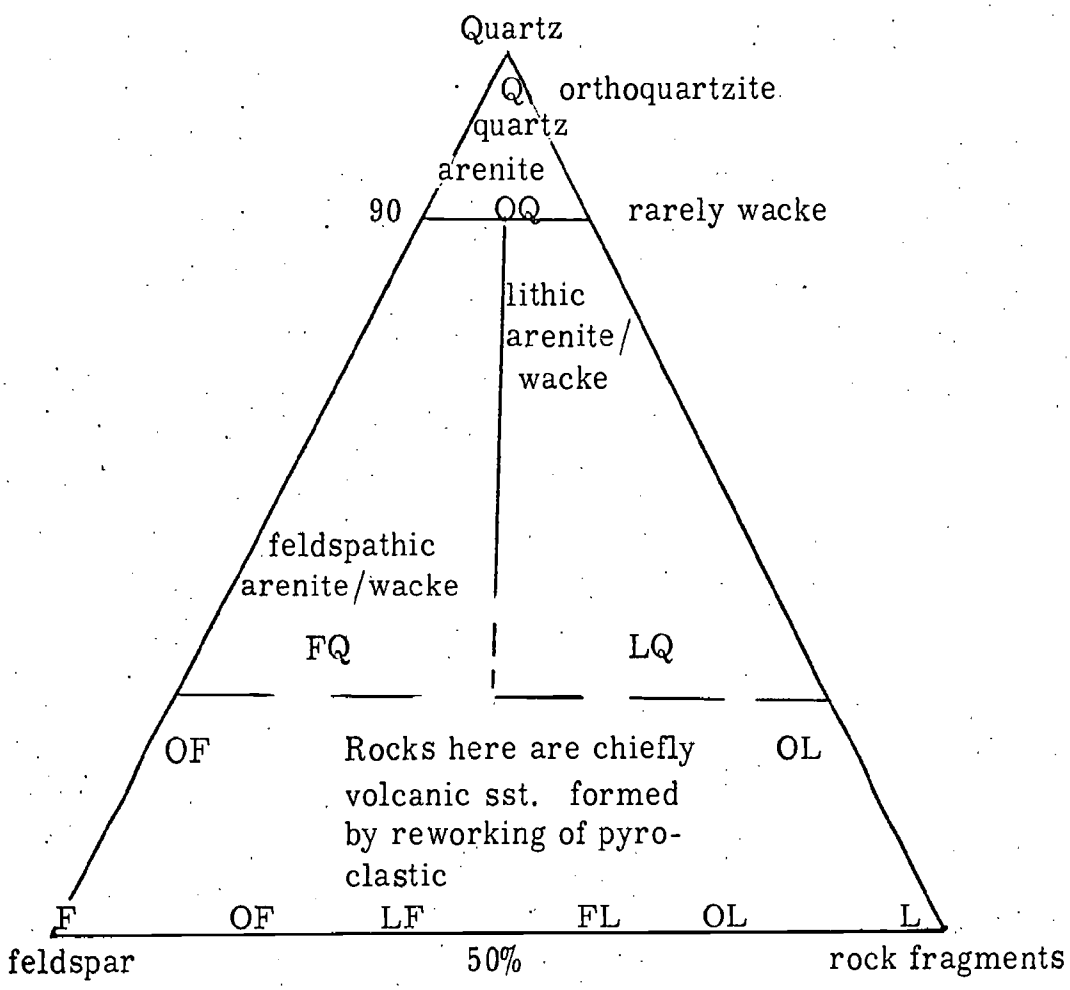
0097

Named according to composition (see triangular diagram) and degree of sorting.

(i) well sorted (clean) - arenite (15% matrix)

(ii) poorly sorted (dirty) - wackes (15% matrix)

DIAGRAM III

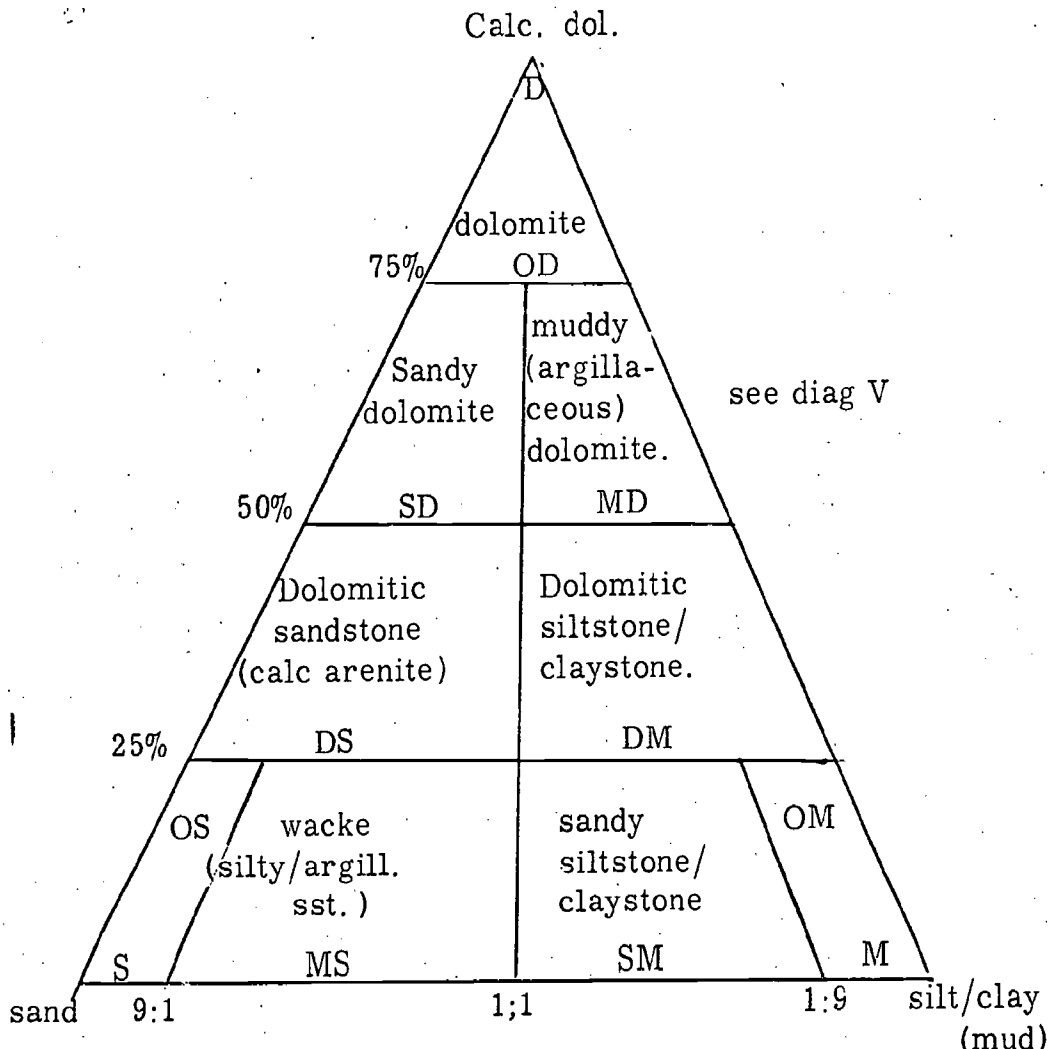


N.B. The term "wacke" does not imply anything concerning the mechanism of transport and the origin of the cement. The synonym is muddy or clayey sand or sandstone.

0098

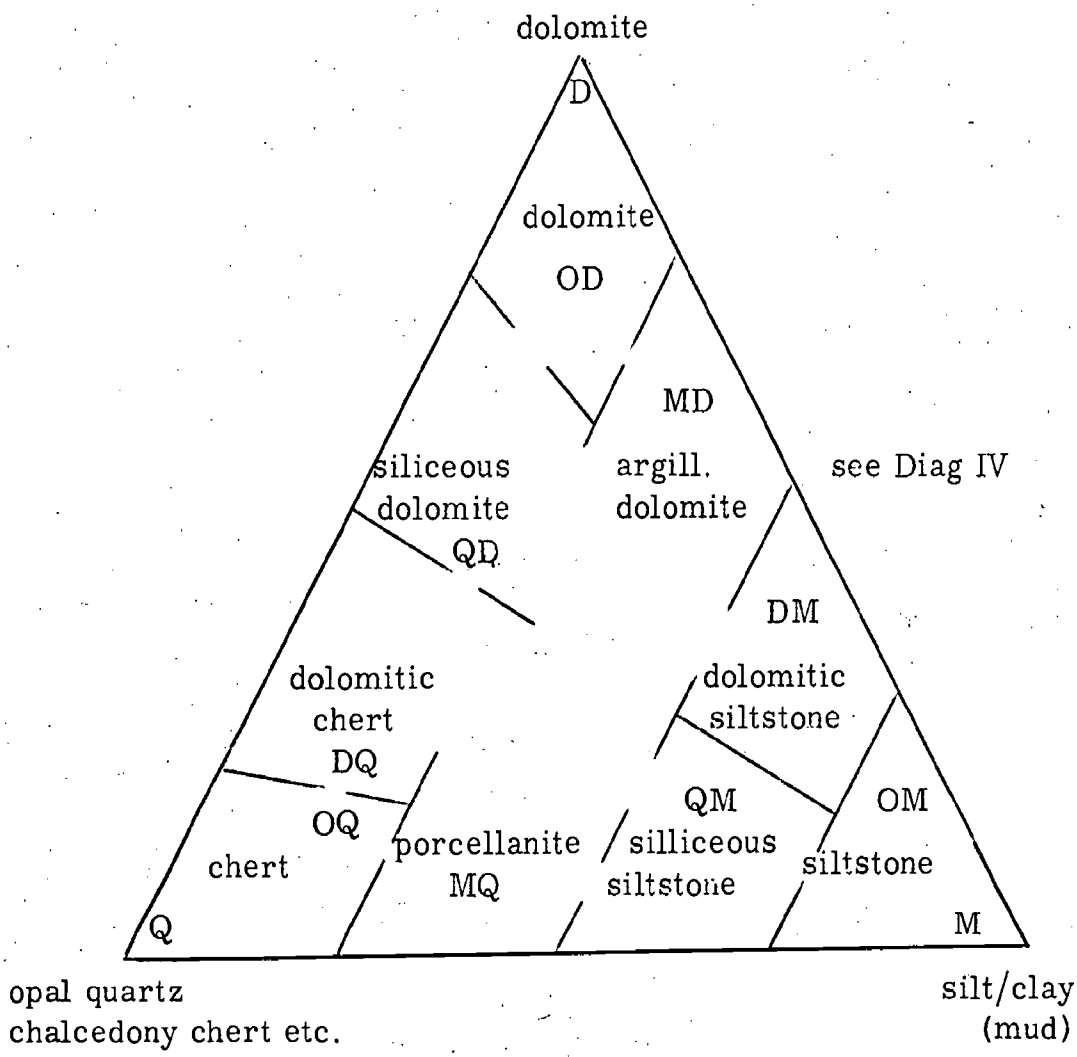
MIXTURE OF CARBONATE-CLASTIC

DIAGRAM IV



This field is shown in Diag. I and II

DIAGRAM V


dolomite
D
dolomite
OD
MD
siliceous
dolomite
QD
argill.
dolomite
see Diag IV
DM
dolomitic
chert
DQ
dolomitic
siltstone
OQ
QM
OM
chert
porcellanite
MQ
silliceous
siltstone
siltstone
Q
M
opal quartz
chalcedony chert etc.
silt/clay
(mud)

7. Lombard Number.

The local standard sequence used for the River Wakefield Group in SML 671 is set out in Table 4. The two place Lombard No. is entered directly into columns 26 and 27 0100

The local standard sequence is set out in Table 4 applies only to the sequence of sediments in SML 671 referred to as the "prospective River Wakefield Group".

As exploration proceeds in South Australia, different local standard sequences will be used as reference columns. It is, therefore, necessary to differentiate the various local standard sequences.

An approriate code placed in the scales/names row of columns 26 and 27 will allow this differentiation.

The code to be followed is set out below:-

Code	Local Standard Sequence	Reference
A	Prospective River Wakefield Group	N. J. R. Memo 22 June, 1972
B	Yudnamutana - SML 717	RBK
C, D	future l. s. s. - designation shown in scales/names row; column 27.	

8. Grain Size

Table 5 for "inequigranular grain size" i. e. medium poor sorting is the one adopted to describe grain size distribution and the two character code used.

The first place is the code for coarser fraction grain size and is entered in column 28.

The second place is the code for the finer fraction and appears in column 29.

TABLE 4

LOCAL STANDARD SEQUENCE FOR SML 671 AND LOMBARD NO.

Lombard Number	Lithology/Facies
01	Conglomerates
02	Grits
03	Coarse grained arenites and calcareous grits
04	Medium and fine grained arenites
05	Calcareous medium and fine grained arenites
06	Siltstones (and local cherts) arenaceous siltstones
07	Calcareous and argillaceous siltstones
08	Graphitic, calcareous and/or argillaceous siltstones
09	Argillites (silty and sandy)
10	Argillites (claystones and shales)
11	Dolomitic or limey argillites
12	Dolomites, limestones ($\pm$ cherts)

TABLE 5 – GRAIN SIZE CODES

INEQUIGRANULAR GRAIN SIZE

COARSER FRACTION GRAIN SIZE					FINER FRACTION GRAIN SIZE						
					SEDIMENTARY						
					CLAY	SILT	SAND fine	SAND med.	SAND coarse	GRANULE	PEBBLE & LARGER
					1/256	1/16	1/4	1	2	4 MM	
					8	4	2	0	−1	−2 PHI	
					SINGLE-CHARACTER AND TWO-CHARACTER SYMBOLIC CODES						
SEDIMENTARY	BOULDER	256 MM	−8 PHI	9	90	91	92	93	94	95	96
	COBBLE	64	−6	8	80	81	82	83	84	85	86
PEBBLE	large	16	−4	7	70	71	72	73	74	75	76
	small	4	−2	6	60	61	62	63	64	65	
	GRANULE	2	−1	5	50	51	52	53	54		
V. COARSE & SMALLER				4	40	41	42	43			
GRAIN SIZE CODES →					0	1	2	3	4	5	6

N.B. The ratio of the code for finer to coarser fraction is an indication of the degree of sorting.

0103

e.g. Good sorting 43 i.e. 3:4
Poor sorting 41 i.e. 1:4

9. Sorting

A one-place code is used for sorting in column 30. Five classes of sorting are depicted in Diagram VI and are distinguished by the numerals 1, 3, 5, 7 and 9 (very well sorted ⟶ very poorly sorted).

10. Sphericity and Roundedness

Table 6 outlines a two place code for sphericity and roundedness determinations. Comparison of the grain shapes in the specimen with Table 6 will determine the code to be written into column 31 and 32.

11. Colour

A four place code is used.

The colour of the specimen is the overall hue of the rock (i.e. when viewed from about 5 ft.)

When describing the colour of conglomerates, describe the colour of the matrix material.

Diamond drill core colours should be given wet (W)
Cuttings and chips, dry (D)
Specify D or W in the scales/names row.

If ever considered necessary, the "Rock Colour Chart" distributed by the Geol. Soc. of America may be used. This used a modified Munsell Code type of notation to describe colour.

Explanatory notes accompanying this chart state.

> "It was found by experiment that wetting the rock specimen merely decreases the value, that is, makes the specimen darker, but does not change the chroma".

TABLE 6

SPHERICITY AND ROUNDEDNESS
TWO-CHARACTER SYMBOLIC CODES

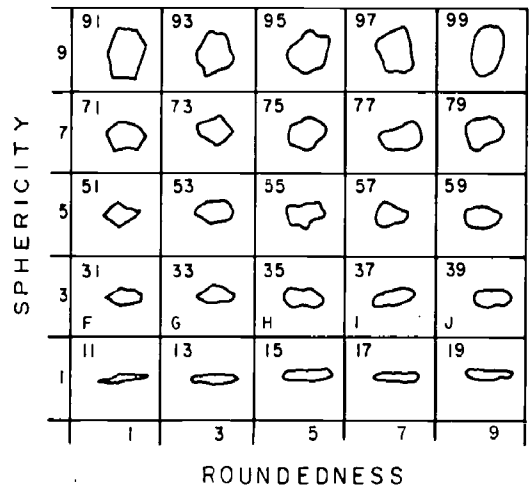


DIAGRAM VI - DEGREE OF SORTING

Degree of sorting. Degree of sorting measures the thoroughness with which a sediment has been winnowed or reworked by transporting agents. It is a valuable indicator of rate and environment of deposition, and it has been used to classify sandstones. Size sorting expresses the degree to which the grains approach being the same size. This is the measure of sorting used most widely; however, it should be remembered that small grains of heavy minerals are sorted out with larger grains of light minerals.

To determine the degree of sorting in the field, the rock should be examined on freshly broken surfaces and on weathered (but clean) ones. It should be examined both parallel to and at right angles to bedding. As this is done, an estimate is made of the range of grain sizes that includes the great bulk (here 80 percent) of the detrital materials. For sandstones, a sand-size card (see *Grain size*, above), can be used to estimate the lower size limit of the coarsest 10 percent of the rock and the upper size limit of the finest 10 percent of the rock. These limits may then be compared with the size scale (Table 12-2) to determine the number of size classes between them. This number gives a measure of the degree of sorting, and it may be recorded in the notes or converted to sorting terms such as those suggested in Fig. 12-1. This figure should be used for rocks consisting mainly of sand or small pebbles; finer-grained materials cannot be classified precisely in the field, and coarse conglomerates require special considerations.

By far the greatest errors in estimating degree of sorting occur when dark sand grains are mis-identified as very fine-grained matrix materials, especially where grains have recrystallized. An examination of associated rocks can often resolve this difficulty (coarse-grained laminae may show the grains more clearly); however, petrographic work may be needed.

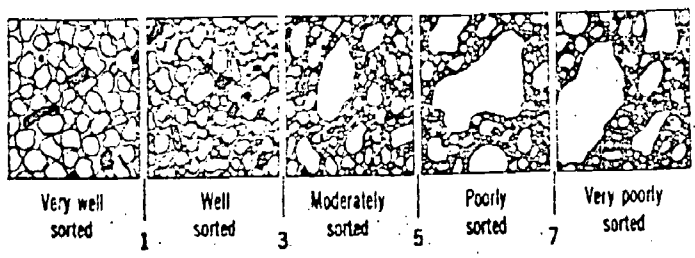


Fig. 12-1. Terms for degrees of sorting. The numbers indicate the number of size-classes included by the great bulk (80 percent) of the material. The drawings represent sandstones as seen with a hand lens. Silt and clay-size materials are shown diagrammatically by the fine stipple.

TABLE 7

CODES FOR DESCRIBING COLOUR

Colours		Colour Modifier	
yel	yellow	D	dark
grn	green	L	light
blu	blue	V	very
orn	orange	X	extremely
red	red	M	medium - moderately
prp	purple	F	fairly - faintly
tan	tan		
brw	brown		
wte	white		
blk	black		
gra	grey		

0107

12. Sedimentary Environment / Facies

A two place code will be used and a tentative nine-fold split (following Conybeare and Crook) is suggested.

Peidmont	PD
Fluviatile	FL
Lacustrine	LC
Beach	BC
Tidal Flat/ Channel	TI
Neritic	NR
Bathyal/ abyssal	BA
Aeolian	AE
Glacial	GL

13. Mineralogy and Economic Mineral Species

Each mineral species is described by a two place code, as in Table 10. This is entered into the column headings.

The first column of each mineral description is used to describe the mode of occurrence of the mineral species. This will be applicable only to economic mineral species.

The various terms and codes to describe mode are set out in Table 11.

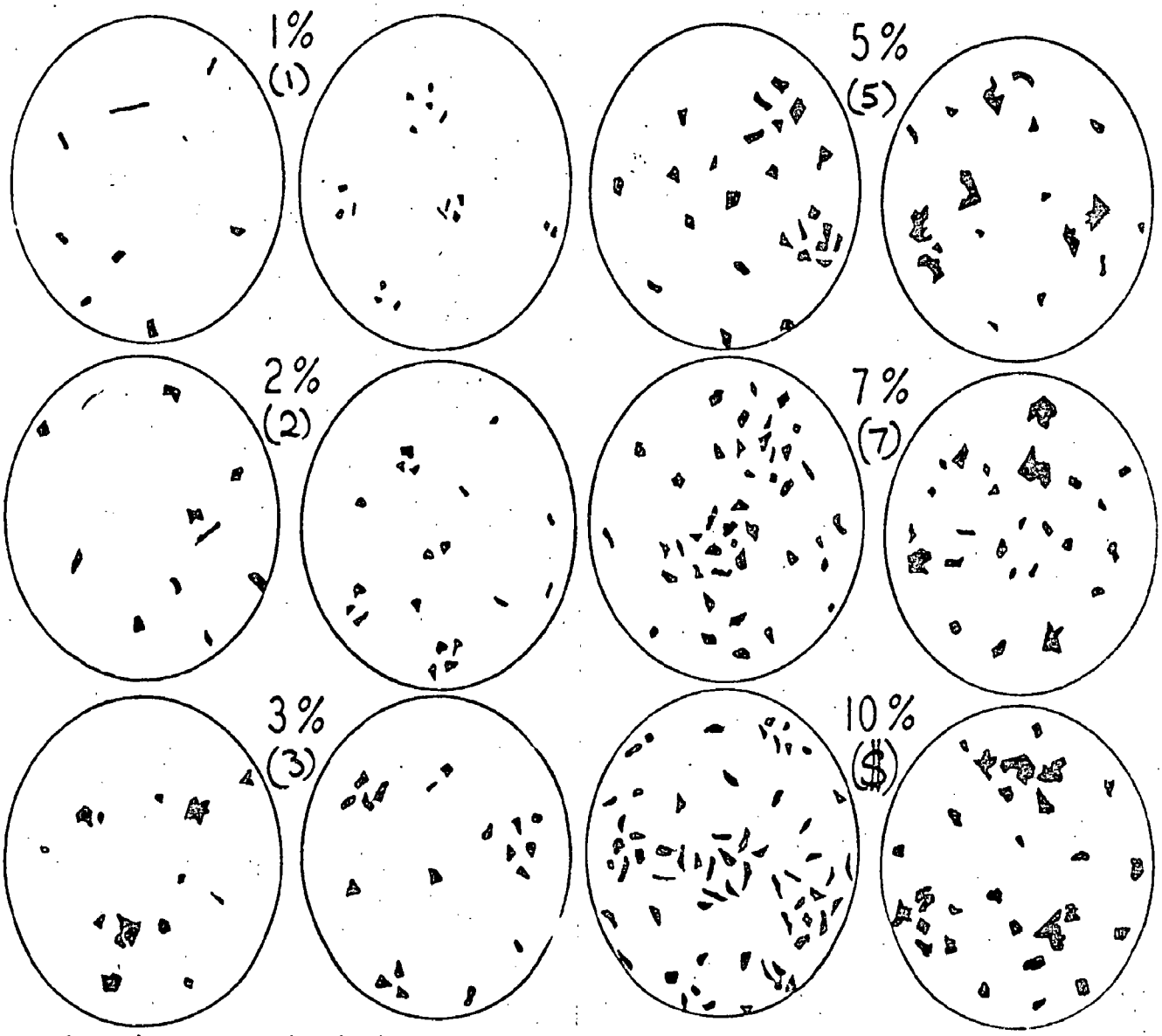
The second column is used to describe the percentage abundance by volume, of a particular mineral. Table 8 should be used in this visual determination of the percentage abundance.

The percentage is expressed by using the S-code set out. Table 9 and the appropriate symbol entered in the appropriate column.

The summary column for economic mineral species refers to the total sulphides present in a rock interval i. e. pyrite and chalcopyrite etc.

TABLE 8A

0108



( ) = S-code designators

FIG. 1

FIG. 2

TABLE 8B

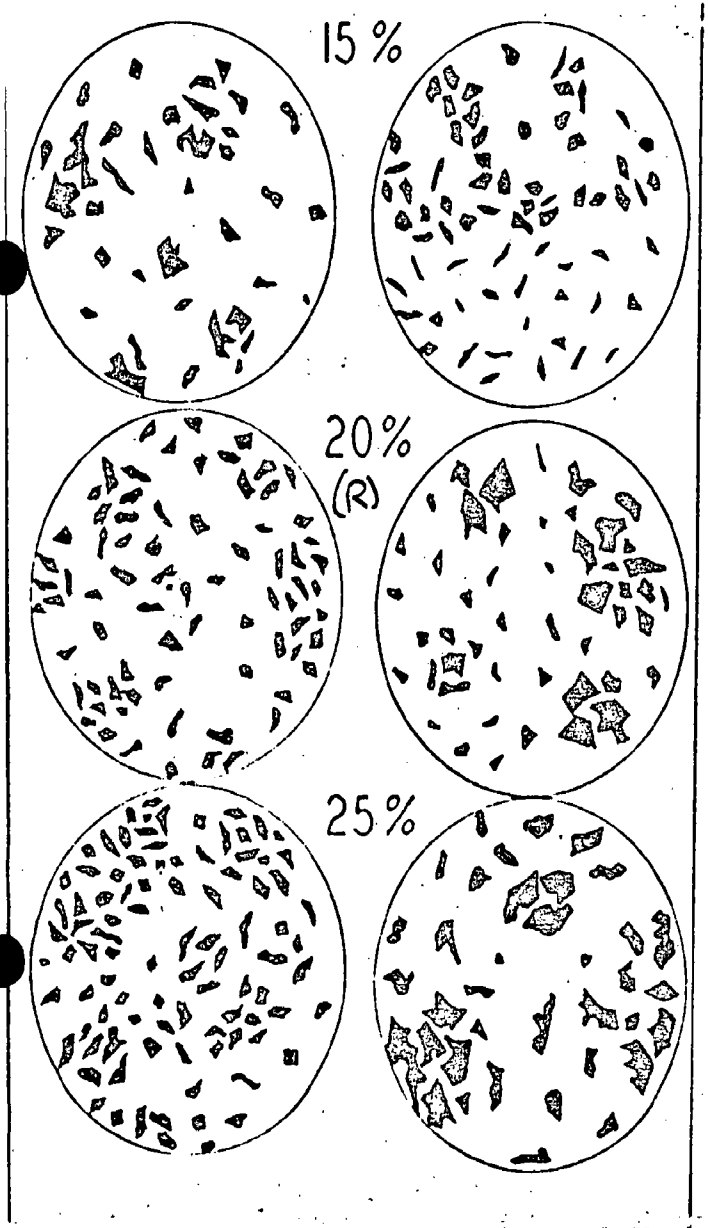


FIG. 3

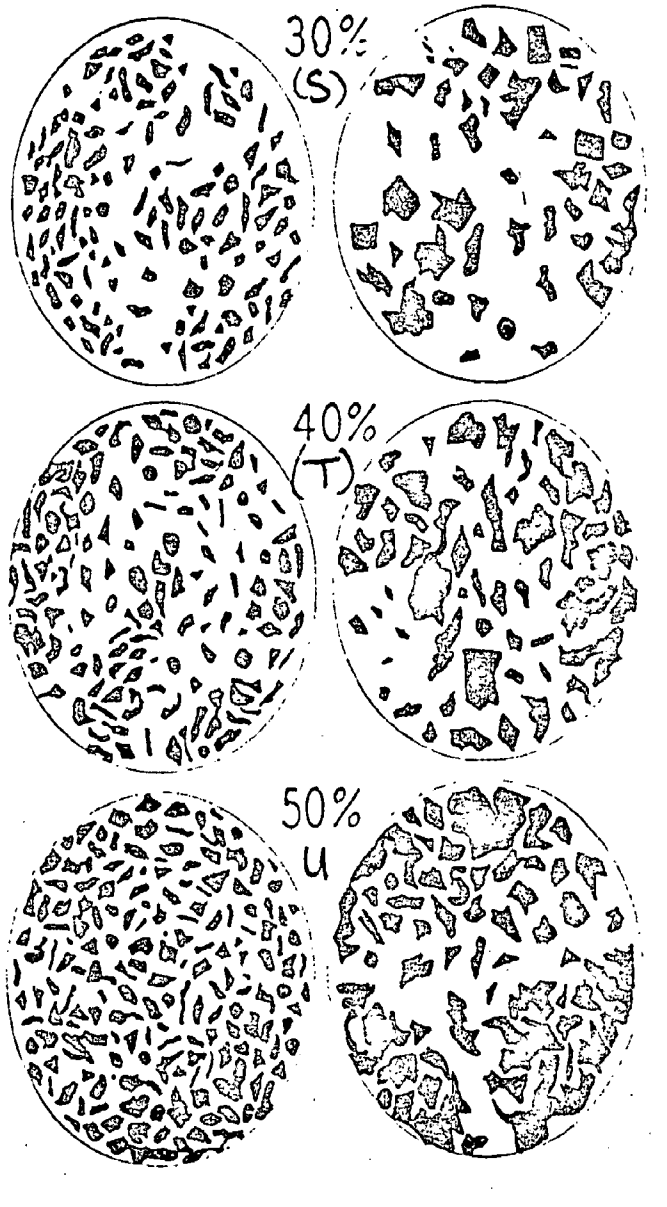


FIG. 4

TABLE 9 S-CODE 0110

This is a single character code used to express numbers as one significant figure in four sub-sets.

Assigned Value	Code	Assigned Value	Code
100	Z	0.9	Q
90	Y	0.8	P
80	X	0.7	0
70	W	0.6	-N
60	V	0.5	M
50	U	0.4	L
40	T	0.3	K
30	S	0.2	J
20	R	0.1	I
10	$	o.09	H
9	9	0.08	G
8	8	0.07	F
7	7	0.06	E
6	6	0.05	D
5	5	0.04	C
4	4	0.03	B
3	3	0.02	A
2	2	0.01	!
1	1		

TABLE 10

TWO PLACE CODE FOR DESCRIBING MINERAL SPECIES

AR	aragonite	AZ	azurite
BA	barite	BO	bornite
BI	biotite	CC	chalcocite
CA	calcite	CP	chalcopyrite
CB	carbonate	GØ	geothite
CY	clay	HE	hematite
DØ	dolomite	IM	ilmenite
DX	dolomite/calcite	LI	limonite
FL	feldspars (general)	MA	magnesite
GS	glass	MO	magnetite
GR	graphite	MC	malachite
KA	kaolin	PY	pyrite
MV	muscovite	PL	pyrolusite
MI	micas (general)	PR	pyrrhotite
ØP	opal	RV	rutile
ØX	oxide (general)	HS	specular hematite
ØQ	opaques (general)	SX	sulphides (general)
QZ	quartz	WD	wad
QC	chert	ZI	zircon
QV	quartz vein, massive	QX	quartz crystals
TØ	tourmaline	ZZ	any mineral
AM	amphiboles (excluding actinolite)	AS	asbestos
MB	molybdenite		

TABLE 11

CODES TO DESCRIBE MODE OF OCCURRENCE OF MINERALS

Code	Definition	
V	Veins	
M	Massive - diagenetic veinings	
T	Detrital	
F	Fine grained	disseminations
M	Medium grained	disseminations
C	Coarse grained	disseminations

14. Porosity (column 80)

The porosity of a rock is the percentage volume of the total pore/void space in a given volume of rock.

By using S-code in Table 9 the percentages may be entered as a one-figure code in column 63.

N. B. For spherical grains of uniform size packed at the corners of cubes, porosity is 47.64% (maximum possible)

For spherical grains of uniform size packed at the corners of tetrahedra porosity is 25.95% (minimum possible)

The porosity may be estimated by using the Table 8.

15. Cementation

A three place code is used similar to "mineralogy". The first two places describe the mineralogy of the cement, the code for which can be found in Table 10.

The final place expresses the percentage of cement, using S-code (Table 9).

e.g. ØPR
ØP = opaline
R = 20%

or

CB5
CB = carbonate
5 = 5%

16. Induration

A 5 fold split is suggested, to describe the degree of induration of a sediment. The following categories are to be used and the appropriate number (1-5) entered in column 67.

Induration

1. Fresh, hammer tends to bounce off the rock.
2. Easily broken by hammer
3. The rock can be broken by a kick (preferably with boots on) but not by hand.
4. The rock can be broken apart in the hands but does not disintegrate in water.
5. Soft clay with grit, disintegrates if immersed in water.

0114

17. Texture

A single character in column 68 is utilized and follows the categories set out in Table 12.

18. Sedimentary Structures (column 69-72)

A four place mnemonic has been assigned to this.

It is suggested that a "running file" system be adopted so that newly recognized structures may be added to this list of mnemonics. The nomenclature of Conybeare and Crook* should be followed wherever possible.

19. Core Recovery

This is the core recovery for the entire lithological interval being described.

It is the ratio of:-

$$\frac{\text{length of core recovered}}{\text{length of interval drilled}} \times \frac{100}{1}$$

* Conybeare C. E. B. and Crook K. A. W. (1965) Manual of Sedimentary Structures. B. M. R. Bu.. No. 102 327 pp.

TABLE 12

MNEMONICS FOR DESCRIBING TEXTURE

Code	Definition
B	Bedded
Z	Cross bedded
S	Fissile
F	Fossiliferous, broclastic
:	Graded Bedding
L	Laminated, varved
∅	Oolitic pisolitic
.	Pelletal (pelletoidal?)
R	Spary
T	Tuffaceous
U	Uniform
X	other

The core recovery is written into columns 73 and 74 as a percentage correct to the nearest one percent. If 100% recovery write W (whole core recovered) into column 74. 0116

20. N. Factor.

This is the number of pieces of core larger than $\frac{1}{2}$" in the interval defined above.

The number of pieces are counted (up to 50 pieces) and the number entered into columns 75 and 76. If there are more than 50 pieces in the interval being described then insert a > (greater than) symbol in column 76.

21. Fracturing Coefficient.

This is the ratio of:-

$$\frac{\text{length in inches (cm) of core smaller than } \frac{1}{2}\text{"}}{\text{length in inches (cm) of interval}} \times \frac{100}{1}$$

This coefficient is also expressed by two numerals entered into columns 77 and 78.

Condensed or Summary Columns

These are shown in cross hatching on the logging sheet and require careful consideration by the geologist logging the holes.

The summary columns when considered alone should guide the exploration for a stratiform copper deposit.

Comments to be key-punched and not to be key-punched

These are written across columns 19-50 and 50-80 respectively, after the correct "card type" code has been filled in.

Abbreviations, codes, mnemonics etc, should be used in these comments.

Note:- for "LK"; columns 19-80 can be used.
for "AC"; columns 19-50 can be used.

TABLE 13

MNEMONICS FOR DESCRIBING SEDIMENTARY STRUCTURES

PLAM	parallel laminations
GRAD	graded bedding
XSTT	cross stratification
CBED	current bedding
CLXX	clasts (general)
CLSH	shale clasts etc
CDXX	clastic dykes
CDSS	sandstone dykes
FLMS	flame structures
SLUM	slumps
LOAD	load casts
NDXX	nodular (general)
NDQC	chert nodules
PAPS	pull-apart structures
XTXX	crystals (diagenetic and general)
XTPY	pyrite crystals
STRM	stromatolites/algal structures
DCXX	dessication cracks (general)
DCMP	mud cracks

APPENDIX II (2)

USE OF "MUNSELL SOIL COLOUR CHARTS"

TO DESCRIPTION OF CUTTINGS CORE

ETC.

UTAH DEVELOPMENT COMPANY

(MINERAL DEVELOPMENT & GEOLOGY)

0119

DATE: 20th February, 1973.

COPIES TO:

TO Files

FROM: R. B. Kitch

SUBJECT: USE OF "MUNSELL SOIL COLOUR CHARTS" TO DESCRIPTION OF CUTTINGS CORE ETC.

REFERENCE:

Introduction

The standardization of colour terminology when logging drill cuttings, core, hand specimens, etc., may be achieved by the use of the

Munsell Soil Colour Charts,
(Publ. by Munsell Colour Company Inc., Baltimore, USA)

This booklet is available from; The Manager, (Mr. R. W. Nicholas),
Tait Book Department,
415 Bourke Street,
MELBOURNE, Victoria. 3000

Delivery is approximately 10 days, price $48.00.

Technique

The colour of a specimen is described on the Munsell scale by matching the material against standard colours in the pocket-book which covers the range of colours. Both dry and moist specimens may be matched and this should be stated in the description.

Colour is reduced to three properties :

1. Hue

This is the dominant spectral colour and describes the position in the spectrum between red and yellow.

0120

There are eight sheets in the Munsell book ranging from red to yellow, any one sheet having one hue only. The hues are known by conventional numbers and initials, the purest red being seven point five red (7.5R), the purest yellow as five yellow (5Y) and intermediates 5YR etc.

2. Value

Within each hue on each sheet, there are seven rows of standards each of the same value. The value is the brightness (lightness or darkness) and varies vertically on the charts. It is a measure of the square root of the proportion of light reflected; a very light grey (normally called "white") has a value of 8 out of 10, a very dark grey ("black") has a value of 2.

3. Chroma

Within each value and increasing from left to right is chroma. Chroma is the intensity of the basic spectral colour. For any one value or brightness the saturation with a given colour (or chroma) may vary from nothing (the plain grey, whether light or dark) to a strong colour, going up to 8 units in this scale.

Example

The colour of a specimen is given by the hue, value and chroma in that order.

A "yellow" cutting might be described as 2.5Y 7/8.

The 2.5Y (hue) indicates the sheet, close to a pure yellow.
The 7 (value) indicates the brightness.
The 8 (chroma) indicates the saturation with the yellow.

By comparison 7/0 on the same sheet is a very pale grey which might give a false impression of blueness to an observer who has just been looking at reds and yellows.

(The standard grey 7/0 is of course the same on all eight sheets.) Pure reds are not common, but a strong red might be 10R5/6 - reds being generally less bright, so with a score of 5 here against 7 (in value) for the yellow.

Rock Colour Charts

In Blanchet and Godwin 1972 ("Geolog System" Econ. Geol. 67, pp 796-813) on page 799, Fig. 2. the "three dimensional" cept and relationship of hue, value and chroma are portrayed by the right hand figure.

Reference is made to a rock colour chart prepared by the U.S.G.S., G.S.A., A.A.P.G. and S.E.G.

We should endeavour to find out if these additional "hue pages" exist so that greens, purples and blues may be described by the Munsell system.

Munsell Colour Charts are obtainable ($10.00 per copy ?) through Ian Pontifex of McPhar Geophysics.

EXAMPLE

0122

DRILL HOLE GEOLOGIC LOG

UTAH DEVELOPMENT CO.

South Australian Stratiform Copper

Location YERELINA VALLEY - SML 7/7

DRILLED BY : BORING ENTERPRISES

COMMENCED : 1-4-73

COMPLETED : 1-4-73

LOGGED BY: G. CHUCK

DATE : 2-4-1973

HOLE No YX05

PAGE 1 OF 2

TYPE OF HOLE DDH ☐ PDH ☑ RDH ☐

DIP 90° AZIMUTH — °M

NORTHING Y076 - 50 Ft. M.

EASTING 276 Ft. M.

COLLAR RL Ft. M.

DATUM

Assays (3 Significant Figures)

INTERVAL DESIGNATION: Hole Designation | Depth to bottom of Interval | Length at Interval | Spare (for 16 digit system)

Card type | Zone | Contacts

ROCK TYPE: Rock type 4 letter code | Lombard No | Grain Size | Sorting | Sphericity & Roundedness | Color (4 letter code) | Environment of Deposition-Igneous

MINERALOGY: OZ | FL | MI | RX | Mode % | Mode %

ECON. MIN. SPECIES: CP | PY | Mode % | Mode % | Summary of mineralization

PHYSICAL CHARACTER: Porosity | Cementation: Material | Colour | Induration | Texture | Sedimentary Structures

ROCK MECHANICS (CORE): Core Recovery | R > 1" | Fracturing

Core Structure Log

SCALES:

NAMES: COPPER

Comments to be punched

Comments not to be punched

CBAC 08

CBAC 08

CBAC 08

CBAC 08

0123

DRILL HOLE GEOLOGIC LOG

UTAH DEVELOPMENT CO.

South Australian Stratiform Copper

Location YERELINA VALLEY-SML 717

DRILLED BY: BORING ENTERPRISES.

COMMENCED: 1-4-73

COMPLETED: 1-4-73

LOGGED BY: G. CHUCK

DATE: 2-4-73

HOLE NO Y X05

PAGE 2 OF 2

TYPE OF HOLE ODH ☐ PDH ☑ RDH ☐

DIP 90° AZIMUTH °M

NORTHING Y076.50 Ft. M.

EASTING 076 Ft. M.

COLLAR RL Ft. M.

DATUM

Assays (3 Significant Figures)

SCALES:

NAMES: COPPER

Hole Designation	Depth to bottom of Interval	Length at Interval	Spare (for 16 digit system)	Card type	Zone	Contacts	Rock type 4 letter code	Lombard No.	Grain Size	Sorting	Sphericity & Roundedness	Color (4 letter code)	Environment of Deposition/Facies	QZ Mode %	FL Mode %	MI Mode %	RX Mode %	Mode %	Mode %	Mode %	Mode %	CP Mode %	PY Mode %	Mode %	Mode %	Mode %	Summary of mineralization	Porosity	Cementation	Mineralogy	c-g	Lithification	Texture	Sedimentary Structures	Core Recovery	N > 1/2"	Fracturing	Core Structure Log
				F	T																																
Y	X	0	5	0	1	2	5	0	0	5	0		A																								
		0	1	1	3	0	0	0					A																								
		0	1	1	3	5	0	0					A																								
		0	1	1	4	0	0	0					A																								

Comments to be punched

Comments not to be punched

COMMENTS: CBAC 08

UTAH DEVELOPMENT CO.

DRILL HOLE GEOLOGIC LOG

South Australian Stratiform Copper

Location

DRILLED BY :
COMMENCED :
COMPLETED :

LOGGED BY:
DATE :

HOLE Nº
PAGE OF

TYPE OF HOLE DDH ☐
PDH ☐
RDH ☐

NORTHING_____Ft. M.
EASTING_____Ft. M.
COLLAR RL_____Ft. M.
DIP ° AZIMUTH °M DATUM_____

Assays (3 Significant Figures)

INTERVAL DESIGNATION: Hole Designation | Depth to bottom of Interval | Length at Interval | Spare (for 16 digit system).

Card type | Zone | Contacts

ROCK TYPE: Rock type 4 letter code | Lombard Nº | Grain Size | Sorting | Sphericity & Roundedness | Color (4 letter code) | Environment of Deposition (facies)

MINERALOGY: QZ | FL | MI | RX | | | | (Mode / %)

ECON. MIN. SPECIES: CP | FY | | | Summary of mineralization (Mode / %)

PHYSICAL CHARACTER: Porosity | Cementation: Mineralogy | % | Induration | Texture | Sedimentary Structures

ROCK MECHANICS (CORE): Core Recovery | N > ½" | Fracturing

Core Structure Log ↓

SCALES:
NAMES:

Comments to be punched

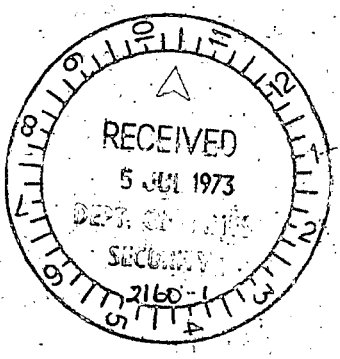
Comments yet to be punched

01124

Arenites
OS
Wackes (Argillaceous sandstones)
WS
Dolomitic sandstone (calc.-arenites)
DS
Sandy dolomites
SD
Sandy siltstone
SM
Dolomitic siltstones
DM
Argillaceous dolomite
MD
Dolomite
OD
Siltstone
MO
Siltstone
OM
Argillaceous dolomite
MD
Dolomite
OD
Siliceous siltstone
QM
Dolomitic siltstone
DM
Siliceous dolomite
QD
Dolomite
OD
Porcellanite
MQ
Dolomitic chert
QD
Chert
QD
Dolomite
OD
Siliceous dolomite
QD
Argillaceous dolomite
MD
Dolomitic siltstone
DM
Siliceous siltstone
QM
Dolomite
OD
Chert
QD
Dolomitic chert
QD
Porcellanite
MQ
Dolomite
OD
Dolomitic siltstone
DM
Siliceous siltstone
QM
Chert
QD
Dolomite
O

APPENDIX III

PETROLOGICAL DESCRIPTIONS.



0127

McPHAR GEOPHYSICS PTY. LTD.

TELEPHONE 72 2133

50-52 MARY STREET, UNLEY, SOUTH AUSTRALIA
POSTAL ADDRESS: P.O. BOX 42, UNLEY, SOUTH AUSTRALIA 5061

CABLE
"PHARGEO" ADELAIDE
TELEX
"PHARGEO" AA82623

MINERALOGICAL REPORT NO. 1250

by: I.R. Pontifex

8th June, 1973.

TO: Mr. R.G. Chuck,
Utah Development Co.,
197 Main Road,
BLACKWOOD. S.A. 5051

YOUR REFERENCE: Order to Collect No. 4631

MATERIAL: Rock samples.

IDENTIFICATION:
Y066.75/022.10
Y068.80/021.45
Y065.75/021.00
Y068.80/021.82
Y065.50/022.50

WORK REQUESTED: Detailed petrological examination.

SAMPLES & SECTIONS: Returned to above address.

McPHAR GEOPHYSICS PTY. LTD.

I.R. PONTIFEX
Chief Mineralogist.

Y065.50/022.50: metaquartzite with interstitial chlorite, potash felspar, (rutile and iron oxides) of metasomatic origin.

This rock is essentially a meta-quartzite. It consists of a massive but fairly homogeneous granoblastic mosaic of dominantly quartz, average grainsize about 0.5 mm. Intergranular boundaries between the quartz are fairly extensively sutured, this has developed by recrystallisation and welding of a former aggregate of detrital quartz grains.

Fine highly irregular patches of chlorite (7-10%) are widespread, located within intersticies throughout the quartz mosaic.

Potash felspar (3-5%) has the same mode of occurrence and is therefore commonly associated with chlorite. Trace iron oxides and rutile also accompany these interstitial components. A fine stringer of iron oxides cuts the rock.

This rock is a quartz sandstone which has been metamorphosed to meta-quartzite. Intersticies within the rock before or possibly during metamorphism, were permeated by a metasome from which chlorite, potash felspar and associated titanium and iron oxides developed. An alternative interpretation is that these components are inherent to the sediment, however comparison with other samples in the suite supports the metasomatic hypothesis. Also inherent potash felspar would retrograde to breakdown products under the apparent greenschist grade of metamorphism.

This rock is similar to YX11/255-260/P described in Mineralogical Report No. 1252.

Y065.75/021.00: meta-quartzite fairly extensively replaced by pervasive potash felspar, chlorite, and minor carbonate, quartz, sphene, sulphides.

This rock has a gross medium grained, granoblastic (quartzitic) texture, much the same as in Y065.50/022.50, with superimposed streaky and generally parallel bands of pinkish potash felspar.

The thin section consists largely of a rather heterogeneous granoblastic quartz mosaic, formed by the metamorphism of a rather poorly sorted dominantly quartzose sandstone. Conceivably the sandstone was "dirty" i.e. a wacke, possibly it contained minor felspar.

Potash felspar, variety microcline occurs in the streak-like veins noted above, but it has also randomly permeated the quartz mosaic. It forms some 25% of the rock and is sporadically accompanied by carbonate (7%), chlorite (10%), euhedral quartz crystals (5-7%), sphene, zircon, tourmaline, ? apatite, and magnetite (trace).

Limonite replicas after pyrite (1-2%) occur in some poorly defined quartz-felspar streaks, and accessory malachite is also located in these.

In the hand specimen and polished section, small patches of chalcopyrite (<1%) are seen to be extensively altered to limonite and have a random distribution more-or-less associated with potash felspar.

This is a metamorphosed quartz sandstone, fairly extensively replaced by potash felspar, chlorite, minor quartz, carbonate, accessory sphene, zircon and sulphides. These components were introduced during metamorphic crystallisation of the

sediment, they may be considered essentially hydrothermal-metasomatic of alkaline acid origin.

Trace tourmaline, zircon and apatite suggests pneumatolytic affinities.

Y066.75/022.10: meta-quartzite, extensively pervaded and replaced by potash felspar, quartz with accessory chlorite, sphene, zoisite; pyrite and specularite.

This rock is similar to Y065.75/021.00. Introduced potash felspar and fine quartz mosaic have a relatively more irregular distribution and are more abundant, (30-35% and 15-20% respectively), than in the previous sample. The original quartzitic domain is therefore less apparent and more difficult to positively identify as a metamorphosed sediment.

Compared with Y065.75/021.00, chlorite is less abundant (2-3%); sphene (3%) and euhedral pyrite crystals (3-5%) are more abundant but they have a similar mode of occurrence. Accessory subhedral, fine crystals of zoisite accompany the sphene. Carbonate is absent.

Discordant veins of allotriomorphic quartz carrying limonite replicas after euhedral pyrite, micaceous hematite, and minor chlorite and trace green biotite, cut the rock at random.

This is a metaquartzite extensively pervaded and replaced by the hydrothermal-metasomatic assemblage of acid igneous origin as noted for Y065.75/021.00.

Y068.80/021.45: massive quartz-microcline rock with minor carbonate, sphene and pyrite, completely replacing a quartzite.

This rock consists of a fairly coarse heterogeneous aggregate of potash felspar (microcline) with random, highly irregular, interstitial patches of microcrystalline to medium granoblastic quartz (15-20%), and of carbonate (5-7%). The microcrystalline quartz is interpreted to be hydrothermal, the coarser granoblastic quartz appears to be remnants of the quartzitic quartz described in previous sections.

Limonite replicas after fine euhedral pyrite (2%), sphene (1%), and fine specularite (<1%) and magnetite (<1%), are randomly scattered.

Partly by comparison with former samples, this rock is considered to represent a meta-quartzite completely replaced by a potash-silica dominant assemblage, carrying minor carbonate, chlorite, sphene and pyrite, which is probably a late magmatic ? pegmatitic phase of a granitic intrusive.

Y068.80/021.82: meta-quartzite, fairly extensively replaced by the pervasive introduction of potash feldspar and minor quartz, chlorite, carbonate, magnetite.

This is similar to previously described samples being essentially a meta-quartzite replaced by a potash-silica assemblage to a degree between that shown in Y065.50/022.50 and Y065.75/021.00.

A rather heterogeneous granoblastic quartz mosaic contains random, irregular, more-or-less interstitial areas of potash felspar (microcline), with minor scattered patches of hydrothermal quartz, carbonate and chlorite.

This rock differs from the others in that it contains 3-5% disseminated, fine crystals of magnetite and the rock is weakly magnetic. The magnetite has been introduced together with the potash felspar, quartz, chlorite assemblage. There is no evidence of sulphides in this rock.

McPHAR GEOPHYSICS PTY. LTD.

0134

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CABLE
"PHARGEO" ADELAIDE
TELEX
"PHARGEO" AA82623

MINERALOGICAL REPORT NO. 1252

by: I.R. Pontifex

8th June, 1973.

TO: Mr. N. Rowlands,
Utah Development Co.,
197 Main Road,
BLACKWOOD. S.A. 5051

YOUR REFERENCE: Your Order to Collect No. 2645.

MATERIAL: Rock chips and fibrous mineral.

IDENTIFICATION: YX11/255-260/P
YX12/355-360/P

WORK REQUESTED: Petrographic description and mineral identification.

SAMPLES & SECTIONS: Returned to you.

McPHAR GEOPHYSICS PTY. LTD.

I.R. PONTIFEX
Chief Mineralogist.

YX11/255-260/P: meta-quartzite which has been subjected to minor potash-silica metasomatism, and accompanying development of chlorite, sericite and tourmaline.

Examined under binocular microscope the several fragments constituting this sample are found to have essentially the same composition and texture. They consist of a darkish-grey massive, fine to medium grained quartzite. Fine dark green material occurs in intersticies, minor orange-brown limonite occurs in very fine random patches. Minor ? quartz, ? felspar veinlets cut some fragments.

In thin section the rock is seen to consist of a moderately loosely packed aggregate of subrounded detrital quartz grains ranging in size from 0.2 mm to 1.2 mm. The degree of sorting is marginally better in one of the fragments sectioned than in a second.

Abundant interstitial areas throughout this aggregate are variably filled (in the two different fragments sectioned) by microcrystalline quartz formed by the metamorphic recrystallisation of the detrital quartz grains together with widespread introduced minerals which in order of abundance are:

very fine green biotite
chlorite
potash felspar
sericite
quartz
isolated subhedral green and blue tourmaline crystals.

Criss-crossing veinlets of potash felspar, with minor quartz chlorite sericite and traces of magnetite cuts through one section.

This is a metamorphosed quartz sandstone (quartzite) in which interstitial pore spaces have been invaded by metasomatic fluids carrying potassic minerals (felspar and biotite), chlorite, sericite, quartz and tourmaline. Conceivably these derived from late magmatic phases of a granite intrusive.

YX12/355-360/P:

This asbestiform mineral was subjected to analysis by X-ray powder diffraction. Comparison of the resultant photo-pattern with data in the A.S.T.M. powder diffraction file identified the mineral as loughlinite, an asbestiform hydrated magnesium silicate, $MgSi_2O_5 \cdot nH_2O$.

Research of the only reference known to the author (Mineralogical Magazine No. 28, page 732) provided rather inadequate information on the genesis of this mineral. The only information given is that "loughlinite occurs in veins in low-grade oil shale that contains crystals of shortite. It has an asbestos-like appearance, a silica-magnesia ratio of two to one, and gives an X-ray powder picture unlike any known magnesium silicate". (It has been investigated from a shaft in Wyoming sunk for the purpose of mining trona, an evaporite mineral).

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0138

MINERALOGICAL REPORT NO. 1231

by: I.R. Pontifex

10th May, 1973.

TO: Mr. N. Rowlands,
Utah Development Co.,
197 Main Road,
BLACKWOOD. S.A. 5051

YOUR REFERENCE: Your Order to Collect No. 2639.
Job No. 717.

MATERIAL: Percussion cuttings and rock samples.

IDENTIFICATION: YX07 - 0475.0 - 05.0P to
YX07 - 0530.0 - 05.0P
YX07/CO/SP
Percussion cuttings log of YX06 and YX07.

WORK REQUESTED: Binocular microscope examination, litho-log, various polished section work, rock cutting and polishing as detailed.

SAMPLES & SECTIONS: Returned to the above address.

McPHAR GEOPHYSICS PTY. LTD.

I.R. PONTIFEX
Chief Mineralogist.

COMMENTS:

General -

The percussion cuttings 0475.0 to 0530.0 have essentially the same mineralogical composition throughout. The only difference apparent under binocular microscope is marginal variation in the abundance of the accessory actinolite and biotite within the marble host. Although an estimate of the abundance of these minerals, and of magnetite and sulphides is given, it is emphasised that at the low levels represented, such estimates can be somewhat inaccurate (one reason for example being variation in grain size as established for the two fractions in 0495.0.

In 0495.0 the grain size of the - 18 mesh fraction coincides approximately with the grainsize of biotite, actinolite and opaques which are disseminated through the marble. As a result, these components are released as individual grains to a far greater degree than in the +18 mesh fraction. They are therefore more abundant in the finer fraction than in the coarser.

Obviously the most accurate determination of the chalcopyrite abundance will be obtained from the copper assay value. A more precise assessment of variation of other components would require detailed thin section examination.

The samples examined in polished section are indicated by *.

Genesis -

These cuttings are interpreted to represent a marginally impure limestone of chemical-sedimentary origin which crystallised under conditions of lower amphibolite facies metamorphism. The actinolite represents iron and possibly minor magnesium impurities; biotite represents mainly potash, (from clays ?) minor iron and magnesium impurities.

Opaque minerals -

The magnetite and sulphides are inherent components of the former sediment, which were reconstituted into their current form during crystallisation. In most of the polished section they are seen to occur generally as individual subhedral to anhedral grains, located in the carbonate host and varying in size from 0.05 mm to 2 mm. Magnetite is generally the coarsest. Pyrite averages about 0.3 mm, chalcopyrite 0.5 mm. Rare, very fine inclusions of chalcopyrite may occur in magnetite. Pyrite-magnetite composite grains are rare.

Trace amounts of fine pyrrhotite (0.2 mm) occur individually, and form composite grains with chalcopyrite in the 0495.0 sample. Rare veinlets of chalcopyrite also occur in that sample.

Single large grains of chalcopyrite in 0525.0 show incipient alteration to chalcocite along fractures.

YX07/CO/SP

The opaque minerals in this section are essentially the same as in the other sections examined, possibly slightly more abundant. They are:

magnetite	3-5%
pyrite	2%
chalcopyrite	1%

Magnetite occurs in irregular grains (up to 2 mm), and rare groups of these up to 4 mm. Very rare short veinlets of magnetite are present. Pyrite occurs characteristically as euhedral to subgedral grains, fairly evenly distributed, average grain size 0.5 mm. Rare anhedral grains up to 2 mm are present.

Chalcopyrite is the least abundant opaque (<0.5%), it occurs in generally gine (0.2 mm), independent anhedral grains randomly distributed in the carbonate host.

DESCRIPTION OF PERCUSSION CHIP SAMPLES:

Sample No. (prefix YX07) (suffix 05.0P)	Lithology	
0475.0	actinolite-marble containing fine disseminated opaques and accessory biotite, estimated abundance:	
	marble (calcite)	60-70%
	actinolite	30%
	biotite	trace
	magnetite	2-3%
	chalcopyrite	<1%
	pyrite	<1%
0480.0	actinolitic-marble; disseminated opaques:	
	marble (calcite)	90%
	actinolite	5-7%
	magnetite	2-3%
	chalcopyrite	<1%
	pyrite	<1%
* 0485.0	actinolitic-marble; disseminated opaques:	
	marble (calcite)	90-95%
	actinolite	2-3%
	biotite	1-2%
	magnetite	1-2%
	chalcopyrite	<1%
	pyrite	<1%

0143

Sample No.	Lithology	
0490.0	biotitic-actinolitic-marble; disseminated opaques:	
	marble (calcite)	90-95%
	actinolite	2-3%
	biotite	2-3%
	magnetite	1-2%
	chalcopyrite	1%
	pyrite	< 1%
* 0495.0 (+18 mesh)	biotitic-actinolitic marble, disseminated opaques:	
	marble (calcite)	90-95%
	actinolite	2-3%
	biotite	2-3%
	magnetite	1%
	chalcopyrite	trace
	pyrite	< 1%
	pyrrhotite	trace
* 0495.0 (-18 mesh)	biotitic-actinolitic marble, disseminated opaques:	
	marble (calcite)	85-90%
	actinolite	3-5%
	biotite	5-7%
	magnetite	3%
	chalcopyrite	< 1%
	pyrite	1-2%
	pyrrhotite	trace

Sample No.	Lithology	
0520.0	biotitic-actinolitic marble; disseminated opaques:	
	marble (calcite)	85-90%
	actinolite	5-7%
	biotite	5-7%
	magnetite	1-2%
	chalcopyrite	<1%
	pyrite	<1%
* 0525.0	biotitic-actinolitic marble; disseminated opaques:	
	marble (calcite)	90%
	actinolite	2-3%
	biotite	3-5%
	magnetite	2-3%
	chalcopyrite	<1%
	pyrite	1-2%
	chalcocite	trace
0530.0	biotitic-actinolitic marble; disseminated opaques:	90%
	marble (calcite)	90%
	actinolite	2-3%
	biotite	3-5%
	magnetite	2-3%
	chalcopyrite	<1%
	pyrite	<1%

DESCRIPTION OF Y717 PIN/01P; AND 03P:

Y717 PIN/01P: biotite actinolite marble, accessory magnetite.

This rock has a homogeneous composition and texture. It is holocrystalline, consisting of subhedral to euhedral prisms of actinolite, average size 5 mm, randomly oriented and fairly closely packed within a slightly finer crystalline aggregate of calcite (or marble).

Actinolite forms 40-50% of the rock, calcite 50-60%.

Minor (12-15%) greenish brown biotite occurs in variably continuous trains throughout the rock, generally more-or-less following the outlines of actinolite crystals. Very small local concentrations of biotite are present.

Traces of fine magnetite are randomly scattered, and the rock is weakly magnetic.

Sulphides were not recognised.

Y717 PIN/03P: actinolite-marble-accessory magnetite, pyrite and chalcopyrite.

Relatively large massive areas of light green finely fibrous and prismatic actinolite up to 10 cm across are irregularly intergrown with similar size areas of marble. Minor, fine, actinolite is randomly dispersed in the marble, minor carbonate occurs in irregular, random intersticies in the actinolite areas.

Accessory pyrite, magnetite and lesser chalcopyrite in irregular grains up to 5 mm have a random distribution through the massive marble portions of the rock. These minerals also occur in marble filling fractures and intersticies through the massive actinolite. They appear to have a slight build-up in concentration in a vaguely developed 'front' located in the marble just inside the contact of marble and actinolite.

Relatively minor magnetite and sulphides are dispersed through the actinolite. It appears therefore that the recrystallisation and movement of carbonate had more influence on the distribution of the opaques, than did the formation of the actinolitic areas.

LITHOLOG, DRILL CUTTINGS, HOLE YX06

Interval (ft.)	Rock name	Estimate vol.% components								Comments
		marble	actinolite	biotite	quartz	chlorite	magnetite	pyrite	chalco.	
0-5	qtz and hematitic qtz									surface rubble
5-10	qtz and actinolite rock									surface rubble and actinolitic bedrock; only actinolitic marble in fines.
10-20	hem-qtz rock and actinolite rock.									
20-25	biotite-actinolite-marble	70	20	10			tr			
25-30	as above	75	20	5			tr			
30-35	as above	70	15	15			tr			
35-40	as above	65	25	10			ac			
40-45	as above	60	30	10			ac			
45-50	as above	65	30	5			tr			
50-55	as above	60	30	10			tr			
55-60	as above	55	30	15			tr	tr		
60-65	as above	60	30	10			tr			
65-70	as above	65	25	10			ac			
70-75	as above	55	35	10			ac			
75-80	as above	65	30	5			ac			- minor hyalite
80-85	as above	55	40	5			ac	tr		- tr malachite
85-90	actinolite-marble	55	40	5			ac			
90-95	as above	65	30	5	3		5			coarse x/s magnetite
95-100	qtz-biotite-actin.marble	50	30	5	10		5			signif. xlline qtz.

LITHOLOG, DRILL CUTTINGS, HOLE YX06

Interval (ft.)	Rock name	Estimate vol.% components								Comments
		marble	actinolite	biotite	quartz	chlorite	magnetite	pyrite	chalco.	
100-105	qtz-actin.-marble	55	30		10		5	tr	tr	some qtz is hyalite.
105-110	actinolite-marble	90	10				tr	tr	tr	
110-115	as above	90	10				ac	tr	tr	
115-120	as above	80	20				ac	tr	tr	
120-125	as above	60	40	tr			ac	tr	tr	
125-130	biotite-actin.-marble	55	40	5			ac	tr		minor frags. hematite
130-135	as above	55	40	5			ac	tr	tr	
135-140	actinolite-marble	90	10	tr			ac		tr	
140-145	as above	70	30	tr			5	tr	tr	
145-150	as above	70	30	tr			5	5	tr	
150-155	as above	75	25	tr			5	tr	tr	
155-160	marble	100	tr	tr			tr	tr	tr	
160-165	as above	100	tr	tr			tr	tr	tr	access. tremolite
165-170	as above	100	tr	tr			tr	tr	tr	access. tremolite
170-175	as above	95	3	tr			tr	tr	tr	
175-180	as above	95	2	2			tr	tr	tr	
180-185	as above	95	2	2			tr	tr	tr	
185-190	qtz-chlorite-actin-marble	30	20	30	20		tr	tr	tr	chlorite possibly after biotite.
190-200	qtz-biotite-marble	50	5	20	25		tr			
200-205	biotite-qtz-hornfels	5	5	30	60		tr			fines dominantly marble.
205-210	as above	5	5	20	70		tr			" " "

LITHOLOG, DRILL CUTTINGS, HOLE YXO6

Interval (ft.)	Rock name	Estimate vol.% components								Comments
		marble	actinolite	biotite	quartz	chlorite	magnetite	pyrite	chalco.	0149
210-215	biotite-chlor-qtz hornfels	5	5	30	50	10	tr			fines dominantly marble.
215-220	as above	5	5	20	60	10	tr			" " "
220-225	biotite-actin-marble	60	30	30			tr			
225-230	as above	40	20	40			tr			
230-235	as above	60	30	10					tr	
235-240	as above	50	20	30			ac	tr	tr	
240-245	as above	40	20	40			tr	tr		
245-250	as above	30	30	40			ac	tr		
250-255	as above	30	50	30			tr			
255-260	as above	30	40	30			ac			
260-265	as above	30	40	30			tr			
265-270	as above	30	40	30						
270-275	as above	40	30	30						
275-280	biotite-actin-marble	50	30	20			tr	tr		
280-285	as above	40	30	30			tr			
285-290	as above	40	30	30			tr			
290-295	as above	30	40	30			tr			
295-300	as above	30	40	30			tr			
300-305	as above	50	30	20			tr	tr		
305-310	as above	40	30	30			tr			
310-315	as above	50	30	20			tr	tr		
315-320	as above	50	30	20			tr			
320-325	as above	50	30	20						

LITHOLOG, DRILL CUTTINGS, HOLE YXO6

Interval (ft.)	Rock name	Estimate vol.% components								Comments
		marble	actinolite	biotite	quartz	chlorite	magnetite	pyrite	chalco.	
325-330	biotite-actin-marble	50	30	20			tr			
330-335	as above	40	40	20						
335-340	as above	30	40	30						
340-345	as above	30	40	30						
345-350	as above	30	45	25			ac			some massive actinolite.
350-355	as above	25	45	30						
355-360	as above	35	25	40				tr	tr	
360-365	as above	30	30	40						
365-370	as above	30	30	40						
370-375	as above	40	30	30			tr			
375-380	as above	30	40	30						
380-385	as above	30	40	30						
385-390	as above	30	40	30						
390-395	as above	40	30	30			tr			
395-400	as above	30	40	30			tr			
400-405	as above	40	40	20						2% rutile in coarse fraction.
405-410	actinolite marble	50	50	tr			tr			
410-415	biotite-actin-marble	50	40	10		tr	tr			tr sericite-chlor. limonite stain.
415-420	as above	60	30	30						
420-425	as above	70	20	10		tr				f.g. h'blende one frag. amphibole.
425-430	biotite-actin-hornblende marble.	30	10	10						50% hornblende.

0150

Interval (ft.)	Rock name	Estimate vol.% components								Comments
		marble	actinolite	biotite	quartz	chlorite	magnetite	pyrite	chalco.	
430-435	biot-actin-h'blende-marble	30	10	20						40% hornblende.
435-440	as above	40	20	10						30% hornblende.
440-445	as above	40	30	10						20% hornblende.
445-450	as above	40	30	10						20% hornblende.
450-455	as above	40	30	20						10% hornblende.
455-460	as above	40	30	20						10% hornblende.
460-465	biotite-actin-marble	40	30	30						
465-470	as above	40	30	30						
470-475	as above	40	30	30						
475-480	biot-h'blende-actin-marble	30	30	30						10% hornblende.

Interval (ft.)	Rock name	Estimate vol.% components								Comments
		marble	biotite	quartz	chlorite	magnetite	pyrite	chalco.	actinolite	
0-5	qtz-mica schist									limonitic
5-10	hem-qtz-mica schist									
10-15	biotite-actin-marble	30	20						40	
15-20	as above	50	10			tr			40	
20-25	as above	45	20	5		tr	tr		30	
25-30	as above	55	15	5		ac			25	
25-30	as above	40	20			tr			40	
30-35	as above	30	30			ac			40	
35-40	as above	55	10	5					30	
40-45	as above	55	10	5					40	
45-50	as above	55	10	5					40	
55-60	as above	30	20						50	
60-65	as above	30	20			ac			50	
65-70	as above	30	15			5	tr	tr	50	
70-75	as above	30	15			5			40	
75-80	as above	30	20			ac	ac	ac	50	
80-85	as above	30	15			5	tr		50	10% rutile
85-90	actinolite-marble	45	ac			ac	tr	tr	50	ac rutile
90-95	as above	45	ac			ac	ac	tr	50	ac rutile
95-100	quartzose-actin-marble	40	ac	10		ac	ac	tr	50	
100-105	actinolite-marble	40	ac			5	5	tr	50	

LITHOLOG, DRILL CUTTINGS, HOLE YX07

Interval (ft.)	Rock name	Estimate vol.% components								Comments
		marble	biotite	quartz	chlorite	magnetite	pyrite	chalco.	actinolite	
105-110	biotite-actin-marble	40	10			7	ac	ac	40	
110-115	as above	45	20			5	tr	ac	40	
115-120	as above	45	20	5		5	ac	tr	40	
120-125	as above	30	20	5		5	ac	tr	40	
125-130	as above	50	10	5		5			30	tr rutile.
130-135	as above	35	20			5	ac		40	ac rutile.
135-140	as above	25	20			5	ac	ac	50	
140-145	as above	40	20			ac			40	
145-150	as above	40	20			ac	tr		40	
150-155	as above	50	10			5			40	
155-160	as above	40	20			5			40	
160-165	as above	50	10			ac			40	
165-170	as above	60	10						30	
170-175	as above	40	20			ac			40	
175-180	as above	40	20			5	ac		40	
180-185	as above	40	5			5	ac		50	
185-190	as above	40	5			5	tr		50	
190-195	as above	40	10			5	ac		50	
195-200	as above	40	10			5			50	
200-205	as above	40	10			5			50	
205-210	as above	30	10			tr			60	
210-215	as above	30	10			ac	tr	tr	60	

LITHOLOG, DRILL CUTTINGS, HOLE TX07

0154

Interval (ft.)	Rock name	Estimate vol.% components									Comments
		marble		biotite	quartz	chlorite	magnetite	pyrite	chalco.	actinolite	
215-220	biotite-actin-marble	30		10			tr			60	
220-225	as above	30		10			ac	tr	tr	60	
225-230	as above	30		20			tr			50	
230-235	as above	30		20			ac	tr		50	
235-240	as above	30		20			5	tr		50	
240-245	as above	40		10			tr			50	
245-250	as above	30		20			5	tr		50	
250-255	as above	30		10			5	tr	tr	60	
255-260	as above	10		20			ac	5	tr	65	
260-265	as above	15		10			ac	5	ac	70	
265-270	as above plus qtz hornfels	20		20	30		ac	tr		40	½ coarse frags. qtz hornfels
270-275	qtz-felsp-biotite-hornfels	5		30	50			tr		10	fines show mainly actin-marble.
275-280	as above	5		30	50			tr		5	fines largely marble.
280-285	as above			30	50			tr		10	fines largely actin. marble.
285-290	as above	10		30	50			ac		10	" " " "
290-295	as above			30	60			tr		5	" " " "
295-300	½ as above ½ actin-marble	25		20	30		5	tr		25	" " " "
300-305	biotite-actin-marble	40		10			ac	tr		50	
305-310	as above	40		20			ac	tr	tr	40	
310-315	as above	40		20			ac			40	
315-320	as above	40		20			tr	tr		40	
320-325	as above	40		20			tr	ac	tr	40	

LITHOLOG, DRILL CUTTINGS, HOLE YX07

0155

Interval (ft.)	Rock name	Estimate vol.% components								Comments
		marble	biotite	quartz	chlorite	magnetite	pyrite	chalco.	actinolite	
325-330	biotite-actin-marble	40	20						40	
330-335	as above	25	15	20		ac			40	1 coarse frag. qtz hornfels.
335-340	as above	40	20			5			40	
340-345	as above	45	5			ac	tr		50	
345-350	as above	45	5			5			50	
350-355	as above	45	5			ac	tr		50	
355-360	as above	45	10			ac	tr		45	
360-365	½ as above ½ qtz-biotite hornfels	30	20	20		ac			30	fines only actin-marble.
365-370	as above	15	30	40					15	fines only actin-marble.
370-375	biotite-actin-marble	45	10			tr			45	
375-380	as above	40	20			tr			40	
380-385	as above	35	25						40	
385-390	as above	35	25						40	
390-395	as above	30	20			tr	tr		50	
395-400	½ as above ½ biotite-qtz hornfels	20	30	30		tr	tr		20	
400-405	biotite-actin-marble	40	20			ac			40	
405-410	as above	40	20			ac	tr		40	
410-415	as above	40	20			tr	tr		40	
415-420	as above	30	20			ac	ac		50	
420-425	as above	50	10			ac	tr	tr	40	
425-430	as above	40	20						40	

LITHOLOG, DRILL CUTTINGS, HOLE YXO 7

Interval (ft.)	Rock name	Estimate vol.% components								Comments
		marble		biotite	quartz	chlorite	magnetite	pyrite	chalco.	actinolite	
430-435	biotite-actin-marble	40		20			tr			40	
435-440	as above	40		10			tr			50	
440-445	as above	45		5			ac	ac	tr	50	
445-450	as above	40		20			ac	tr		40	
450-455	as above	65		5			5	5	tr	20	
455-460	as above	65		5			5	5	tr	20	
460-465	actinolite marble	75		5			5	5	tr	10	
465-470	as above	65		5			10	5	5	10	
470-475	as above	70		5			10	5	ac	10	
475-480	as above	65		5			10	5	5	10	
480-485	as above	70		5			10	5	ac	10	
485-490	as above	90					ac	ac	tr	10	
490-495	as above	85					5	ac	ac	10	
495-500	as above	85					5	ac	ac	10	
500-505	as above	85					5	ac	tr	10	
505-510	as above	85					5	ac	tr	10	
510-515	as above	85					5	ac	tr	10	
515-520	as above	70		5			5	5	tr	20	
520-525	as above	70		10			5	ac	tr	20	
525-530	as above	85					5	ac	ac	10	
530-535	marble	95					5	tr	tr	5	
535-540	as above	80		5			10	ac	tr	5	
540-545	as above	80		5			10	ac	tr	5	
545-550	actinolite marble	80		5			5	ac	tr	10	

Additional comments on litho-logs:

All samples from surface to 105 ft. in YX06 are significantly stained by limonite, magnetite is variably oxidised to limonite-martite and sulphides are sparse. From 105 these features are absent, fresh sulphides are common. The depth of oxidation is therefore put at 105 ft. The cuttings are essentially unoxidised below 10 ft. in YX07.

Hyalite is essentially supergene silica. Rarely quartz appears to be inherent to the sediment, however (e.g. YX06 95-100 ft.).

Grain size and 'degree of crystallinity' is sufficiently similar throughout not to make a separate recording of this feature. Actinolite prisms measure up to 8 mm, average say 2 mm, magnetite and opaques average about 0.5 mm.

Abundance estimates given in the log are:

tr	=	trace	=	less than 1%
ac	=	accessory	=	1 to 3%

When less than 5% biotite or actinolite occurs in the marble, these mineral names are not used to qualify the term "marble". The rock name is assigned on the assessment of both coarse and fine fractions. Where there is non-agreement between the two this is noted in "comments", e.g. 205-220 ft., YX06. The abundances are estimated mainly from the fine fraction since this provides maximum breakdown into components and homogenisation of these. Almost inevitably there is more carbonate in the fine fraction than in the coarse.

The hornblende in YX06 is darkish brown and the hornblende marble rock it occurs in is relatively finer grained than the actinolite marble. In YX07, the amphibole is logged as actinolite although it is generally much darker green than the actinolite in YX06.

* * * * * * *

APPENDIX IV.

HOLE COMPLETION REPORTS

NON-CORED DRILL HOLE COMPLETION REPORT

PROJECT : S.A. STRATIFORM COPPER

LOCATION : Yerelina Grid. SML 717

DRILLING COMMENCED : 1 - 4 - 73

DRILLING COMPLETED : 17 - 5 - 73

DRILLING CONTRACTOR : Boring Enterprises, Hahndorf S.A.

DRILLING RIG : Ingersol-Rand T.R.V.C. M3 Drillmaster.

SAMPLES ASSAYED BY : Labtech Pty. Ltd., Midland. W.A.

ASSAY METHOD : Hot.long perchloric acid digestion; AAS determination (Copper only)

COMPRESSOR: Air - volume 1200 CFM & 120 PSI

TOTAL NUMBER HOLES: 22

TOTAL FOOTAGE DRILLED: 10,490'

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX0161

LINE NO. 076

GRID CO-ORDINATES. Y076.50/076

AZIMUTH. -

DEPRESSION. 90°

DEPTH. 140 feet

DATE DRILLED. 1-4-73

COLLAR R.L. -

NO. SAMPLES COLLECTED. 28

NO. SAMPLES ASSAYED. 28

ASSAY SHEET NOS. 5731/1

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

ECONOMIC MINERAL SPECIES. None

MINERALISED INTERSECTIONS.

Nil (under 0.25% Cu)

COMMENTS.

Hole drilled by Boring Enterprises for water.
Hole used for long drop.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX06

0162

LINE NO. 120

GRID CO-ORDINATES. Y086.00/120

AZIMUTH. 160°M

DEPRESSION. 60°

DEPTH. 480 feet

DATE DRILLED. 2-4-73

COLLAR R.L. -

NO. SAMPLES COLLECTED. 96

NO. SAMPLES ASSAYED. 96

ASSAY SHEET NOS. 5731/10, /11

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Marble

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

70' - 75' @ 0.37%
85' - 115' @ 0.38%
120' - 125' @ 0.26%

COMMENTS.

17ft. of casing used and withdrawn

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX07

0163

LINE NO. 084

GRID CO-ORDINATES. Y084.00/084

AZIMUTH. 167°M

DEPRESSION. 60°

DEPTH. 550 feet

DATE DRILLED. 4-4-73

COLLAR R.L. -

NO. SAMPLES COLLECTED. 110

NO. SAMPLES ASSAYED. 110

ASSAY SHEET NOS. 5731/7, /8, /9

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Marble and amphibolites

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

110' - 115' @ 0.45%

295' - 300' @ 0.26%

COMMENTS.

Water struck at 472', over 1,000 gallons per hour.
9 sludge samples taken.
17ft. of casing left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX08

163A

LINE NO. 084

GRID CO-ORDINATES. Y081.50/084

AZIMUTH. 177°M

DEPRESSION. 60°

DEPTH. 500 feet

DATE DRILLED. 7-4-73

COLLAR R.L. -

NO. SAMPLES COLLECTED. 100

NO. SAMPLES ASSAYED. 100

ASSAY SHEET NOS. 5731/5, /6

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.
Marble, hornfels, amphibolite

ECONOMIC MINERAL SPECIES.
Chalcopyrite

MINERALISED INTERSECTIONS.

60' - 90' @ 0.53%

120' - 125' @ 0.29%

COMMENTS.

10ft. of casing used and withdrawn.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX09

LINE NO. 084

GRID CO-ORDINATES. Y079.00/084

AZIMUTH. 175°M

DEPTH. 600 feet.

COLLAR R.L. -

NO. SAMPLES COLLECTED. 120

ASSAY SHEET NOS. 5731/2, /3, /4.

LITHOLOGICAL LOG. G. Chuck

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.
Amphibolite, quartzite

ECONOMIC MINERAL SPECIES.
Chalcopyrite and malachite

DEPRESSION. 60°

DATE DRILLED. 9-4-73

NO. SAMPLES ASSAYED. 120

PREVISIONELLE DIAGRAM.

0164

MINERALISED INTERSECTIONS.

310' - 315' @ 0.29%

530' - 535' @ 0.26%

COMMENTS.

5ft. casing used and withdrawn.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX10

0165

LINE NO. 084

GRID CO-ORDINATES. Y076.00/084

AZIMUTH. 175°M

DEPTH. 450 feet

COLLAR R.L. -

NO. SAMPLES COLLECTED. 90

ASSAY SHEET NOS. 5752/3, /4

LITHOLOGICAL LOG. G. Chuck

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

-

ECONOMIC MINERAL SPECIES.

-

MINERALISED INTERSECTIONS.

DEPRESSION. 60°

DATE DRILLED. 10-4-73

NO. SAMPLES ASSAYED. 90

PREVISIONELLE DIAGRAM.

Nil. (under 0.25% Cu)

COMMENTS.

7ft. of casing used and withdrawn.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX11

LINE NO. 084

GRID CO-ORDINATES. Y073.00/084

0166

AZIMUTH. 172°M

DEPRESSION. 60°

DEPTH. 495 feet

DATE DRILLED. 12-4-73

COLLAR R.L. -

NO. SAMPLES COLLECTED. 99

NO. SAMPLES ASSAYED. 99

ASSAY SHEET NOS. 5752/1, /2

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

-

ECONOMIC MINERAL SPECIES.

-

MINERALISED INTERSECTIONS.

Nil (Under 0.25% Cu)

COMMENTS.

8ft. of 7½" casing used and left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX12

0167

LINE NO. 025.60

GRID CO-ORDINATES. Y067.80/025.60

AZIMUTH. 043°M

DEPRESSION. 60°

DEPTH. 520 feet

DATE DRILLED. 17-4-73

COLLAR R.L. -

NO. SAMPLES COLLECTED. 104

NO. SAMPLES ASSAYED. 104

ASSAY SHEET NOS. 5752/1, /2, 5799/10

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

- Marble, amphibolite.

ECONOMIC MINERAL SPECIES.

- Chalcopyrite

MINERALISED INTERSECTIONS.

135 - 140' @ 0.38%

210 - 225' @ 0.31%

315 - 320' @ 0.25%

340 - 360' @ 0.31%

COMMENTS.

6ft. of 6" casing used and left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX13

0166

LINE NO. 024.80

GRID CO-ORDINATES. Y067.00/024.80

AZIMUTH. 042°M

DEPTH. 570 feet

COLLAR R.L. -

NO. SAMPLES COLLECTED. 114

ASSAY SHEET NOS. 5799/6./7,/8

LITHOLOGICAL LOG. G. Chuck

PAPER LOG. D. Gruythuysen

DEPRESSION. 60°

DATE DRILLED. 29-4-73

NO. SAMPLES ASSAYED.

PREVISIONELLE DIAGRAM.

HOST LITHOLOGY.

Marble, hornfels, amphibolite

ECONOMIC MINERAL SPECIES.

Malachite

MINERALISED INTERSECTIONS.

0' - 10' @ 0.55%

15' - 20' @ 0.26%

COMMENTS.

34ft. of casing used. 25ft. withdrawn.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX14

LINE NO. 024.10

0169

GRID CO-ORDINATES. Y068.00/024.10

AZIMUTH. 088°M

DEPRESSION. 60°

DEPTH. 500 feet

DATE DRILLED. 2-5-73

COLLAR R.L.-

NO. SAMPLES COLLECTED. 100

NO. SAMPLES ASSAYED. 100

ASSAY SHEET NOS.

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM:

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Marble, amphibolite, amphibolite schist.

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

10' - 20' @ 0.30%
30' - 35' @ 0.27%
50' - 55' @ 0.37%
60' - 70' @ 1.95%
70' - 105' @ 1.60%
115' - 125' @ 0.56%
165' - 170' @ 0.25%
195' - 200' @ 0.36%
215' - 230' @ 0.27%
265' - 270' @ 0.36%
275' - 280' @ 0.25%

6

COMMENTS.

10ft. of casing used and left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX15

0170

LINE NO. 024.50

GRID CO-ORDINATES. Y067.40/024.50

AZIMUTH. 213°M

DEPRESSION. 60°

DEPTH. 145 feet

DATE DRILLED. 3-5-73

COLLAR R.L. -

NO. SAMPLES COLLECTED. 29

NO. SAMPLES ASSAYED. 29

ASSAY SHEET NOS. 5799/9

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Hematite Rock, Marble

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

85' - 90' @ 0.38%

COMMENTS.

4ft. of casing used and withdrawn.

6ft. P.V.C. left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX16

0171

LINE NO. 014

GRID CO-ORDINATES. Y051.40/014

AZIMUTH. 126°

DEPTH. 550 feet

COLLAR R.L. -

NO. SAMPLES COLLECTED. 110

ASSAY SHEET NOS. 5799/23, /24, /25

LITHOLOGICAL LOG. G. Chuck

PAPER LOG. D. Gruythuysen

DEPRESSION. 80°

DATE DRILLED. 4-5-73

NO. SAMPLES ASSAYED. 110

PREVISIONELLE DIAGRAM.

HOST LITHOLOGY.

Amphibolite, quartz, amphibolitic quartzite.

ECONOMIC MINERAL SPECIES.

chalcopyrite.

MINERALISED INTERSECTIONS.

10' - 20' @ 0.30%
60' - 70' @ 1.9%
75' - 105' @ 1.6%
115' - 125' @ 0.56%
165' - 170' @ 0.25%
195' - 200' @ 0.36%
215' - 230' @ 0.27%

COMMENTS. 100ft. of casing used and withdrawn.
12ft. of 5" P.V.C. left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX17

0172

LINE NO. 132

GRID CO-ORDINATES. Y091.00/132

AZIMUTH. 170°

DEPRESSION. 60°

DEPTH. 500 feet

DATE DRILLED. 6-5-73

COLLAR R.L.

NO. SAMPLES COLLECTED. 100

NO. SAMPLES ASSAYED 100

ASSAY SHEET NOS. 5799/31. /32

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Amphibolite, marble, amphibolite schist.

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

Nil (under 0.25% Cu)

COMMENTS.

Water flow approximately 400 gallons per hour.
4ft. of 6" casing used and left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX18

0173

LINE NO. 132

GRID CO-ORDINATES. Y092.50/132

AZIMUTH. 174°

DEPRESSION. 60°

DEPTH. 600 feet

DATE DRILLED. 8-5-73

COLLAR R.L.

NO. SAMPLES COLLECTED. 120

NO. SAMPLES ASSAYED. 120

ASSAY SHEET NOS. 5799/33, /34, /35

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Calc-silicates, marble, amphibolite

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

415' - 425' @ 0.29%

COMMENTS.

Water flow approximately 200 gallons per hour.
20ft. of casing used and withdrawn.
7ft. of 5" P.V.C. left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX19

0174

LINE NO. 072

GRID CO-ORDINATES. Y080.60/072

AZIMUTH. 180°

DEPRESSION. 60°

DEPTH. 500 feet

DATE DRILLED. 9-5-73

COLLAR R.L.

NO. SAMPLES COLLECTED. 100

NO. SAMPLES ASSAYED. 100

ASSAY SHEET NOS.

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Marble

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

35' - 40' @ 0.35%
45' - 50' @ 0.31%
65' - 70' @ 0.26%
80' - 85' @ 0.46%
95' - 110' @ 0.27%

COMMENTS.

7ft. of casing used and withdrawn.
3ft. of 5" P.V.C. left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX20

LINE NO. 072

GRID CO-ORDINATES. Y083.00/072

AZIMUTH. 173°

DEPRESSION. 58°

0175

DEPTH. 550 feet

DATE DRILLED. 11-5-73

COLLAR R.L.

NO. SAMPLES COLLECTED. 110

NO. SAMPLES ASSAYED. 110

ASSAY SHEET NOS.

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY

Amphibolite, hornfels, marble.

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

110' - 115' @ 0.26%
140' - 145' @ 0.26%
360' - 370' @ 0.30%
460' - 475' @ 0.29%

[illegible]

15ft. of casing used and withdrawn.
12ft. of 5" P.V.C. left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX21

LINE NO. 051.60

GRID CO-ORDINATES. Y082.50/051.60

AZIMUTH. 161°

DEPRESSION. 58°

0176

DEPTH. 270 feet

DATE DRILLED. 12-5-73

COLLAR R.L.

NO. SAMPLES COLLECTED. 54

NO. SAMPLES ASSAYED. 54

ASSAY SHEET NOS.

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Marble

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

200' - 210' @ 0.25%

235' - 245' @ 0.27%

COMMENTS.

Dust from hole made everyone itch!!

Hole abandoned because of caving ground.

UTAH DEVELOPMENT COMPANY

(Exploration Department)

HOLE NO. YX22

LINE NO. 015

GRID CO-ORDINATES. Y051.40/015

0177

AZIMUTH. 120°

DEPRESSION. 58°

DEPTH. 370 feet

DATE DRILLED. 13-5-73

COLLAR R.L.

NO. SAMPLES COLLECTED. 74

NO. SAMPLES ASSAYED. 74

ASSAY SHEET NOS. 5799/26, /27

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Amphibolite, schist, amphibolite

ECONOMIC MINERAL SPECIES.

Chalcopyrite, pyrite.

MINERALISED INTERSECTIONS.

10' - 20' @ 0.31%
25' - 35' @ 0.69%
40' - 45' @ 0.25%
70' - 100' @ 0.98%

COMMENTS.

Water flow approximately 2,000 gallons per hour.
4ft. of 6" casing used.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX23

0178

LINE NO. 013.30

GRID CO-ORDINATES. Y051.40/013.30

AZIMUTH. 125°

DEPRESSION. 78°

DEPTH. 590 feet

DATE DRILLED. 13-5-73

COLLAR R.L.

NO. SAMPLES COLLECTED. 118

NO. SAMPLES ASSAYED. 118

ASSAY SHEET NOS. 5799/28, /29, /30

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Amphibolite, amphibolite quartzite, marble

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

105' - 110' @ 0.43%
165' - 175' @ 0.26%
185' - 195' @ 0.77%
225' - 235' @ 0.43%
250' - 260' @ 0.50%
270' - 280' @ 0.43%
285' - 315' @ 2.61%
315' - 345' @ 0.51%
350' - 355' @ 0.49%

COMMENTS.

Water flow approximately 500 gallons per hour.
5ft. of 8" casing used and withdrawn.
100ft. of 6" casing used and withdrawn.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX24

LINE NO. 011.45

GRID CO-ORDINATES. Y049.00/011.45

0179

AZIMUTH. 130° DEPRESSION. 58°

DEPTH. 595 feet DATE DRILLED. 15-5-73

COLLAR R.L.

NO. SAMPLES COLLECTED. 119 NO. SAMPLES ASSAYED. 119

ASSAY SHEET NOS. 5799/1, /2, /3

LITHOLOGICAL LOG. G. Chuck PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Amphibolite, amphibolite quartzite

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

30' - 35' @ 0.40%

→45' - 90' @ 0.46% (45' - 55' @ 0.86%)

→95' - 115' @ 0.54%

→115' - 135' @ 2.64%

→135' - 145' @ 0.59%

(95' - 145' @ 1.39% Av.)

(45' - 145' @ 0.90% Av.) (115' - 120' @ 7.2%) ← *

→155' - 225' @ 0.52% (190' - 195' @ 1.2%)

→255' - 265' @ 0.46%

COMMENTS.

Water flow approximately 2,000 gallons per hour.
5ft. of 8" casing used and withdrawn.
25ft. of 6" casing used and withdrawn.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX25

0180

LINE NO. 014

GRID CO-ORDINATES. Y055.40/014

AZIMUTH. 096°

DEPTH. 500 feet

COLLAR R.L.

NO. SAMPLES COLLECTED. 100

ASSAY SHEET NOS.

LITHOLOGICAL LOG: G. Chuck

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY.

Amphibolite

ECONOMIC MINERAL SPECIES.

Chalcopyrite

DEPRESSION. 58°

DATE DRILLED. 16-5-73

NO. SAMPLES ASSAYED. 100

PREVISIONELLE DIAGRAM.

MINERALISED INTERSECTIONS.

285' - 295' @ 0.55%

COMMENTS. Cased to 25ft.
4ft. of 5" P.V.C. left in hole.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

HOLE NO. YX26

LINE NO. 023

GRID CO-ORDINATES. Y069.50/023

0181

AZIMUTH. 121°

DEPRESSION. 58°

DEPTH. 515 feet

DATE DRILLED. 16-5-73

COLLAR R.L.

NO. SAMPLES COLLECTED. 103

NO. SAMPLES ASSAYED. 103

ASSAY SHEET NOS.

LITHOLOGICAL LOG. G. Chuck

PREVISIONELLE DIAGRAM.

PAPER LOG. D. Gruythuysen

HOST LITHOLOGY

Amphibolite, marble

ECONOMIC MINERAL SPECIES.

Chalcopyrite

MINERALISED INTERSECTIONS.

55' - 80' @ 0.35%
90' - 135' @ 0.37%
140' - 165' @ 0.45%
170' - 190' @ 0.28%
195' - 225' @ 0.43%
240' - 245' @ 0.25%
255' - 265' @ 0.27%
375' - 380' @ 0.33%
400' - 415' @ 0.36%
465' - 470' @ 0.38%

COMMENTS.

6ft. of 6" casing left in hole.

Water flow approximately 500 gallongs per hour.

UTAH DEVELOPMENT COMPANY
(Exploration Department)

APPENDIX V

DETAILS OF DRILLING

Date	No. Holes	Prog. No. Holes	Daily Depth	Prog. Footage	Daily No. Samples	Prog. No. Samples	Breakdowns FROM	Breakdowns TO	Remarks
1.4.73	1	1	140'	140'	28	28			Hole No. YX05. Hole Drilled by Boring Enterprises for water.
2.4.73	1	2	345'	485'	69	97			Hole No. XY06. Cased first 15 feet.
3.4.73	1	3	145'	630'	29	126	3.30pm	5.30pm	Fitting new air hose, unblocking hammer. YX06 completed to 430'. YX07 down to 10' (13' casing)
4.4.73	-	3	260'	890'	52	178	7.00am 1.00pm	8.00am 1.30pm	Mending air hose, changing compressors. Drilling rate average about 25' and hour.
5.4.73	-	3	230'	1120'	46	228			Water in YX07 at 472' very slow drilling. 5' takes 30 mins.
6.4.73	1	4	150'	1270'	30	254			Completed YX07;drilling rate 5'/30mins. 9sludge samples taken. Started YX08, cased 10'. Drilled 25' in 35 mins.
7.4.73	-	4	295'	1565'	59	313			395 on YX08. Approx 45 min to 25'. Water from 105' - 125' (dried out by 130').
8.4.73	1	5	175'	1740'	35	348	7.00am Serviced	10.00am rig	Completed YX08 down to 500'. Drilling rate 45 min/25' Collared YX09 cased 10' hole down to 70'
9.4.73	-	5	450'	2190'	90	438			Continued YX09 to 520'. Good drilling; Average rate 37 min/25'. Best 25 min.
10.4.73	1	6	250'	2440'	50	488	2.00pm	3.00pm	Broken Hammer. Completed YX09 to 600'. Still good drilling. Collared YX10. Depth 170'.
11.4.73	1	7	350'	2790'	70	558			Completed YX10 to 450'. Collared YX11.
12.4.73	-	7	15'	2805'	3	561	8.00am	6.00pm	Continued on YX11 until 8.00am, when fly wheel on main compressor broke.
13.4.73	-	7	-	2805'	-	561	7.00am	6.00pm	Waiting on spares.

N. B. YX05 included in totals.

Date	No. Holes	Prog. No. Holes	Daily depth	Prog. Footage	Daily No. Samples	Prog. No. Samples	Breakdowns FROM	Breakdowns TO	Remarks
Carried forward		7		2805'		561			
14.4.73	-	7	-	2805'	-	561	7.00am	6.00pm	Waiting on spares.
15.4.73	-	7	210'	3015'	42	603	7.00am 3.20pm	11. am 4.35pm	Replace flywheel, water in Dieselene. Continued YX11 drill rate 40min/25' until breakdown.
16.4.73	-	7	200'	3215'	40	643	7.00am	9.35	Replacing two injectors in compressor. Completed YX11 to 495'
17.4.73	1	8	245'	3460'	49	692			Started YX12 at pinnacles. Down to 245'. Drilling rate 54 mins/25'.
18.4.73	-	8	125'	3585'	25	717	8.00am	8.30am	Welding plant wouldn't start. YX12 down to 370' wet sampling.
28.4.73	-	8	150'	3735'	30	747			Complete YX12 to 520'. Average Drilling rate 17 mins. per 5' sample.
29.4.73	1	9	245'	3980'	49	796	8.15	10.45	Breakdown changing airhose, constructing platform for rods Started YX13 down to 245'. Aver. drilling rate 9 mins/5'.
30.4.73	-	9	175'	4155	35	831			Cont. on YX13 down to 420'. Hammer blocked at 320'. Average drilling rate 15 mins. per sample.
1.5.73	-	9	140'	4295	28	859			Continued on YX13 down 560'
2.5.73	1	10	295'	4590'	59	918			Completed YX13 down to 570'. YX14 from 0' - 285'
3.5.73	1	11	360'	4950'	72	990			YX14 completed to depth of 500'. YX15 drilled 0' - 145' end of hole.
4.5.73	1	12	300'	5250'	60	1050			Started on YX16. Drilled to a depth of 300'. Hole cased for 100' also reemed for 100'.
5.5.73	-	12	250'	5500'	50	1100			YX16 ended at 550' all casing pulled up. Average Drilling rate 10 mins. per sample.

Date	No. Holes	Prog. No. Holes	Daily Depth	Prog. Footage	Daily No. Samples	Prog. No. Samples	Breakdowns FROM	Breakdowns TO	Remarks
carried/ forward		12		5500'		1100			
6.5.73	1	13	240'	5740'	48	1148	11.00	11.20	YX17 started,drilled to 240'. 4' casing breakdown (power booster)
7.5.73	-	13	260'	6000'	52	1200			YX17 finished at a depth of 500'. 4' casing left in hole.
8.5.73	1	14	395'	6395'	79	1279	7.00am.	5.00pm	Drilling head brokedown. Waited for parts, worked first night shift. Started YX18 down to 395' by end of shift. Average drilling rate 5 mins/sample.
9.5.73	1	15	Day 290' Ngt 415'	7100'	58 83	1420			Completed YX18 to 600'. Aver. drilling rate 8 mins per sample. Started & completed YX19 to 500' rate 7mins/sample
10.5.73	-	15	-	7100'	-	1420	7.00am	3.00am	Breakdown. Drilling rig broke crankshaft. Drillers collecting other rig.
11.5.73	1	16	Day 145' Ngt 325'	7570'	29 65	1514	7.00am	10.00am	Breakdown changing hoses between rigs. Started YX20 down 470' by end of night shift. Average drilling rate 6 min.
12.5.73	1	17	Day 200' Ngt 150'	7920'	40 30	1584			
13.5.73	2	19	Day 320' Ngt 300'	8540'	64 60	1708			
14.5.73	1	20	Day 270' Ngt 90'	8900'	54 18	1780	11.20am 4.00pm	12.00 4.30	Broken fan belt, ran out of fuel.
15.5.73	1	21	Day 425' Ngt 195'	9520'	85 39	1904			
16.5.73	1	22	Day 455' Ngt 345'	9975' 10320'	91 69	1995 2064			
17.5.73	-	22	170'	10490'	34	2098			Completed program at 1.00pm.
18.5.73		Travelled back to Quorn.							

APPENDIX VI

RELEVANT GEOLOGS

DESCRIPTIVE LOG – ROTARY CHIPS

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. 459/165.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – A.J.DRUMMOND

CO-ORDINATES – 459 North 165.50 East
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

0186A

DEPTH (ft) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Pale creamy brown and dark brown soil chips.		
			Dil Hcl (+). Light brown dust.	01A	
5	10	5	Pale purple but brown weathering siltstone chips		
			All fairly weathered chips. Some small muscovite	02A	
			flakes in the dust.		
			Pale pink dust. Dil Hcl (+)		
10	15	5	Chips of pale purple slightly micaceous argillite	03A	
			Fewer chips of tan weathered material – B horizon		
			soil?. Pale brown/orange dust. Dil Hcl (+) on		
			small Co_3 lumps only.		
15	20	5	Chips of pale purple weathered siltstone. Fine?	04A	
			sand size grains of clear quartz and muscovite.		
			in the dust. ale pinkish/purple dust Dil Hcl (-)		
20	25	5	Chips of weathered fine sand stone original	05A	
			colour not known, now white, yellow and red.		
			Weathered mudstone chips, now in streaks of white		
			ochre and tan. Chips of pale purple, but red		
			speckled siltstone. Pale pink/brown dust		
			Dil Hcl (-).		
25	30	5	Large, very weathered and soft, argillite chips of		
			pale yellow, with red streaks, colour. Medium	06A	
			brownish pink dust. Dil Hcl (-).		
30	35	5	Pale purple siltstone chips, heavily weathered.	07A	
			Fewer chips of cream, but weathered, Slightly		
			micaceous argillite. Pale pink dust. Dil Hcl (-).		
35	40	5	Large chips of moderately weathered pale purple	08A	
			siltstone. Ochreous chips of a finer, more mic.		
			siltstone. Pale purplish pink dust Dil Hcl (-)		
40	45	5	Pale purple, slightly micaceous, siltstone chips.	09A	
			Muscovite flakes in the dust. Lesser chips of		

DESCRIPTIVE LOG.–

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0187

HOLE NO. E459/165.50
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			ochreous, but red splitched argillite. Pale orange dust. Dil Hcl (-).		
45	50	5	Mainly very fine orange dust. Occasional weathered chips of a poorly sorted silty argillite of dark red and ochreous colours. Orange dust. Dil Hcl (-)	10A	
50	55	5	As for 10 A except that chips are more common.	11A	
55	60	5	Pale orange and white, but weathered, tabular shale chips. More commonly, light orange/brown, weathered, fine siltstone chips. Light orange /brown dust Dil Hcl (-).	12A	
60	65	5	Chips of pale purple weathered shale with dark brown weathering spots. Chips of ochreous weathering, white argillite, orange dust. Dil Hcl (-)	13A	
65	70	5	Chips of poorly sorted purple, weathered siltstone with rare coarse sand size, well rounded granite clasts. Pale purplish orange dust. Dil Hcl (-)	14A	
70	75	5	Pale purple, but often yellow and bleached, siltstone chips. Orange dust. Dil Hcl (-).	15A	
75	80	5	Pale purplish grey chips of extremely micaceous siltstone. Contains common limonite lumps probably after pyrite. Pale orange/brown dust. Dil Hcl (-)	16A	
80	85	5	Pale grey argillite chips with black Mn stains on joint planes. Pale brown dust. Dil Hcl (-)	17A	
85	90	5	Pale khaki, weathered, very micaceous siltstone chips. Pale khaki dust. Dil Hcl (-)	18A	
90	95	5	Pale purple argillite chips, pale grey c. siltstone chips. Pale slightly pinkish brown dust Dil Hcl (-)	19A	
95	100	5	Pale grey siltstone chips. Dark grey banded dolomite chips more common. Pale pinkish brown dust. Dil Hcl (+)	20A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0188

HOLE NO. – E459/165.50
Sheet No. 3 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
100	105	5	As for 20A except that the siltstone is more common.	21A					
105	110	5	Probably alternating bands of pale purple siltstone and dark grey dolomite in roughly equal proportions. Dil Hcl (+) on dolomite.	22A					
110	115	5	Chips of pale grey and pale purple siltstone. Occasional chips of dark grey dolomite. Dust slightly calcareous. Pinkish/purple dust.	23A					
115	120	5	Purple and grey siltstone chips. Occasional small muscovite flakes in the dust. Pale purple dust. Dil Hcl (-)	24A					
120	125	5	As for 24A.	25A					
125	130	5	Purple siltstone chips and grey more micaceous siltstone chips. Purplish grey dust. Conc. Hcl (-)	26A					
130	135	5	Slightly greyish purple siltstone chips. Purplish light brown dust. Conc. Hcl (-)	27A					
135	140	5	Mainly dust, occasional small chips of pale grey siltstone. Pale grey dust. Conc Hcl (-).	28A					
140	145	5	Dark grey, but pale grey and yellow weathering, siltstone chips. Occasional tan coloured limonite stains. Pale grey/brown dust. Conc Hcl (-).	29A					
145	150	5	As for 29A	30A					
150	155	5	As for 29A nearly all powder.	31A					
155	160	5	Medium grey siltstone chips. Pale creamy pink dust Dil Hcl (-) on both chips and dust.	32A					
160	165	5	As for 32A except that the dust is now very light pink. Dil Hcl (+)	33A					
165	170	5	Pale purple siltstone chips which are highly calcareous and so possibly is a dolomite. Medium purple dolomite chips containing fine sand size grains of what appears to be black chert. Pale pink dust.	34A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0189
HOLE NO. E459/165.50
Sheet No. 4 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
170	175	5	As for 34A for the dolomite. Also a few khaki coloured, non calcareous, shale chips. Pale pink dust.	35A	
175	180	5	Pale grey siltstone chips. Pale pink calcareus dust	36A	
180	185	5	Purple, but fawn and white weathering, slightly micaceous siltstone chips. Pale pinkish cream dust.	37A	
185	190	5	As for 37A	38A	
190	195	5	Medium grey, comparitively unweathered, calc. siltstone chips. Dyst is quite calcareous. Very pale brown dust.	39A	
195	200	5	As for 39A	40A	
200	205	5	Dark grey fine siltstone chips with a saccharoidal texture. Chips non calcareous, but dust is. Light greyish brown dust.	41A	
205	210	5	Mainly pale brownish pink dust. Few small chips of pale purple siltstone. Dil Hcl (*)	42A	
210	215	5	As for 42A. The pruple siltstone weathers to a pale brownish pink colour.	43A	
215	220	5	As for 42A	44A	
220	225	5	As for 42A. Also small black chips of what is probably chert.	45A	
225	230	5	A few chips of dark grey v.f.g. qtz or perhaps chert. Rest is very pale pinkish cream f.dust Dust is very calcareous.	46A	
230	235	5	As for 46A, the dark grey material is most probably chert.	47A	
235	240	5	A few small chips of medium grey, non calcareous siltstone. No chert. Sample is predominantly dust, which is of a very pale brownish pink colour and is quite calcareous.	48A	
240	245	5	Light grey calc siltstone chips. Few small dark	49A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0190
HOLE NO. E459/165.50
Sheet No. 5 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
			grey chert chips in the dust. Very pale brownish pink dust which is highly calcareous.	49A					
245	250	5	Some dark grey dolomite chips. Mainly v.calcareous pale brownish pink dust.	50A					
250	255	5	Sample is wholly composed of v.pale pinkish brown dust. Very calcareous.	51A					
255	260	5	Chips of dark purple/grey dolomite. Dust is v.pale pinkish brown and is v.calcareous.	52A					
260	265	5	Occasional chips of reddish non-calcareous siltstone Dust is very pale pinkish brown and is very calcareous – probably due to crushing of ls or dolomite.	53A					
265	270	5	Very common sand size chips of grey dolomite in a pale brownish pink dust. Very calcareous dust.	54A					
270	275	5	As for 54A. dolomite very common.	55A					
275	280	5	As for 54A. In addition, slightly purplish grey calc siltstone chips are common.	56A					
280	285	5	Purplish grey chips of dolomite. Possible weathered argillite chips. Dust is pale brown/pink and is very calcareous.	57A					
285	290	5	Chips of pale brown laminated calc siltstone with a few small dolomite chips. Creamy dust, very calc..	58A					
290	295	5	Cream calc siltstone chips. Mainly very fine cream, very calcareous dust.	59A					
295	300	5	As for 59A	60A					
300	305	5	A few rounded chips of buff siltstone. Buff coloured dust which is only slightly calcareous The carbonate content could be due to contamination.	61A					
305	310	5	Brownish orange chips of v.f. sandstone or coarse siltstone. Medium sand size grains in the dust . Some limonite lumps and a few muscovite flakes in the dust. Orange brown dust. N-calcareous.	62A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. E459/165.5 0191
Sheet No. 6 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
310	315	5	Orange, but black spotted argillite chips. Orange slightly micaceous dust. The dust is moderately calcareous.	63A	
315	320	5	Pale grey siltstone chips. Sample nearly all pale brown dust. Moderately calcareous.	64A	
320	325	5	Chips of light orange, but weathered, laminated siltstone. Chips (coarse sand size) of black chert. Pale brown dust, moderately calcareous.	65A	
325	330	5	Chips of black chert very common. Few vein qtz. chips. Occasional pale brown siltstone chips. Light brown powdery dust. Very calcareous dust.	66A	
230	235	5	Smallish chips of black dolomite coated in light brown very calcareous dust.	67A	
335	340	5	Black dolomite, chips, pale brown dust common. Moderatey calcareous.		
340	345	5	Black dolomte chips, pale brown siltstone chips. Pale brown dust. Slightly calcareous.	69A	
345	350	5	Sample entirely light brown highly calcareous dust. In the dust are some sand size grains of clear qtz and black dolomite (?)	70A	
350	355	5	Pumple/grey siltstone chips. Sand size chips of clear qtz and black dolomite in the dust. Dust is pale brown and moderately calcareous.		

DESCRIPTIVE LOG – AUGER DRILL

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO 461/171.50
Sheet No. 1 of

PROJECT – S.A. COPPER SEARCH
LOCATION – COPPER CLAIM
LOGGED BY – A. J. DRUMMOND

CO-ORDINATES – 461 north 171.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

0192

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
200'	205'	5'	Pale brown shale chips which are variably weathered. Pale orange n-calcareous dust (10)	41A	
205'	210'	5'	Pale purple, with red weathering spots, shale chips Pale ochreous n-calcareous dust (10)	42A	
210	215'	5'	Pale brown weathered shale chips. Light orange brown -non-calcareous dust (10)	43A	
215'	220'	5'	Pale brown, but with small local bleached patches, weathered shale chips. Pale orang brown dust (10)	44A	
220'	225'	5'	Light grey, but orange weathering. Siltstone chips. Some very irregularly shaped black chert chips. Medium brown, non-calcareous dust (6)	45A	
225'	230'	5'	Light grey, but orange weathering, siltstone chips Light Brown non-calcareous dust (6)	46A	
230'	235'	5'	Light brown, but weathered, micaceous shale chips. Light ochreous brown, non-calcareous dust (9)	47A	
235'	240'	5'	As for 47A (9)	48A	
240'	245'	5'	Weathered, purple, slightly micaceous shale chips. Reddish brow, slightly calcareous dust (9)	49A	
245'	250'	5'	Purple shale chips with some ochreous blotches. Purplish brown dust and slightly calcareous (10)	50A	
250'	255'	5'	Ochreous brown weathered shale chips, having quite a porous appearance. Orangey brown cust (10)	51A	
255'	260'	5'	As for 51A (10)	52A	
260'	265'	5'	Light brownish grey, weathered shale chips. Light brown dust non-calcareous (10)	53A	
265'	270'	5'	Greyish brown shale chips. Sample is mainly non-calcareous light brown dust (10)	54A	
270'	275'	5'	A few very large chips of pale brown weathered siltstone. However there are very few silt size grains in the dust and so it seems probable that the dust is a product of the destruction of argillite	55A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0193

HOLE NO. 461/171.50
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			or shale. Light purplish brown, non-calcarous dust. (9)?		
275'	280'	5'	Pale grey siltstone chips which contain small red weathering specks, possibly due to the weathering of biotitc. Pinkish vrown dust which is non-calc. (6)	56A	
280'	285'	5'	Grey shale chips. Sample is mainly light brown dust and is non-calcareous (10)	57A	
285'	290'	5'	As for 57A	58A	
290'	295'	5'	As for 57A	59A	
295'	300'	5'	As for 57A although there is now a higher propertion of chips and there are a few muscovite flakes in the dust (10)	60A	
300'	305'	5'	Weathered, light brown shale chips. Light brown non-calcareous dust (10)	61A	
305'	310'	5'	Light brown to pale grey weathered shale chips some of which have local brown stains probably being limonite. The stains are preferentially oriented along bedding planes. Non-calcareous, light brown dust (10)	62A	
310'	315'	5'	Light brown, weathered shale chips, some of which are very micaceous. Light brown non-calcareous dust. Quartz vein chips. (10)	63A	
315'	320'	5'	Greyish brown, non-calcareous, slightly micaceous shale chips. Light brown dust (10)	64A	
320'	325'	5'	Light brown weathered and hence soft argillite chips. Light brown, non-calcareous dust (10)	65A	
325'	330'	5'	As for 65A. Very little dust (10)	66A	
330'	335'	5'	As for 65A	67A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0194

HOLE NO. – 461/171.50
Sheet No. 3 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
335'	340'	5'	Mainly weathered dark purple argillite and shale chips. Some white, but often yellow stained, qtzite chips composed of v. fine sand size and silt size grains. Dark purplish brown dust (9)	68A					
340'	345'	5'	Purple, grey and brown weathered shale chips. Medium brown non-calcareous dust (9)	69A					
345'	350'	5'	Greyish micaceous silty shale chips in which limonite pseudomorphs after pyrite are quite common. Dark brownish grey, non-calcareous dust (9)	70A					
350'	355'	5'	Light brown weathered argillite chips. Pale grey but often brown stained by limonite, siltstone chips. Light brown non-calcareous dust (9)	71A					
355'	360'	5'	Grey, weathered soft siltstone chips. A few small brownish grey chert chips. Light brown, non-calcareous dust (6)	72A					
360'	365'	5'	Light grey to brown, slightly micaceous, shale chips A few chips of white mudstone in which the interstitial component has been altered to white kaolin. The silt grains seem to be all qtz. Dark brownish grey dust non-calcareous (9)	73A					
365'	370'	5'	Light grey to dark brown, but mainly dark grey shale chips. Non-calcareous dark brownish grey dust (9)	74A					
370'	375'	5'	As for 74A (9)	75A					
375'	380'	5'	As for 74A (9)	76A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO 459/171.50
Sheet No. 1 of.

PROJECT – S.A. COPPER SEARCH
LOCATION – COPPER CLAIM
LOGGED BY – A. J. DRUMMOND

CO-ORDINATES – 459 north 171.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0'	5'	5'	Tan A+B horizon soil. Occasional rounded ironstone pellets, large coarse grained quartzite lumps. Tan dust. Dil. HCL (+).	01A	
5'	10'	5'	Pale pink. loosely bound, claystone, chips - a weathering product. Occasional vein qtz chips. Pale pink dust. Dil HCL (+).	02A	
10'	15'	5'	Pale pink/purple argillite chips, loosely bound. small white carbonate nodules. Occasional small (2-3mm) qtz chips. Pale pink/purple dust Dil HCL (+)	03A	
15'	20'	5'	Pale purple shale chips. Small muscovite flakes common in the dust. Dil HCL (-) Pale purple dust.	04A	
20'	25'	5'	Pale purple shale chips. Grey qtz.chips less less common. Small muscovite flakes common in the dust. Pale yel/purple dust. Dil HCL (-).	05A	
25'	30'	5'	Predominantly pale pink/brown dust. Occasional chips of weathered siltstone now stained ochre. Dil HCL (-)	06A	
30'	35'	5'	Pale pink/purple claystone chips. Pale pink dust Dil HCL (-) same small vein qtz chips in the dust. Occasional chips of weathered ochreous silt.	07A	
35'	40'	5'	Pale pinkish purple micaceous shale. chips. Muscovite flakes common in the dust. Pale pink dust. Dil HCL (-)	08A	
40'	45'	5'	Pale greyish/purple siltstone chips. Large grey qtzite chips less common. Occasional vein qtz chips. Pale pink dust.	09A	
45'	50'	5'	Chips of weathered creamy siltstone. Vein qtz chips common. Rare muscovite flake in the dust. Orange dust Dil HCL (-).	10A	
50'	55'	5'	Chips of pink weathered siltstone. Occasional muscovite flake in the dust. rare sub - moderately	11A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. -459/171.50
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			rounded sand size qtz grain. Pale orange dust Dil HCL (-).		
55'	60'	5'	Orange weathered siltstone and argillite chips. Muscovite flakes in the dust. Orange dust. Dil HCL (-).	12A	
60'	65'	5'	Pale purple chips of laminated siltstone. with red oxidation spots. Occasional silt size muscovite flake in the dust. Light orange dust. Dil HCL (-).	13A	
65'	70'	5'	As for 13A. Occasional vein qtz chip as well.	14A	
70'	75'	5'	Pale white/purple siltstone chips. Some ochreous w weathered chips of claystone. Light orange dust Dil HCL (-).	15A	
75'	80'	5'	Chips of pale brown micaceous shale and weathered laminated siltstone. The latter appears to have had some iron rich laminae. Light orange dust. Dil HCL (-)	16A	
80'	85'	5'	Purple siltstone chips with common tan spots probably due to weathering of an iron rich components With increasing weathering, the siltstone becomes bleached. Light orange dust Dil HCL (-).	17A	
85'	90'	5'	As for 17A. Also some ochreous argillite chips Dil HCL (-)	18A	
90'	95'	5'	Chips of purple micaceous shale. Quite rich in muscovite which also is common in the dust. Weathers deep red. Light orange dust. Dil HCL (-).	19A	
95'	100'	5'	Chips of pale purple. slightly micaceous shale. Light buff dust. Dil HCL (-).	20A	
105'	110'	5'	Chips of pale grey siltstone, very well indurated of dark grey chert; and of dark grey siltstone. Pale orange dust Dil HCL (-).	22A	
100	105'	5'	SAMPLE MISSING	21A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. -459/171.50
Sheet No. 3 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
110'	115'	5'	Chips of dark brown weathered shale; of light grey siltstone; occasional qtz vein chips. Light orange dust. Dil HCL (-).	23A	
115'	120'	5'	As for 23A	24A	
120'	125'	5'	Chips of pale pruple shale. Rare muscovite flake in dust.	25A	
125'	130'	5'	Large chips of well indurated grey siltstone. They weather to khaki and orange shades. Mn stains on old joints(?). Rare vein qtz chips. Light brown dust. Dil HCL (-)	26A	
130'	135'	Pale	brown weathered siltstone chips. Weather to orange and ochreous shades. Qtz vein chips. Some small black chert (?) chips. Light browndust. Dil HCL (-). Small red limonite blobs quite common.	27A	
135'	140'	5'	Chips of pale brown, but orange weathering micaceous siltstone. Muscovite flakes connom in the dust. Few black goethite (?) blebs. Light brown dust Dil HCL (-).	28A	
140'	145'	5'	Chips of orange, slightly micaceous siltstone, often with weathered, bleached zones. Orange dust Dil HCL (-).	29A	
145'	150'	5'	Chips of light brown weathered siltstone. Weather to an orange colour. Orange dust Dil HCL (-)	30A	
150'	155'	5'	Chips of orange, but weathered. laminated siltstone Orange dust. Dil HCL (-).	31A	
155'	160'	5'	NO SAMPLE	32A	
160'	165'	5'	Pale purple dust with a few qtz vein chips. Dil HCL (-)	33A	
165'	170'	5'	Rare light purple slightly micaceous siltstone chip. Light purple dust.	34A	
170'	175'	5'	Pale orange/brown dust only.	35A	
175'	180'	5'	Pale grey, very weathered and soft argillite.	36A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0198

HOLE NO. 459/171.50
Sheet No. 4 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			Pale pink (orange dust) Dil HCL (-).		
180'	185'	5'	Pale orange brown dust. Dil HCL (-)	37A	
185'	190'	5'	Pale brown dust only Dil HCL (-)	38A	
190'	195'	5'	As for 38A	39A	
195'	200'	5'	As for 38A, but with occasional vein qtz chips.	40A	
200'	205'	5'	Sample is entirely pale brwon -n-calcareous dust	41A	
			(10?)		
205'	210'	5'	As for 41A (10)	42A	
210'	215'	5'	As for 41A (10)	43A	
215'	220'	5'	A few pale brown, slightly micaceous argillite.	44A	
			Remainder is dust as in 41A. (10)		
220'	225'	5'	As for 43A (10)	45A	
225'	230'	5'	As for 43A (10)	46A	
230'	235'	5'	As for 43A (10)	47A	
235'	240'	5'	As for 43A (10)	48A	
240'	245'	5'	As for 43A (10)	49A	
245'	250'	5'	As for 43A (10)	50A	
250'	255'	5'	As for 43A although the colour ofthe dust has	51A	
			subtly changed to a light brown colour (10).		
255'	260'	5'	As for 51A (10)	52A	
260'	265'	5'	As for 51A (10)	53A	
265'	270'	5'	As for 51A (10)	54A	
270	275'	5'	As for 51A (10)	55A	
275'	280'	5'	As for 51A (10)	56A	
280'	285'	5'	As for 51A (10)	57A	
285'	290'	5'	As for 51A (10)	58A	
290'	295'	5'	As for 51A (10)	59A	
295'	300'	5'	As for 51A (10)	60A	
300'	305'	5'	As for 51A (10) + a few qtz vein chips.	61A	
305'	310'	5'	As for 51A (10)	62A	
310'	315'	5'	As for 51A (10)	63A	
~~315'~~	~~320'~~	~~5'~~	~~As for 51A (10)~~	~~64A~~	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. 452/171.50
Sheet No. 5 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
315'	320'	5'	Pale brown slightly micaceous shale chips with some fine manganese dendrites. Medium brown, n-calcareous argillite chips. Medium brown. n-calcareous dust (10)	64A	
320'	325'	5'	As for 64A (10)	65A	
325'	330'	5'	As for 64A (10)	66A	
330'	335'	5'	Light brown, slightly calcareous argillite chips Medium brown, n-calcareous dust (10)	67A	
335'	340'	5'	As for 67A (10)	68A	
340'	345'	5'	Medium grey, slightly micaceous argillite chips. Dark grey dust, n-calcareous (10)	69A	
345'	350'	5'	Medium grey, but brown weathering, siltstone chips.= Dark grey, n-calcareous dust (6)	70A	
350'	355'	5'	Sample almost entirely dark brownish grey dust n - calcarous (10)?	71A	
355'	360'	5'	As for 71A (10)-?	72A	
360'	365'	5'	Laminated brown + grey argillite chips, generally n-micaceous. M.brown and dark grey grains comprise the dust (10)	73A	
365'	370'	5'	As for 73A; grey component is now predominant (10)	74A	
370'	375'	5'	As for 74A (10)	75A	
375'	380'	5'	As for 73A; brown component is now predominant (10)	76A	
380'	385'	5'	Light to medium grey silty shale chips. Exhibit orange weathering stains. Have occasional dark grey stained regions. Dark brownish grey dust (9)	77A	
385'	390'	5'	Lamented sludge sample - probably originally a brownish grey dust as in earlier samples. Slightly calcareous (10)?	78A	
390'	395'	5'	As for 78A (10)	79A	
395'	400'	5'	As for 78A (10)	80A	
400'	405'	5'	As for 78A (10)	81A	

DESCRIPTIVE LOG—

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0209

HOLE NO. 459/171.50
Sheet No. 6 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
405'	410'	5'	As for 78A (10)	82A	
410'	415'	5'	As for 78A (10)	83A	
415'	420'	5'	As for 78A (10)	84A	
420'	425'	5'	As for 78A (10)	85A	
425'	430'	5'	As for 78A (10)	86A	
430'	435'	5'	As for 78A (10)	87A	
435'	440'	5'	As for 78A (10)	88A	
440'	445'	5'	Dark Grey argillite chips. Again all cemented by dark grey cement. Moderately calcareous - could well be the equivalent of the stremotolitic sequence seen in the drill cores (10)	89A	
445'	450'	5'	As for 89A. A few qtz vein chips. (10)	90A	
450'	455'	5'	As for 89A (10)	91A	
455'	460'	5'	As for 89A. The dark grey cement fouls up investigations. (10)	92A	
460'	465'	5'	As for 92A (10)	93A	
465'	470'	5'	Light to medium grey micaceous siltstone and silty argillite chips. qtz. vein chips with well developed crystal form quite common. Moderately calcareous (6)	94A	
470'	475'	5'	As for 94A, plus a few very dark grey chips. Clear qtz is 5 - 10% (6)	95A	
475'	480'	5'	Light grey to medium brown shale chips. Pink argillite chips. Black shale chips. Clear to opaque qtz chips very common. Moderately calcareous. Overall appears to be a very complex lithology (9)	96A	
480'	485'	5'	A few black shale chps. Rests if partially cemented medium brown, slightly calcareous dust. Qtz veins chips common (9?)	97A	
485'	490'	5'	As for 97A (9)	98A	
490'	495'	5'	As for 97A (9)	99A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0201

HOLE NO. –459/171.5C
Sheet No. 7 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
495'	500'	5'	Mainly dark grey dolomite chips. A few weathered bright pinkish purple micaceous shale chips. Some light grey shale chips. Ochreous dust coats most chips (11)	100A	
500'	505'	5'	As for 100A	101A	
505'	510'	5'	Nearly all dark grey dolomite chips. Some weathered pink dolomite chips. Few vein qtz. chips (12)	102A	

DESCRIPTIVE LOG – Percussion Drill

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO – 461/172.50
Sheet No. 1 of 6

PROJECT – S.A. Copper Search
LOCATION – Copper Claim
LOGGED BY – R. J. Gransbury

CO-ORDINATES – 461 north 172.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED – 0202

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0'	5'	5'	Orange & red and yellow. Very heavily weathered. Weathered sst and chert fragments - soil highly calcareous. Dust is all colours from white to dark brown. Most of sample crumbles and goes red with moisture	01A	
5'	10'	5'	Ochre, orange and yellow in colour. Not as uneven in texture as 01A. Highly calcareous. Highly calc. Yellow to pale red dust colour.	02A	
10'	15'	5'	Yellow in colour, white spots are fine quartz grains. The minority are red and yellow fine to very fine grained siltstone. Highly calcareous Dust colour dirty creamy white.	03A	
15'	20'	5'	Yellow to dark red in colour. F.g. siltstone, highly calcareous. d. red to yellow dust.	04A	
20'	25'	5'	Maroon - pale purple in colour, v.f. laminated siltstone. Calcareous. Dust - off white to buff to pale red in colour.	05A	
25'	30'	5'	Crimson to turquoise. Some are red limonite nodules some laminations - f. siltstone limonite psuedomorphs common. Calcareous. Dust colour - buff to p. red.	06A	
30'	35'	5'	Grey to yellow, spots of red in colour. Limonite after pyrite giving pseudomorphs. micaceous - muscovite, structureless, siltstone. Calcareous. Yellow to buff dust	07A	
35'	40'	5'	white to pale yellow. Weakly laminated - shown by muscovite paralleled v.f. to f.g. siltstone, calcareous vein quartz. Dust - dirty yellow to ochrecolour	08A	
40'	45'	5'	White to pale yellow to dominantly maroon. Siltstone muscovite not as common, vornite (?) calcareous not as significant as before. dust - pale maroon to yellow. Malachite (?).	09A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0203

HOLE NO. –461/172.50
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
45'	50'	5'	White to maroon. Siltstone - malachite staining quite						
			when wet non-calcareous, chert nodule (may be conta-	10A					
			mination) Dust. Yellow.						
50'	55'	5'	Grey white to maroon. Micaceous (muscovite) lamin-						
			ated siltstone-shale. Non-calcareous. Fawn dust to	11A					
			ochre.						
55'	60'	5'	Pale maroon to fawn coloured. Firable ash, siltstone,						
			chert, limonite pseudomorphs. non-calcaroues. Fawn	12A					
			dust.						
60'	65;	5'	Pale maroon and yel. Firable ash, siltstone, vein qtz.						
			Limonite pseudomorphs, micaceous non-calcarous	13A					
			Fawn dust.						
65'	70'	5'	Maroon, some parts yel. F.g. siltstone, micaceous-						
			muscovite, limonite. Also powdery and vein qtz.	14A					
			fawn dust.						
70'	75'	5'	As above plus vein qtz, many limonite pseudomorphs						
			Same as 14A	15A					
75'	80'	5'	Yel. -touches of maroon. Slightly to v. w. laminated						
			siltstone. Limonite pseudomorphs, non-calcareous,	16A					
			friable yel. ochre dust. Vein qtz. (?)						
80'	85'	5'	Yel. ochre. (poor sample of chips). friable ash-						
			many limonite pseudomorphs non-calcareous. Yellow	17A					
			ochre dust.						
85'	90'	5;	as for 17A	18A					
90'	95'	5'	Yel. in colour, but same as for 17Aveing qtz.						
			less limonite pseudomorphs.	19A					
95'	100'	5'	Yel. Structureless siltstone, limonite, pseudomorphs						
			quite a bit of vein qtz, non-calcareous, very f. g.						
			real fawn coloured dust to parts red-ochre	20A					
100'	105'	5'	Yel. plus pale maroon. Extremely weakly laminated	21A					
			siltstone. Non-calcareous, vein qtz limonite pseudos.						
			Dust fawn						

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0204

HOLE NO. 461/172.50
Sheet No. 3 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
105'	110'	5'	Pale maroon siltstone. Friable ash, vein quartz faint traces of muscovite. Non-calcareous limonite psuedomorphs common. Dust light brown to fawn.	22A					
110'	115'	5'	Maroon. Limonite pseudomorphs. Muscovite more prominant, laminated silty shale. Non-calcareous, vein quartz. Dark fawn dust.	23A					
115'	120'	5'	Maroon. Siltstone muscovite, limonite pseudomorphs common. Non-calcareous. Friable ash. Dark fawn dust.	24A					
120'	125'	5'	As for 24A	25A					
125'	130'	5'	Yel. Siltstone -very weak laminations. Muscovite vein quartz, limonite pseudomorphs. Non-calcareous Maroon - yellow dust.	26A					
130'	135'	5'	Light fawn - yellow. Siltstone. Non-calcareous, many limonite pseudomorphs. Light fawn dust.	27A					
135'	140'	5'	Yellow-maroon. Siltstone, muscovite, limonite pseudomorphs. Non-calcareous, quartz veins. Chips with limonite stains. Very light yel-fawn dust.	28A					
140'	145'	5'	Maroon. Siltstone-argillite-very f.g. Vein quartz, few limonite pseudomorphs, non-calcareous light brown dust.	29A					
145'	150'	5'	Bright maroon (more than 29A) limonite pseudomorphs, muscovite, veins quartz. Siltstone, light brown dust and non-calcareous.	30A					
150'	155'	5'	Bright maroon. More coarse grained than 30A. Siltstone vein quartz, limonite pseudomorphs. Fawn-brown dust, non-calcareous	31A					
155'	160'	5'	Very bright maroon - even scarlet coloured. Argillite very f.g. Vein qartz covered by limonite non-calcareous, muscovite, limonite pseudomorphs brown dust.	32A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0205
HOLE NO. –461/172.50
Sheet No. 4 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
160'	165'	5'	Scarlet - maroon siltstone. Many large qtz. vein chips - showing good crystal faces. Non-calcareous limonite pseudomorphs fewer darker brown dust than 32A.	33A	
165'	170'	5'	Deep red-maroon siltstone. Odd muscovite, limonite nodules common. Non-calcareous, vein quartz common. Maroon-brown dust.	34A	
170'	175'	5'	Brown-maroon siltstone. Large vein qtz. chips, chert and limonite chips and nodules. Brown dust plus non-calcareous.	35A	
175'	180'	5'	Maroon siltstone. Limonite and chert nodules Non-calcareous. Light brown - maroon dust	36A	
180'	185'	5'	Yellow-fawn-maroon. Siltstone-very f.g. qtz chips non-calcareous, small limonite nodules Larger chert nodules. Fawn dust.	37A	
185'	190'	5'	Purple-maroon. Siltstone, qtz chips, chert (?) limonite nodules, non-calcareous light brown dust.	38A	
190'	195'	5'	Buff coloured siltstone. Little limonite nodules and scarce. Non-calcareous, chert nodules fairly common. Light fawn dust. Red dots (?) of unknown.	39A	
195'	200'	5'	Maroon-pale yellow weakly laminated, siltstone. Limonite nodules. Light fawn colour. and non-calcarous.	40A	
200'	205'	5'	Maroon. Siltstone, fine grained. Chert chips and and limonite (tiny) nodules dark fawn and non-calcareous dust.	41A	
205'	210'	5'	Maroon-yel. siltstone. Qtz chips are mumerous, odd limonite nodule. Fawn and non-calcareous dust red flakes contamination(?). Quite a few chert nodules.	42A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. – 461/172.50 0206
Sheet No. 5 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
210'	215'	5'	Maroon and deep purple red tinge siltstone. Qtz vein quite numerous. red flakes-contamination (?). Chert particles - fewer than 42A. Red flakes do not appear dark enough for cuprite. Dark fawn and non-calcareous dust.	43A					
215'	220'	5'	Yellow-maroon siltstone - coarser than 43A limonite pseudomorphs. Occassional muscovite (?) Light fawn dust and non-calcareous.	44A					
220'	225'	5'	(Yellow) - grey chip siltstone. Coarser than 44A. Chert or limonite nodules - very small very light fawn dust.	45A					
225'	230'	5'	Grey-purple chip siltstone. Heavy minerals limonite or goethite nodules. Fawn dust and non-calcareous dust.	46A					
230'	235'	5'	Yellow-fawn siltstone. Chert and geothite nodules Large limonite nodules. Yellow tinge in fawn dust and non-calcareous.	47A					
235'	240'	5'	Ochre-maroon-red(deep) coloured siltstone friable ash. Goethite very rare. Heavy minerals(?) ochre yellow dust and non-calcareous.	48A					
240'	245'	5'	Maroon to deep red siltstone. Friable ash, non-calcareous, (chert) limonite? nodules qtz. chips frequent. Ochre-maroon.	49A					
245'	250'	5'	Grey to maroon siltstone. Friable ash, non-calcareous. qtz chips, chert nodules -rare maroon-ochre, non-calcareous.	50A					
250	255'	5'	as above. except limonite nodules and not chert.	51A					
255'	260'	5'	Fawn-ochre siltstone. Muscovite. Limonite nodules common, ospecially on qtz chips. Fawn-ochre dust non-calcareous.	52A					
260'	265'	5'	White to yl. chips forming a siltstone. coarser g. nodular. many qtz chips, many v.s. limonite	53A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. 461/172.50
Sheet No. 6 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
p			pseudomorphs Light fawn in colour, non-calcareous.		
265'	270'	5'	Grey to yel. siltstone and as for 53A	54A	
270'	275'	5'	Yel siltstone. Few limonite nodules. Friable ash geothite and Fel oxides. Yel. maroon dust, non-calcareous.	55A	
275'	280'	5'	Grey chips - pale. Nodular siltstone. Limonite very small and rare, could be contamination from above. Yellow-brown dust non-calcareous.	56A	
280'	285'	5'	Maroon - grey chips. Limonite ? Heavy mineral? nodules siltstone. Non-calcareous pale yellow - maroon dust.	57A	
285'	290'	5'	Pale grey chips and as for 57A.	58A	
290'	295'	5'	Very pale yellow grey siltstone. Limonite nodules very small and very rare. The odd qtz vein chips . Fawn dust, n-calcareous.	59A	
295'	300'	5'	Grey siltstone. Larger grains much coarser. Qtz vein chips + limonite staining. fawn dust, n-calc.	60A	
300'	305'	5'	As for 60A	61A	
305'	310'	5'	Grey siltstone. Qtz vein chips. Coarser g. grey-dark brown dust.	62A	

DESCRIPTIVE LOG – Auger Drilling

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO 469/173.50
Sheet No. 1 of

PROJECT – S.A. COPPER SEARCH
LOCATION – COPPER CLAIM
LOGGED BY – A. J. DRUMMOND

CO-ORDINATES – 469 north 173.50 east
COLLAR ELEVATION –
BEARING – , INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED – 0208

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0'	5'	5'	Dark brown to creamy brown 'A' + 'B' soil horizon chips. Qtz chips, limonite coated. Some vegetable matter. Highly calcareous (OVERBURDEN)	01A	
5'	10'	5'	Reddish clayey matter, generally coated by light brown dust. Highly calcareous (OVERBURDEN)	02A	
10'	15'	5'	Brown, red and ochreous argillite chips with scattered white clayey blotches. Moderately calcareous light orange dust (7)	03A	
15'	20'	5'	Pale purple, variably micaceous shale chips very fine orange dust (10)	04A	
20'	25'	5'	As for 04A (10)	05A	
25'	30'	5'	Pale purple, variably micaceous shale chips. Pale orange brown, slightly calcareous dust (9)	06A	
30'	35'	5'	Weathered shale chips, coloured red, orange white and brown. Pale pinkish brown, slightly calcareous dust (10)	07A	
35'	40'	5'	Pale purple, but variably red spotted, micaceous shale chips. Pale pinkish brown, n-calcareous dust (10)	08A	
40'	45'	5'	Ochreous, very weathered argillite chips. Non-calcareous, pinkish brown dust (10)	09A	
45'	50'	5'	Purple, micaceous shale chips. Pinkish brown n-calcarous dust (10)	10A	
50'	55'	5'	Purple, micaceous shale, some of which have limonite in fillings along joints. Pinkish dust, n-calcarous (10)	11A	
55'	60'	5'	Purple, slightly micaceous, argillite chips. Light brownish pink, n-calcareous dust (10)	12A	
60'	65'	5'	Purple to ochreous, very weathered shale chips	13A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0209

HOLE NO. 469/171.50
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
			containing a large proportion of white Kaolinized						
			patches. Dark pinkish brown dust, n-calcareous (10)						
65'	70'	5'	Purple to ochreous, very weathered argillite chips	14A					
70'	75'	5'	Brown, weathered shale chips. Dark tan limonite						
			streaks. White kaolinized patches. Moderately	15A					
			micaceous. Medium brown, n-calcareous dust (10)						
75'	80'	5'	Purple micaceous argillite chips. Light brown non-	16A					
			calcareous dust (10)						
80'	85'	5'	Pale purple, very micaceous, shale chips. Quartz	17A					
			vein chips often showing well developed crystal						
			form. Black limonite grains in the light brown						
			non-calcareous dust (10)						
85'	90'	5'	Purple and brown, weathered argillite chips. Black	18A					
			limonitic (?) grains in the dust. Light orangy						
			brown, non-calcareous dust (10)						
90'	95'	5'	Dark brown to purple weathered argillite chips	19A					
			Pruplish brown, n-calcareous dust (10)						
95'	100'	5'	As for 19A (10)	20A					
100'	105'	5'	As for 19A (10)	21A					
105'	110'	5'	Pale brown to browmish yellow micaceous shale and	22A					
			argillite chips, some with white kaolinized patches						
			Pale purplish brown, n-calcareous dust (10)						
110'	115'	5'	Purple, variably micaceous, argillite chips. Light						
			brown, n-calcareous dust (10)	23A					
115'	120'	5'	Purple, slightly micaceous shale chips. Browmish	24A					
			purple, n-calcareous dust (10)						
120'	125'	5'	As for 24A (10)						
125'	130'	5'	Purple micaceous argillite chips often with brown	26A					
			limonite stains. On intense weathering, a dark						
			brown colour developes and the muscovite is						
			kaolinized. Purplish brown, n-calcareous dust (10)						
130'	135'	5'	Brown to pale yel. very weathered argillite chips	27A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0210

HOLE NO. –469/171.50
Sheet No. 3 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			Pale brown, n-calcareous dust. Muscovite has been kaolinized (10)		
135'	140'	5'	As for 27A (10)	28A	
140'	145'	5'	Pale pink to ochreous, very weathered argillite chips. Light orangy brown dust (10)	29A	
145'	150'	5'	Sample entirely orange n-calcareous dust (10)	30A	
150'	155'	5'	Orange to ochreous very weathered argillite chips Sample is mainly orange n-calcareous dust (10)	31A	
155'	160'	5'	Pale grey, silty argillite chips, Light brown dust, n-calcareous (10)	32A	
160'	165'	5'	Purple to brown, laminated shale chips. Light brown, n-calcareous dust (10)	33A	
165'	170'	5'	Pale purple, but often red speckled, very micaceous shale chips. Purplish brown, n-calcareous dust (10)	34A	
170'	175'	5'	Light brown to ochreous, laminated shale chips, often with black limonitic stains on bedding planes. Brownish orange, n-calcareous dust. (10)	35 A	
175'	180'	5'	Purple to brown laminated siltstone and argillite chips - argillite is more common and is slightly micaceous. Purplish brown dust, n-calcareous (9)	36A	
180'	185'	5'	Purple very weathered argillite chips. Purplish brown dust, n-calcareous (10)	37A	
185'	190'	5'	Pale brown to purple micaceous shale chips. Brownish, n-calcareous dust (10)	38A	
190	195'	5'	As for 38A (10)	39A	
195'	200'	5'	SAMPLE MISSING (assumed to be 10)	40A	
200'	205'	5'	As for 38A (10)		
205'	210'	5'	Pale purple, very weathered shale chips. Medium brown, n-calcareous dust (10)	42A	
210'	215'	5'	As for 42A (10)	43A	
215'	220'	5'	Pale brown, very weathered micaceous argillite chips. Most of the muscovite has been kaolinized	44A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0211

HOLE NO. 469/171.50
Sheet No. 4 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			Light brown, non calcareous dust (10)		
220'	225'	5'	As for 44A (10)	45A	
225'	230'	5'	As for 44A (10)	46A	
230'	235'	5'	Light brown, finely micaceous, argillite, chips,		
			ochreous, n-calcareous dust (10)	47A	
235'	240'	5'	As for 47A (10)	48A	
240'	245'	5'	Light purplish brown, very weathered shale chips.	49A	
			Many have white kaolinized spots. N-calcareous		
			orange dust (10)		
245'	250'	5'	Light purple, micaceous shale chips. Most of the	50A	
			muscovite has been kaolinized. Some dark brown		
			limonite staining along bedding partings.		
			Orangy brown, n-calcareous dust (10)		
250'	255'	5'	As for 50A (10)	51A	
255'	260'	5'	Sample is entirely orange, n-calcareous dust (10)	52A	
260'	265'	5'	Brown, slightly micaceous, argillite chips. A few	53A	
			clear qtz vein chips, good conchoidal fracture.		
			Brownish. Brownish dust (10)		
265'	270'	5'	Orange, very weathered, argillite chips. Bright	54A	
			orange, n-calcareous dust (10)		
270'	275'	5'	Purple and white spotted, weathered argillite chips	55A	
			Brownish orange, -non-calcareous dust (10)		
275'	280'	5'	Reddish brown, very micaceous shale chips, reddish	56A	
			brown, non-calcareous dust (10)		
280'	285'	5'	Light purple weathered micaceous argillite chips	57A	
			Most of the muscovite has been kaolinized. Some		
			thin red limonite stringes probably along joints		
			Light brown, non-calcareous dust (10)		
285'	290'	5'	Pale purple, micaceous, weathered argillite chips	58A	
			Light brown, n-calcareous dust (10)		
290'	295'	5'	Weathered purple argillite chips. Nodular lumps	59A	
			composed of an ochreous argillic core, sometimes		

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0212

HOLE NO. 469/171.50
Sheet No. 5 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
			containing silt size shiny dark specks (limonite)						
			and surrounded by a very dark brown dust layer.						
			Light brown dust, n-calcareous (10)						
295'	300'	5'	Purple, micaceous shale chips. Light brown, non	60A					
			calcareous dust (10)						
300'	305'	5'	As for 60A, except that dust is pinkish brown (10)	61A					
305'	310'	5'	As for 61A (10)	62A					
310'	315'	5'	As for 61a (10)	63A					
315'	320'	5'	As for 61A (10)	64A					
320'	325'	5'	As for 61A although it is more weathered (10)	65A					
325'	330'	5'	As for 61A (10)	66A					
330'	335'	5'	Sample is all moderately calcareous medium brown	67A					
			dust (10)						
335'	340'	5'	As for 61A except that the dust is slightly calc.	68A					
			(10)						
340'	345'	5'	Purple to light brown, weathered slightly micaceous	69A					
			siltstone chips. Brownish slightly calcareous dust						
			(6)						
345'	350'	5'	As for 69A (6)	70A					
350'	355'	5'	As for 69A (6)	71A					
355'	360'	5'	Pale brown to white weathering, only slightly	72A					
			micaceous argillite chips. Pale brown, slightly						
			calcareous dust (10)						
360'	365'	5'	Pale brown, soft and crumbly, weathered argillite	73A					
			chips. Plae brown, n-calcareous dust (10)						
365'	370'	5'	Pale creamy argillite chips with a few orange	74A					
			weathering spots. Pale brownish cream, n-calcareous						
			dust (10)						
370'	375'	5'	Pale creamy brown, micaceous argillite chips with	75A					
			some orange weathering spots (10)						
375'	380'	5'	Sample is entirely light greenish brown, n-calc.	76A					
			dust (10)						

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. 69/171.50
Sheet No. 6 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
380'	385'	5'	As for 76A (10)	77A	
385'	390'	5'	As for 76A (10)	78A	
390'	395	5'	As for 76A except for a very few small chips of brownish qtzite composed of silt size grains (9)	79A	
395'	400'	5'	As for 79A (9)	80A	
400'	405'	5'	As for 79A (9)	81A	
405'	410'	5'	Medium to dark brown, slightly micaceous argillite chips. Pale creamy brown, n-calcareous dust (10)	82A	
410'	415'	5'	As for 82A (10)	83A	
415'	420'	5'	Very dark grey to black quartzite chips, clear quartz vein chips quite common, some of which have good crystal faces. light to medium brown n-calcareous dust. Slightly calcareous (4)	84A	
420'	425'	5'	As for 84A - a very quartz rich sequence - many chips covered by brown dust but could be due to contamination. Moderately calcareous (5)	85A	
425'	430'	5'	As for 84A mainly. Many of the quartz and quartzite grains have black flecks and nodules. They are obviously of secondary origin but is not known whether are goethite or weathered mineralization Some of the quartzite chips have argillite layers Pinkish silty agglomerations are common also. Quite calcareous (5)	86A	
430'	435'	5'	As for 86A mainly. The chips are much smaller. The black material may well be pyrite as in this sample there are many well developed pyritohedrons, many of which are presumed quite fresh as they had been surrounded by qtz and still possess a good vitreous, matallic lustre (although they are a dark brown colour).	87A	
435'	440'	5'	Pyritic qtz and qtz breccia chips common. A few deep red jasperoid (?) chips. Some black nodular	88A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. – 469/171.5
Sheet No. 7 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			material as in 86A. Many chips of fine sand size qtz grains with clayey matrix. Whole sample is very pyritic and possibly, well mineralized. light brown dust quite calcareous (5)		
440'	445'	5'	Mainly small clear qtz chips and not noticeably pyritic but otherwise as for 88A. Several large pinkish purple argillite chips also. Overall, slightly calcareous. Light brown dust. (5)	89A	
445'	450'	5'	Qtz grains still common., although not predominant now - often found clinging to the outside of other chips. Black nodules still present, a few limonite pseudomorphs after pyrite Some deep pink argillite chips. Ochreous argillitic chips also. Moderately calcareous, pale greyish brown dust (7)	90A	
450	455'	5'	As for 90A although qtz is less common (7)	91A	
455'	460'	5'	Pale yellow, very weathered, poorly sorted argillite chips containing approximately 10% silt size qtz grains. Sample is mainly sand size qtz grains. A few pink argillite chips. Black nodules still present, although not common. Pale greyish brown dust, moderately calcareous (5)	92A	
460'	465'	5'	Pale purple argillite chips. Deep pink argillite chips. Some black nodules. Sample mainly clear qtz. Pale brown calcareous dust (9)	93A	
465'	470'	5'	As for 93A	94A	
470'	475'	5'	As for 93A, + a few dark grey chert chips. Moderately calcareous (9)	95A	
475'	480'	5'	As for 93A. The small qtz grains appear to be often lightly held together by acalcareous cement (9)	96A	
480'	485'	5'	As for 96A	97A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0215

HOLE NO. –469/171.5C
Sheet No. 8 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
485'	490'	5'	Dark grey to dark brown relatively unweathered argillite chips. Cherty qtz chips predonimate. Qtz chips common. A few pink and micaceous ochreous argillite chips. Greyish brown, very calcareous dust (9)	98A					
490'	495'	5'	As for 98A (9)	99A					
495'	500'	5'	As for 98A (9)	100A					
500'	505'	5'	As for 98A. Dust is now a larger component.(9)	101A					
505'	510'	5'	Mainly sand size, variably rounded qtz grains. A few pink to white weathered argillite chips. Medium to dark grey moderately to highly calcareous dust (5)	102A					
510'	515'	5'	Large phyllitic appearing shale chips and pinks to whites. Some limonite pseudomorphs after pyrite - large cubes, up to 3mm. Clear to white quartz chips. Very calcareous, medium to dark grey dust (10)	103A					
515'	520'	5'	As for 103A (10)	104A					
520'	525'	5'	As for 103A (10)	105A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO 465/175.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – R.J.Gransbury

CO-ORDINATES – 465 north 175.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

0216

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0'	5'	5'	All colours from fawn to orange to black. 'A' and 'B' soil horizon chips. Very calcareous, vegetable matter, granular to coarse grained. Orange to brown dust (overburden)	01A	
5'	10'	5'	Predominantly deep red. Limonite and chert fragments. Granular to pebble size - much qtz parent could have been a coarse sandstone. Deep red dust and very calcareous (overburden)	02A	
10'	15'	5'	Orange - deep red chips. Weakly calcareous. Finer grained, vein qtz with limonit staining. Orange dust (overburden)	03A	
15'	20'	5'	Orange - yellow chips. Siltstone, fine grained, odd piece of vein qtz. N-calcareous, limonite pseudomorphs yellow dust (6)	04A	
20'	25'	5'	Grey to orange to yellow to white chips. Limonite nodules, basicly a siltstone, but is a weathered sandstone. Qtz veins, limonite pseudomorphs, n-calcareous. Orange - yellow dust. (6)	05A	
25'	30'	5'	Yellow-pale blue orange chips. Limonite pseudomorphs and nodules. N-calcareous. (orange) - ochre dust (6?)	06A	
30'	35'	5'	Yellow-pale blue orange chips. Siltstone, limonite pseudomorphs and nodules. N-calcareous yellow-orange dust (6)	07A	
35'	40'	5'	Yellow-orange siltstone. Quartz vein chips. Limonite pseudomorphs and nodules. Orange dust and non calc areous (6).	08A	
40'	45'	5'	Yellow-ochre siltstone, quartz vein chips, limonite nodules, yellow ochres, non calcareous dust (6)	09A	
45'	50'	5'	Yellow - orange Siltstone, limonite nodules and pseudomorphs. Quartz vein chips rare. Orange	10A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. –465/175.50
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
50'	55'	5'	Orange siltstone (yellow and reds are there too) Limonite nodules - large and small, occasional pseudomorphs. Lart qtz vein chips are common. Deep red and deep orange dust, non calcareous (6)	11A					
55'	60'	5'	As for 11A (6)	12A					
60'	65'	5'	As for 11a (6)	13A					
65'	70'	5'	As for 11A (6)	14A					
70'	75'	5'	As for 11A (6)	15A					
75'	80'	5'	As for 11A (6)	16A					
80'	85'	5'	Light grey and ochreous, very weathered, argillite chips. Reddish dust which is n-calcareous (10)	17A					
85'	90'	5'	Light grey to white a gillite chips, sometimes ochreous stained. Reddish dust - n-calcareous (10)	18A					
90'	95'	5'	Light grey weathered argillite chips which often are coated and infilled by layers of dark reddish brown limonitic matter, Non-calcareous (10)	19A					
95'	100'	5'	Dark purple, weathered, friable, argillite chips. Very dark reddish purple dust. N-calcareous (10)	20A					
100'	105'	5'	As for 20A	21A					
105'	110'	5'	Light brown weathered argillite chips. Light brown n-calcareous dust. (10)	22A					
110'	115'	5'	Sample is entirely dark reddish brown, n-calcareous dust (10)	23A					
115'	120'	5'	As for 23A (10)	24A					
120'	125'	5'	As for 23A (10)	25A					
125'	130'	5'	As for 23A (10)	26A					
130'	135'	5'	Sample is entirely medium reddish brown, non-calcareous dust (10)	27A					
135'	140'	5'	Sample is mainly reddish brown, n-calcareous dust. Reddish brown, weathered micaceous silty and argillite chips (9)	28A					
140'	145'	5'	Sample is entirely light greyish reddish brown,	29A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0218
HOLE NO. – 465/175.50
Sheet No. 3 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			non-calcareous dust (10)		
145'	150'	5'	Sample is mainly light greyish tan dust and is non-calcareous. A few light purplish brown shale chips (10)	30A	
150'	155'	5'	As for 30A	31A	
155'	160'	5'	Sample is mainly light yellowish brown, non-calcareous dust. A few dark brown siltstone chips (6)	32A	
160'	165'	5'	As for 32A but with a few relatively unweathered light grey siltstone chips (6)	33A	
165'	170'	5'	A few light brown weathered siltstone chips. Light brown non-calcareous dust (6)	34A	
170'	175'	5'	Sample is entirely light reddish brown dust non-calcareous (10)	35A	
175'	180'	5'	Medium reddish brown, non-calcareous dust. Light brown, soft and weathered, shale chips (10)	36A	
180'	185'	5'	Small reddish, moderately micaceous siltstone chips. reddish, orange and yellow dust, non-calcareous (6)	37A	
185'	190'	5'	A few light grey and patchily yellow stained, weathered quartzite chips, composed of silt size grains. Reddish weathered argillite chips. Light orange dust, non-calcareous. (6)	38A	
190'	195'	5'	As for 38A (6)	39A	
195'	200'	5'	Light yellowish grey qtzite chips composed of silt size grains. Sample is mainly light orange dust non-calcareous (6)	40A	
200'	205'	5'	Light brown weathered argillite chips. Pale ochreous dust. Large qtz vein chips (10)	41A	
205'	210'	5'	As for 41A	42A	
210'	215'	5'	Pale ochreous argillite chips. Pale ochreous dust non-calcareous dust (10)	43A	
215'	220'	5'	As for 43A	44A	
220'	225'	5'	Light yel. weathered argillite chips. Canary	45A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. 465/175.50
Sheet No. 4 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			yellow non-calcareous dust (10)		
225'	230'	5'	Very pale grey argillite chips. Very pale yellowish grey dust - off white Dust is non-calcareous (10)	46A	
230'	235'	5'	As for 46A (10)	47A	
235'	240'	5'	Light yellow dust only, non-calcareous (10)	48A	
240'	245'	5'	A few light brown, but orange stained argillite chips. Sample is mainly light brown dust, non-calcareous. (10)	49A	
245'	250'	5'	A few light grey but blotchily ochreous stained very fine qtz arenite chips. Pale yellow non-calcareous dust (10)	50A	
250'	255'	5'	Chips as in 50A. A few medium grey chert chips. Pale yellow brown, non-calcareous dust (9)	51A	
255'	260'	5'	Some light grey weathered siltstone chips. Sample is mainly pale yellow non-calcareous dust (9)	52A	
260'	265'	5'	Grey chert chips quite common. Sample is mainly light brown dust (9)	53A	
265'	270'	5'	Chips of very fine sand size qtz arenite - light greyish brown in colour. medium greyish brown dust which is slightly calcareous (4)	54A	
270'	275'	5'	As for 54A. The dust is quite sandy (4)	55A	
275'	280'	5'	Probably originally muddy medium to coarse grained sandstone chips. Sand grains mainly of qtz, some chert and jasperoid (?). Numerous dark tan very calcareous limonitic (?) concretions. Greyish brown dust. The concentrated HCL converts the colour of the dust to a brillian deep yellow (4)	56A	

DESCRIPTIVE LOG – Auger Drill

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO -475/168.50
Sheet No. 1 of

PROJECT – S.A. Copper
LOCATION – Copper Claim
LOGGED BY – A. J. Drummond

CO-ORDINATES – 475 north 168.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED – 0220

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0'	5'	5'	Brown, yellow and cream 'A' and 'B' horizon soil chips. Several subrounded coarse sandsize qtz grains. Some vegatable matter, highly calcareous	01A	
5'	10'	5'	Pale orange to yellow argillite chips. Light orange dust. Several black limonitic nodules, highly calcareous.	02A	
10'	15'	5'	Light brown argillite chips and light brown dust. Highly calcareous. Light brownish grey chert chips.	03A	
15'	20'	5'	Pale brown to ochreous argillite chips. Some are qtz veins composed of silt size crystals. Light ochreous brown, very calcareous dust.	04A	
20'	25'	5'	Ochreous argillite chips, some containing abundant black limonitic matter. Ochreous dust, slightly calcareous.	05A	
25'	30'	5'	Weathered, purple shale chips. Pale brown ochreous dust, moderately calcareous.	06A	
30'	35'	5'	Poorly sorted agglomerations of medium sand size qtz grains in a yellowish white kaolinized matrix Pale-brown non-calcareous dust.	07A	
35'	40'	5'	As for 07A. Pale creamy brown clayey dust.	08A	
40'	45'	5'	As for 08A. Comment. It is possible that these chips represent the affects of concentrated weathering on a fine grained felsic lithology the feldspars having been kaolinized, and the qtz relatively unaffected.	09A	
45'	50'	5'	Sample mainly light ochreous dust. A few very weathered and crumbly argillite chips.	10A	
50'	55'	5'	As for 10A	11A	
55'	60'	5'	Sample Missing	12A	
60'	65'	5'	Dark red, weathered, argillite chips. Several medium sand size qtz grains in the dust	13A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

220A

HOLE NO. 475/168.50
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			Dust is ochreous, non calcareous.		
65'	70'	5'	Sample is entirely very fine dark ochreous dust except for a few small angular vein qtz chips.	14A	
70'	75'	5'	As for 14A	15A	
75'	80'	5'	Pale brown weathered, very micaceous shale chips. Commonly, fine sand size black nodules of limonite in the dust. Qtz vein chips very common.	16A	
80'	85'	5'	White to light brown, laminated argillite chips often containing a large number of fine sand size black matter. It is also very common in the dust This is probably either Mn and limonite. If limonite, it could imply that this was originally a very pyritiferous layer.	17A	
85'	90'	5'	Sample is greyish brown, n-calcareous dust containing 5 - 10% of the black matter described in 17A and a few angular vein qtz chips.	18A	
90'	95'	5'	Chips of quartzite probably originally composed of sand size grains. The black nodules are now very common, 10-20%. On some surfaces excellent mammillary textures, have developed so it is probably geothite. N-calcareous. Light brown dust.	19A	

DESCRIPTIVE LOG – Percussion Drill

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO –
Sheet No. 1 of 2

PROJECT – S. A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – A. J. Drummond

CO-ORDINATES – 177.50 north 461 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

0221

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Purple and cream chunks of B horizon soil. Qtzite lumps and chips of vein qtz both common. Very calcareous (overburden),	01A	
5	10	5	Light grey weathered siltstone chips. Light brown weathered argillite chips. Vein quartz lumps common occasional quartzite chips. Orange/brown dust, highly calcareous (overburden).	02A	
10	15	5	Purple siltstone chips. Vein quartz chips common. Light brown dust common. Highly calcareous (7)	03A	
15	20	5	Purple laminated argillite chips. Some vein quartz chips. Pale pinkish brown dust. Moderately calcareous (7).	04A	
20	25	5	Purple siltstone chips which weather to a brown, ochre or white colour. Occasional vein quartz chips. Slightly calcareous (7).	05A	
25	30	5	Purple mottled siltstone. Mottles of red, orange and white. Occasional vein quartz chips. Pinkish orange dust. Non calcareous (6)	06A	
30	35	5	Purple laminated siltstone chips, considerably weathered Slightly calcareous. Pink dust (6)	07A	
35	40	5	Weathered pink siltstone chips, proably originally purple. Pink dust. Slightly calcareous (6).	08A	
40	45	5	Purple siltstone chips which weather to white and brown shades. Moderately calcareous (7).	09A	
45	50	5	Laminated, weathered quartzite chips, composed of silt size grains. Purple fine siltstone grains. Vivid purplish pink dust. Non calcareous (6).	10A	
50	55	5	Purple and white weathered siltstone chips. Light brown dust. Slightly calcareous (6).	11A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0222

HOLE NO. –
Sheet No. 2 of 2

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
55	60	5	Weathered purple siltstone chips. Orange brown dust. Slightly calcareous (6).	12A					
60	65	5	Chips of purple, brown and white laminated siltstone. Purplish bornw dust. Moderately calcareous (7).	13A					
65	70	5	Originally purple siltstone, but now has been altered brown white and red chips. Fine pinkish brown dust Conc Hcl (-) (6)	14A					
70	75	5	Faded purple siltstone chips, larger quartzite chips. Pinkish brown dust conc Hcl (-) (6)	15A					
75	80	5	Purple siltstone and white quartzite chips. Vein quartz chips common. Light brown dust. Conc Hcl (-) (6)	16A					
80	85	5	Purple, but brown weathering, quartzose siltstone chips. Brownish orange dust. Conc Hcl (-) (6)	17A					
85	90	5	Orange weathering siltstone chips, also weathered quartzite chips with brown limonite stains. Brownish orange dust. Conc Hcl (-) (6)	18A					
90	95	5	Grey shale chips. Dust is quite muscovite rich. Brownish orange dust (9)	19A					
95	100	5	Purple, weathered, micaceous siltstone chips, with well developed pyritohedrons. Vein qtz chips in the dust. Light brown dust moderately calcareous.	20A					
100	105	5	Purple siltstone chips, slightly micaceous. Brownish orange dust. Non calcareous (6)	21A					
105	110	5	Well indurated brown siltstone chips. Many vein qtz chips. Many broken pieces of limonite after pyrite sometimes showing good crystal form. Non calcareous. Light purplish brown dust (6)	22A					
110	115	5	As for 22A except that it is less rich in vein quartz and limonite chips. Moderately calcareous. (7)	23A					

DESCRIPTIVE LOG — PERCUSSION DRILL

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)
505 St Kilda Rd., Melbourne

HOLE NO. 0223
Sheet No. 1

PROJECT - ~~GD~~ S. A
LOCATION:- COPPER CLAIM
LOGGED BY:- A.J.D.

CO-ORDINATES:- 1750 East 461 North
COLLAR ELEVATION:-
BEARING:-
INCLINATION:-

DRILLED BY:-
COMMENCED:-
COMPLETED:-

FOOTAGE From	FOOTAGE To	FOOTAGE Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS
0	5	5	Purple + cream chunks of B horizon soil. Qtzite lumps + chips of vein qtz both common. Very calcareous. (OVERBURDEN)	01 A	
5	10	5	Light grey weathered siltstone chips. Light brown weathered argillite chips. Vein qtz lumps common. Occasional quartzite chips. Orange/brown dust, highly calcareous. (overburden)	02 A	
10	15	5	Purple siltstone chips. Vein qtz chips common. Light brown dust common. Highly calcareous. (4)	03 A	
15	20	5	Purple laminated argillite chips. Some vein qtz chips. Pale pinkish brown dust. Moderately calcareous. (7)	04 A	
20	25	5	Purple siltstone chips which weather to a brown, olive or white colour. Occasional vein qtz chips. Slightly calcareous. (7)	05 A	
25	30	5	Purple mottled siltstone. Mottles of red, orange and white. Occasional vein quartz chip. Pinkish orange dust. Non calcareous. (6)	06 A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0224

HOLE NO. –
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
30	35	5	Purple laminated siltstone chips, considerably weathered. Slightly calcareous. Pink dust (6)	07A	
35	40	5	Weathered pink siltstone chips probably originally purple. Pink dust. Slightly calcareous. (6)	08A	
40	45	5	Purple siltstone chips which weather to white and brown shales. Moderately calcareous (7)	09A	
45	50	5	Laminated weathered quartzite chips composed of silt size grains. Purple lime siltstone grains. Vivid purplish pink dust. Non calcareous (6)	10A	
50	55	5	Purple & white weathered siltstone chips. Light brown dust. Slightly calcareous (6)	11A	
55	60	5	Weathered purple siltstone chips. Chips brown dust. Slightly calcareous (6)	12A	
60	65	5	Chips of purple, brown & white laminated siltstone. Purplish brown dust. Moderately calcareous. (6)	13A	
65	70	5	Weathered purple siltstone, most chips have been altered to brown, white & red chips. Fine purplish brown dust. Low HCl (-) (6)	14A	
70	75	5	Faded purple siltstone chips, large fresh chips. Pinkish brown dust. Low HCl (-) (6)	15A	
75	80	5	Purple siltstone, weathered quartzite chips. Vein quartz chips common. Light brown dust. Low HCl (-) (6)	16A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. – 225
Sheet No. 3 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
80	85	5	Purple but brown weathering, qtz ose. siltstone chips. Brownish orange dust. Core still (-) (6)	17A	
85	90	5	Orange weathering siltstone chips, also weathered qtzite chips with brown limonite stains. Brownish orange dust. Core still (-) (6)	18A	
90	95	5	Grey shale chips. Dust is qtzite ~~mus~~ muscovite rich. Brownish orange dust (9)	19A	
95	100	5	Purple weathered, micaceous siltstone chips with well developed pyritohedrons. Few qtz chips in the dust. Light brown dust moderately effervescent. (7)	20A	
100	105	5	Purple siltstone chips, slightly micaceous. Brownish orange dust. Non calcareous. (6)	21A	
105	110	5	Well indurated brown siltstone chips. Many vein qtz chips. Many broken pieces of limonite after pyrite sometimes showing good crystal form. Non calcareous. Light purplish brown dust (6)	22A	
110	115	5	As for 22A, except that it is less rich in vein qtz & limonite chips. Moderately calcareous. (7)	23A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0226

HOLE NO. –
Sheet No 5 of

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
240	245	5	Light grey calcisiltstone chips for small dark grey hard chips in the dust. Very pale brownish pink dust which is highly calcareous.	49A	
245	250	5	Some dark grey dolomite chips. Mainly very calcareous pale brownish pink dust	50A	
250	255	5	Sample is wholly composed of v. pale pinkish brown dust. Very calcareous	51A	
255	260	5	Chips of dark purple/grey dolomite. Dust is v pale pinkish brown & is very calcareous.	52A	
260	265	5	Occasional chips of reddish non-calcareous siltstone. Dust is very pale pinkish brown & is very calcareous — probably due to crushing of its dolomite.	53A	
265	270	5	Very common sand size chips of grey dolomite in a pale brownish pink dust. Very calcareous dust.	54A	
270	275	5	As for 54A. dolomite very common.	55A	
275	280	5	As for 54A. In addition, slightly purplish grey calcisiltstone chips are common.	56A	
280	285	5	Purplish grey chips of dolomite. Possible weathered argillite chips. Dust is pale brown/pink and is very calcareous.	57A	
285	290	5	Chips of pale brown laminated calcisiltstone with a few small dolomite chips. Creamy dust, very calcareous	58A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0227

HOLE NO. –
Sheet No. 6 of

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO	ASSAYS (ppm)
290	295	5	cream calc siltstone chips. Mainly very fine, dust cream, very calcareous dust.	59A	
295	300	5	As for 59A	60A	
300	305	5	A few rounded chips of buff siltstone. Buff stained dust which is only slightly calcareous. The carbonate content could be due to contamination	61A	
305	310	5	Brownish orange chips of v fine sandstone or coarse siltstone. Med sand size grains in the dust. Some limonite lumps and a few muscovite flakes in the dust. Orange brown dust. Non calcareous.	62A	
310	315	5	Orange, but black. Specks argillite chips. Orange, slightly micaceous dust. The dust is moderately calcareous	63A	
315	320	5	Pale grey siltstone chips. Sample ~~was~~ nearly all ~~dark~~ pale ~~brown~~ brown dust. Moderately calcareous	64A	
320	325	5	Chips of light orange, but weathered, laminated siltstone. Chips (coarse sand size) of black chert. Pale brown dust, moderately calcareous	65A	
325	330	5	chips of black chert very common. Few vein qtz chips. Recessed pale brown siltstone chips. Light brown powdery dust. Very calcareous dust	66A	
330	335	5	Smallish chips of black dolomite ~~coated~~ in light brown very calcareous dust	67A	
335	340	5	Black dolomite chips, pale brown dust common. Moderately calcareous	68A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO.– 0226
Sheet No. 8 of 7

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO	ASSAYS (ppm)
340	345	5	Black dolomite & chips pale brown siltstone chips Pale brown dust. Slightly calcareous	69A	
345	350	5	Sample entirely light brown highly calcareous dust. In the dust are some sand size grains of clear qtz and black dolomite (?).	70A	
350	355	5	Purple/grey siltstone chips. Sand size chips of clear quartz and black dolomite(?) in the dust. Dust is pale brown moderately calcareous.	71A	

DESCRIPTIVE LOG — PERCUSSION DRILL

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)
505 St Kilda Rd., Melbourne

HOLE NO
Sheet No 1

PROJECT - GO S A
LOCATION - COPPER CCAM
LOGGED BY - AJD

CO-ORDINATES - 1750 East 461 North
COLLAR ELEVATION -
BEARING -
INCLINATION -

DRILLED BY -
COMMENCED -
COMPLETED -

FOOTAGE From	FOOTAGE To	FOOTAGE Diff	CORE DESCRIPTION	SAMPLE NO	ASSAYS
0	5	5	Purple + cream chunks of B horizon soil. Qtzite lumps + chips of vein qtz both common. Very calcareous. (OVERBURDEN)	01A	
5	10	5	Light grey weathered siltstone chips. Light brown weathered argillite chips. Vein qtz lumps common. Occasional quartzite chips. Orange/brown dust, highly calcareous. (overburden)	02A	
10	15	5	Purple siltstone chips. Vein qtz chips common. Light brown dust common. Highly calcareous (Y)	03A	
15	20	5	Purple laminated argillite chips. Some vein qtz chips. Pale pinkish brown dust. Moderately calcareous (Y)	04A	
20	25	5	Purple siltstone chips which weather to a brown, ochre or white colour. Occasional vein qtz chips. Slightly calcareous (Y)	05A	
25	30	5	Purple mottled siltstone. Mottles of red, orange and white. Occasional vein qtz chips. Pinkish orange dust. Non calcareous (N)	06A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO – 0230
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
30	35	5	Purple laminated siltstone chips, considerably weathered. Slightly calcareous. Pink dust (6)	07A	
35	40	5	Weathered pink siltstone chips, partly mottled purple. Pink dust. Slightly calcareous (6)	08A	
40	45	5	Purple siltstone chips with weathered pink and brown shades. Moderately calcareous (7)	09A	
45	50	5	Laminated weathered quartzite chips, impregnated with specks of purple fine to medium grains. Vivid pink dust. Non calcareous (6)	10A	
50	55	5	Purple mottled weathered siltstone chips with brown dust. (6)	11A	
55	60	5	Weathered purple siltstone chips with brown dust. Slightly calcareous (6)	12A	
60	65	5	Chips of purple, brown and white laminated siltstone. Purplish brown dust. Moderately calcareous. (6)	13A	
65	70	5	Specks of purple siltstone and quartzite chips, weathered to brown and white dust. Slightly calcareous (6)	14A	
70	75	5	Fairly purple siltstone chips, large streaks of purple. Pinkish brown dust. Slightly calcareous (6)	15A	
75	80	5	Purple siltstone chips with specks of white chips. Very slightly calcareous (6)	16A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. – 0231
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm.)
			Purple brown weathering qtz sericite silt stone chips brownish orange dust core loss (-) (6)	19A	
			Orange weathering siltstone chips with dark purple and qtz sericite chips with brown manganese stains throughout brownish orange dust core loss (-) (6)	18A	
90	95	5	Grey Shale siltstone chips Dust is same as above micaceous with brownish orange dust (9)	19A	
95	100	5	Purple weathered micaceous siltstone chips with well developed pyritohedrons qtz chips in this dust light brown dust moderately calcareous (7)	20A	
100	105	5	Purple siltstone chips, slight increase in brownish orange dust Non calcareous (6)	21A	
105	110	5	Purple weathered brown siltstone chips many vein qtz chips Many botroidal pieces of limonite after pyrite sometimes showing good crystal form Non calcareous. Light purplish brown dust (6)	22A	
110	115	5	As for 22A, except that it is less rich in vein qtz + limonite chips Moderately calcareous (7)	23A	

DESCRIPTIVE LOG – AUGER DRILL

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO E460/173.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – A.J. Drummond

CO-ORDINATES – 460 north 173.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

0232

DEPTH (ft.) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Red to pale cream 'A' and 'B' horizon soil chips. Highly calcareous (Overburden).	01A	
5	10	5	Orange dust – coated chips of weathered argillite and shale. Large kaolinized chunks. Highly calcareous (9?).	02A	
10	15	5	As for 02A (9?)	03A	
15	20	5	Red, yellow and white chunks of clay. A few qtz vein chips. Pale brownish yellow, very calcareous dust. (9).	04A	
20	25	5	Purple to light brown, very weathered, crumbly chips of argillite. Pale ochre dust, slightly calcareous (9).	05A	
25	30	5	Weathered purple, micaceous shale chips. Pale brown, slightly calcareous dust (9).	06A	
35	40	5	Purple, but very weathered, argillite chips. Powdery, orangey brown, non calcareous dust (9).	08A	
30	35	5	Pale grey to dark red and kaolin chips. Sample almost entirely non calcareous deep reddish brown dust (9).	07A	
40	45	5	Purple and ochre weathering, micaceous shale chips. Light brown, non calcareous dust (10?).	09 A	
45	50	5	As for 09A (10?)	10A	
50	55	5	Except for a few vein qtz chips sample is dark orange powdery dust, non calcareous (10?).	11A	
55	60	5	A few medium brown, very soft argillite chips. (consolidated dust ?); remainder is medium brown non calcareous dust (10).	12A	
60	65	5	As for 12A (10).	13A	
65	70	5	Purple to yellow, very weathered, shale chips. Purplish brown, non calcareous dust (10).	14A	

DESCRIPTIVE LOG — UTAH DEVELOPMENT COMPANY (Mineral Development & Geology) HOLE NO. E360/173.50 Sheet No. 2 of

DEPTH (ft). From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
70	75	5	As for 14A (10).	15A	
75	80	5	As for 14A (10).	16A	
80	85	5	As for 14A (10).	17A	
85	90	5	Pale ochreous, weathered argillite chips. Pale ochreous, non calcareous dust (10).	18A	
90	95	5	Pale brown, very weathered argillite chips with some black limonitic patches. Pale creamy brown non calcareous dust (10).	19A	
95	100	5	Very weathered and oxidized zone. Brownish black micaceous shale chips - very weathered. Reddish pink, highly calcareous dust (10).	20A	
100	105	5	Very weathered ochreous and tan shale chips often with large areas of black material - manganese or goethite. Pale brown, n-calcareous dust (10).	21A	
105	110	5	A few weathered, purple shale chips. Sample is mainly ochreous orange dust, n-calcareous (10).	22A	
110	115	5	Purple, micaceous shale chips. Purplish brown, n-calcareous dust (10).	23A	
115	120	5	As for 23A (10).	24A	
120	125	5	Weathered, purple argillite chips containing a few small black nodules. N-calcareous light brown dust (10).	25A	
125	130	5	Soft, weathered, pale brown argillite chips. Pale brown, n-calcareous dust (10).	26A	
130	135	5	As for 26A (10).	27A	
135	140	5	Pale grey micaceous shale chips. Pale brown, n-calcareous dust (10).	28A	
140	145	5	Weathered, pale purple shale chips. Dark purplish brown, n-calcareous dust (10).	29A	
145	150	5	As for 29A (10).	30A	
150	155	5	Pale grey siltstone chips. Light purplish grey non-calcareous dust (6).	31A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0234
HOLE NO. E460/173.50
Sheet No. 3 of

DEPTH (ft.) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
155	160	5	Purple, but heavily weathered, purple shale chips	32A					
			Light purplish brown dust (10).						
160	165	5	Pale grey, micaceous shale chips. Pale creamy	33A					
			grey, n-calcareous dust (10).						
165	170	5	Pale grey to dark brown, weathered variably micac.	34A					
			argillite chips. Light greyish brown, non calc.						
			dust (10).						
170	175	5	As for 34A (10).	35A					
175	180	5	Medium to dark grey, micaceous shale chips. Black	36A					
			limonite chunks in the dust, some of which appear						
			cubic and could be pseudomorphs after pyrite.						
			N-calcareous brownish grey dust (10).						
180	185	5	Pale brown shale chips some of which have 2-3%	37A					
			of silt size, shiny black grains. Qtz vein chips						
			in the dust. Some dark brown limonite chips.						
			Light creamy brown n-calcareous dust (10).						
185	190	5	Pale brown shale chips. Pale brown n-calcareous						
			dust (10).	38A					
190	195	5	As for 38A (10).	39A					
195	200	5	Pale greyish purple micaceous shale chips. Dark	40A					
			brown, non calcareous, powdery dust (10).						
200	205	5	As for 40A (10).	41A					
205	210	5	As for 40A (10).	42A					
210	215	5	As for 40A (10).	43A					
215	220	5	As for 40A (10).	44A					
220	225	5	Dark grey, variably micaceous shale chips. Samell	45A					
			Small pink carbonate nodules very common and as						
			a result the brownish grey dust is quite calcareous (10).						
225	230	5	Sample is entirely light orangey brown, slightly	46A					
			calcareous, and slightly micaceous dust (10).						

DESCRIPTIVE LOG – PERCUSSION DRILL

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO 459/169.50
Sheet No. 1 of

PROJECT – S.A. COPPER SEARCH
LOCATION – COPPER CLAIM
LOGGED BY – A.J.D.

CO-ORDINATES E 459 north 169.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

0235

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
300'	305'	5'	Pale purple shale chips. Greyish yel. micaceous siltstone chips. N-calcareous. Light brown dust (9)	61A	
305'	310'	5'	Pale purple, but orange and yel. weathering. slightly silty shale chips. Light grey siltstone chips. Slightly micaceous, n-calcareous, light brown dust (9)	62A	
310'	315'	5'	Purple laminated shaly siltstone chips which are moderately micaceous. Pale grey siltstone chips containing approximately 1% small black grains, probably heavy minerals. Pale brown, n-calcareous dust (7)	63A	
315'	320'	5'	As for 63A. (7)	64A	
320'	325'	5'	Grey siltstone chips which weather to light brown and yellow shades. A few goethite (?) nodules. Light brown n-calcareous dust (6).	65A	
325'	330'	5'	Light grey siltstone chips. Qtz vein chips - no crystal form. Light brown n-calcareous dust (6)	66A	
330'	335'	5'	Light grey silty shale chips and lesser siltstone chips. Few dark grey qtz chips. Pale brown dust. N-calcareous (9).	67A	
335'	340'	5'	Pale grey siltstone and shale chips - also grades in between. Some chips weather purple. Light nodular n-calcareous dust (9).	68A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. E460/171.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – A.J. Drummond

CO-ORDINATES – 460 north 171.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

0236

DEPTH (ft) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Some dark brown soil chips with vegetable matter. Creamy clay lumps are the most common constituent, some weathered purple micaceous siltstone chips. Highly calcareous (overburden).	01A	
5	10	5	Weathered purple micaceous siltstone chips, often coated with a layer of cream coloured clay. Highly calcareous (7).	02A	
10	15	5	Weathered purple, variably micaceous siltstone chips. Weather to dark purple shades and also bleach patchily. Ochreous dust. Slightly calc. (7).	03A	
15	20	5	Pale grey siltstone chips – many result from the weathering of purple chips, some of which can be seen. Variably micaceous, Some f. sand size dark blebs are surrounded bb limonitic haloes and could indicate relict pyrite – no crystal shapes to be seen however, Fine qtz veins run through some chips and large qtz vein chips in the dust Slightly calcareous (7).	04A	
20	25	5	Pale purple micaceous shale chips. Less commonly purple, but orange weathering, slightly micaceous siltstone chips. Few qtz vein chips. Light brown dust. Slighfly calcareous (7).	05A	
25	30	5	Purplish grey siltstone chips which weather to a spotty orange shade. Slightly micaceous. Qtz vein chips, some with well developed crystal faces Light reddish brown dust. Non calcareous (6).	06A	
30	35	5	Purple, but red and yellow weathering, siltstone chips. Orangish brown dust. Non calcareous (6).	07A	
35	40	5	Light purplish grey but dark reddish purple weathering laminated siltstone chips. Qtz vein chips, some with well developed crystal faces,	08A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. E460/171.50
Sheet No. 2 of 3

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			quite common. Light brown dust. N-calcareous (6).		
40	45	5	As for 08A (6).	09A	
45	50	5	Purple siltstone chips. Orange dust, n-calcareous (6).	10A	
50	55	5	Weathered siltstone chips, now in shades of orage pale grey and yellow, probably originally purple Pale brown dust which is n-calcareous (6).	11A	
55	60	5	Weathered and limonite stained qtzite chips composed of silt size particles. Limonite infillings along joints. Pale brown, moderately calcareous, dust (6).	12A	
60	65	5	Small purple siltstone chips. Slightly calcareous orange dust (6).	13A	
65	70	5	Purple, but red weathering, micaceous laminated siltstone chips. Light brown n-calcareous, dust (6).	14A	
70	75	5	Pale grey argillite chips. N-calcareous light brown dust (10).	15A	
75	80	5	Purple, but red and ochreous weathering micaceous siltstone. Slightly micaceous orangey brown dust (6).	16A	
80	85	5	Purple, slightly micaceous siltstone chips. Pale brown, n-calcareous dust (6).	17A	
85	90	5	Weathered red stained micaceous siltstone chips, probably originally purple. Pale brown, n-calcareous dust (6).	18A	
90	95	5	Pale grey, but locally orange stained, weathered qtzite chips composed of silt size grains. N-calcareous light brown dust (6).	19A	
95	100	5	Ochreous coloured, but very weathered, micaceous siltstone chips. Limonite stained qtz vein chips Slightly calcareous ochreous dust (7).	20A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0238
HOLE NO. E460/171.50
Sheet No. 3 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
100	105	5	Weathered, ochreous shale chips, which are moderately micaceous. N-calcareous, light ochreous brown dust (10).	21A	
105	110	5	As for 21A but with some irregularly shaped vein qtz chips. (10).	22A	
110	115	5	Pale purple micaceous siltstone chips. Qtz vein chips with small but well developed crystal faces. Light brown n-calcareous dust (6).	23A	
115	120	5	Pale grey siltstone chips which weather to shades of red and brown. Light brown, n-calcareous dust (6).	24A	
120	125	5	Whitish, but olivey brown weathering (or vice versa) micaceous siltstone chips. Pinkish brown dust. N-calcareous (6).	25A	
125	130	5	Weathered red/brown siltstone chips which are moderately micaceous. Light brown n-calcareous dust (6).	26A	
130	135	5	Light brown weathered siltstone chips, which contain, black blabs, possibly of goethite. Light brown dust, n-calcareous. (6).	27A	
135	140	5	Pale brown weathered siltstone chips - in appearance look like a very fine qtzite. N-calc. light brown dust, some vein qtz chips (6).	28A	
140	145	5	Light brown micaceous siltstone chips. Light brown dust. N-calcareous (6).	29A	
145	150	5	As for 29A (6).	30A	
150	155	5	Greyish purple, but tan weathering, n-micaceous siltstone chips. Medium reddish brown dust. N-calcareous (6).	31A	
155	160	5	Purple laminated shale chips which weather ochreous and white. Possible black sulphide grains but more likely to be goethite. Purplish brown dust. N-calcareous (10).	32A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0253

HOLE NO. B460/17.50
Sheet No. 4 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
160	165	5	Purple shale chips. Light purplish brown, n-calcareous dust (10).	33A	
165	170	5	Light purple, but brown weathering, micaceous shale chips. N-calcareous light brown dust (10).	34A	
170	175	5	Purple shale chips which are locally bleached white and brown stained by limonite. N-calcareous light purplish brown dust (10).	35A	
175	180	5	Light grey weathered siltstone chips qtz vein chips qtz vein chips quite common. Pale brown n-calcareous dust (6).	36A	
180	185	5	Purple, slightly micaceous shale chips. Light brown n-calcareous dust (10).	37A	
185	190	5	A few very small grey fine qtzite chips -composed of very fine sand size grains. Several large lumps of broken vein qtz. Light brown n-calcareous dust (4).	38A	
190	195	5	White, very fine sand size grained, qtzite chips which discolour to a pinkish shade. Light brown dust, n-calcareous (4).	39A	
195	200	5	Pale whitish grey siltstone chips. Light brown n-calcareous dust (6).	40A	
200	205	5	As for 39A. Some vein qtz chips also (4).	41A	
205	210	5	Pale brown, slightly micaceous mudstone chips. Pale brown, n-calcareous dust (9).	42A	
210	215	5	Pale grey shale chips, probably quite weathered Light brown, n-calcareous dust (9).	43A	
215	220	5	As for 43A (9)	44A	
220	225	5	Light brown micaceous mudstone chips. Light purplish brown, n-calcareous dust (9).	45A	
225	230	5	Light brown weathered siltstone chips. Sample nearly all dust; dust is light brown and n-calcareous (9?).	46A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0240
HOLE NO. E460/171.50
Sheet No. 5 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
230	235	5	As for 46A (9?).	47A	
235	240	5	Weathered, pinkish, micaceous shale chips. Light brown, n-calcareous dust (9).	48A	
240	245	5	Dark purple, slightly micaceous shale chips. N-calcareous, purplish brown dust (9).	49A	
245	250	5	As for 49A (9).	50A	
250	255	5	Light purple, but pink weathering, shale chips. The chips have v.f. dark red spots possibly being weathered heavy minerals. Purplish brown dust (9).	51A	
255	260	5	Purple micaceous siltstone chips which weather white. Pale purplish brown, n-calcareous dust (6).	52A	
260	265	5	Pale grey qtzite chips. Qtz vein chips common. Light purplish brown dust (6).	53A	
265	270	5	Purple but ochreous/brown weathering shale chips. Light brownish, n-calcareous dust (9).	54A	
270	275	5	Greyish brown micaceous shaley siltstone chips. Light brown, n-calcareous dust (9).	55A	
275	280	5	Dark purple silty shale chips, containing small black lumps of unknown composition. -no metallic lustre, no regular shape. Light brown, n-calcareous dust (9).	56A	
280	285	5	Pale purple siltstone chips. Large vein qtz chips with well developed crystal faces. Light brown n-calcareous dust (6).	57A	
285	290	5	Light grey siltstone chips. Light grey, n-calcareous dust (6).	58A	
290	295	5	As for 58A, virtually all dust. (6).	59A	
295	300	5	Light bluish grey siltstone chips pale brown mudstone chips. Pale brownish grey dust (6).	60A	
300	305	5	Pale grey v.f. qtzite chips, light grey siltstone chips more common. Light brownish grey dust (6).	61A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO E458/169.50
Sheet No. 1 of

PROJECT – S. A. Copper
LOCATION – Copper Claim
LOGGED BY – G. Chuck

CO-ORDINATES – 458 north 169.50 east.
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

0241

DEPTH (ft) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Mostly a red powdery dust with grains of poorly to moderately rounded quartz up to large sand size. Dust is highly calcareous. Few chips of white siliceous medium grained sandstone (overburden).	01A	
5	10	5	Light brown coloured, highly calcareous mud and silt-sized dust. No rock chips (overburden).	02A	
10	15	5	Pinkish, noncalcareous dust, with a few small chips of pinkish, weathered siltstone, siltstone has high qtz content.	03A	
15	20	5	As above. Siltstones possibly contain considerable felspar, in larger grain size than qtz. Also small mica flakes present (6).	04A	
20	25	5	Similar coloured and uncalcareous dust to 04A Chips of siltstone again present. Also large (up to 10mm) chips of vein qtz. (6).	05A	
25	30	5	Flesh-coloured, non calcareous dust with chips of qtzose siltstones, with aminor lithic component. Also chips of very fine grained siltstone, with scattered larger qtz grains, which are well rounded. Vein qtz present (9).	06A	
30	35	5	Same as 06A, siltstone chips contain abundant detrital (?) garnet of silt to fine sand size, and poorly rounded. Also a few chips of coarse siltstone - qtzose, and with mica present, less mud content than mose of the siltstone making up the sample vein qtz present (9).	07A	
35	40	5	Red coloured non-calcareous dust. Vein qtz present up to 10mm. Rock chips are predominantly a mottled micaceous argillite or very fine grained siltstone . N-laminated (9).	08A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0242

HOLE NO. E458/169.50
Sheet No. 2 of

DEPTH (ft)			CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
From	To	Diff.							
40	45	5	Flesh-coloured n-calc reous dust with about 35% of the bulk rock chips. Chips are pinkish argillitic f.g. siltstone, with muscovite and possible feldspars present as larger grains. Also some chips of limonitic qtzose (?) siltstone (9).	09A					
45	50	5	Flesh-coloured n-calcareous dust. Rock chips are the same as described in 09A. There are also a few chips of slightly limonitic, qtzose siltstone with no mud content (9).	10A					
50	55	5	Similar dust to 10A. Rock chips of siltstone mud content high and some larger qtz grains, as well as some chips of laminated limonitic shale. These are in minority (9).	11A					
55	60	5	As for 11A, but also contains 5mm vein qtz (9(.	12A					
60	65	5	As for 12A (9).	13A					
65	70	5	As for 12A but no qtz chips (9).	14A					
70	75	5	As for 14A (9).	15A					
75	80	5	As for 14A (9).	16A					
80	85	5	As for 14A, but possibly becoming more argillaceous	17A					
85	90	5	As for 17A (9)	18A					
90	95	5	As for 17A (9).	19A					
95	100	5	As for 17A, but with some chips (in minority) of qtzose argillite (9).	20A					
100	105	5	A yellow dust, uncalcareous, Chips of slightly laminated, slightly micaceous mudstone. Possibly felspathic, scattered tourmaline (?) grain of larger size than matrix (9).	21A					
105	110	5	Yellowish-brown argillite, similar to 21A (9).	22a					
110	115	5	Yellowish, uncalcareous dust with chips of yellowish argillite with larger, poorly rounded qtz grains of silt size quite common. Muscovite flakes common. (9).	23A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0243

HOLE NO. E458/169.50
Sheet No. 3 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
115	120	5	As for 23A, except the argillite is possibly more more qtz rich. (9).	24A	
120	125	5	As for 24A, The fresh rock is light grey, but light yellow/brown when weathered (due to limonite) (9).	25A	
125	130	5	As for 24A (9).	26A	
130	135	5	As for 24A – there are two populations of qtz – the mud-sized grains of the matrix and larger siltsize grains which make up about 10% of the rock (9)	27A	
135	140	5	As for 27A (9).	28A	
140	145	5	As for 27A. These sediment border on siltstones- matric is muddy but 50-60% of the rock is made up of poorly rounded qtz of silt size. Uncalc. (9).	29A	
145	150	5	As for 29A (9).	30A	
150	155	5	As for 29A (9).	31A	
155	160	5	As for 29A (9).	32A	
160	165	5	As for 29A Very scarce limonite after pyrite, less than 1mm. Possible large grains of smokey (?) qtz.	33A	
165	170	5	Similar or identical to the rocks of the last 40' except now they are almose siltstones – still muddy matrix, uncalcareous dust, and qtz – rich silt partbles. Very minor amounts of detrital black glassy mineral slight lamination in chips (9).	34A	
170	175	5	Change in lithology. Less powdery and sample consist s of about 80% rock calcareous, Chips are of three types: (i) The muddy siltstones described in previous sample – about 30% of chips. (ii) Very qtz rich, qtzite (of siltstone grain size) 60% of chips. (iii) Vein qtz chips; 5mm chips, less than 10% of chips (6).	35A	
175	180	5	Similar to 35A, but with more silty dust. Some Chips of qtzose siltstone have limonite after Py.		

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0244
HOLE NO. E458/169.5
Sheet No. 4 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			Some qtzose 'siltstones' (qtzites of 35A) have	36A	
			abundant secondary qtz. Siltstones with mud content		
			are quite well laminated (6).		
180	185	5	This sample is 85% yellow/brown powder, which is uncalcareous		
			The solid material is well rounded claystone, and	37A	
			there are some larger pebbles (10mm) of qtz and		
			siltstone (as described in 34A) (10).		
185	190	5	As for 37A (10).	38A	
190	195	5	As for 37A, but contains more siltstone chips (9).	39A	
195	200	5	Sample consists almost entirely of yellow/brown		
			uncalcareous dust (10).	40A	
200	205	5	Mainly yellow/brown uncalcareous dust with chips	41A	
			of muddy matrix surrounding larger (coarse silt-		
			size) qtz grains (9)		
205	210	5	As for 40A (9).	42A	
210	215	5	As for 40A (9)	43A	
215	220	5	As for 40A (9)	44A	
220	225	5	As for 40A (9)	45A	
225	230	5	As for 40A (9).	46A	
230	235	5	As for 40A (9)	47A	
235	240	5	As for 40A, but slightly more qtzose (9)	48A	
240	245	5	As for 40A, some chips more limonitic than usual (9)	49A	
245	250	5	As for 40A, rare limonite pseudomorphs after pyr. (9)	50A	
250	255	5	As for 40A (9)	51A	
255	260	A	As for 40A (9).	52A	
260	265	5	As for 40A - possibly more qtzose (9).	53A	
265	270	5	As for 40A (9).	54A	
270	275	5	As for 40A. Some chips quite highly ferruginized (9).	55A	
275	280	5	Highly qtzose silty argillite chips. Most of the	56A	
			sample is a very light grey powder. N-calcareous		
			Some manganese staining on qtz grains. Little or		
			no mica. (9).		

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0245
HOLE NO. E458/169.50
Sheet No. 5 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
280	285	5	As for 55A. Some chips in this sample are extremely f.g., highly qtzose (pure) sediment of a micro-qtzite nature. Predominant among the chips are silty argillites (9).	57A	
285	290	5	Sample consists of 90% yellow/brown, very fine qtzose powder. Chips are very f.g. qtzose micro-qtzite, N-calcareous (9).	58A	
290	295	5	As for 57A	59A	
295	300	5	Sample almost entirely red/brown dust. Probably derived from a claystone or shale (10).	60A	
300	305	5	As for 59A (10).	61A	
305	310	5	As for 59A (10).	62A	
310	315	5	As for 59A (10).	63A	
315	320	5	As for 59A, with rare chips of very f.g. qtzose micro-qtzite (10).	64A	
320	325	5	As for 59A with a few silty argillite chips (10).	65A	
325	330	5	Similar to above, with more chips of silty argillite, which have a lamination (9).	66A	
330	335	5	As for 65A (10).	67A	
335	340	5	As for 65A (10).	68A	
340	345	5	As for 65A (10) a little more qtz rich ~~(9)~~.	69A	
345	350	5	As for 69A (10).	70A	
350	355	5	Light brown dust, uncalcareous, Chips of slightly laminated silty argillite. Some chips are entirely f.g. qtz of argillite/very f. silt size (9).	71A	
355	360	5	As for 71A (9).	72A	
360	365	5	As for 71A, and some siltstone, quartzose chips are highly pyritiferous (now limonite). Some chips calcareous (react only with conc. Hcl) (9).	73A	
365	370	5	Change in colour of chips and dust from light brown to a dark grey, The sample is quite calcareous, and reacts with D. Hcl. As well as chips of the	74A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0246

HOLE NO. E458/169.5C
Sheet No. 6 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
			71A = type, there are chips of black, dolomitic, carbonaceous (?) shales (11).						
370	375	5	As for 74A, but 99% of chips are dark grey, argillite - still calcareous. Several chips of highly limonitized argillite.	75A					
			END OF HOLE.						

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO B460/172.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – A. J. Drummond

CO-ORDINATES – 460 north 172.50 east.
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED – 0247

DEPTH (ft.) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Pale yellowish cream dust containing yellow chips of very weathered siltstone and some vein qtz chips. Very calcareous (overburden).	01A	
5	10	5	Pale yellow siltstone chips. Whit and ochreous stained argillite chips, some of which are quite micaceous. Muscovite flakes in the dust. Very calcareous (7).	02A	
10	15	5	Yellow weathered siltstone and qtzitic chips. Qtz vein chips common in the dust. Some chips of red stained, yellow argillite (7).	03A	
15	20	5	Yellow and red stained, weathered micaceous silt. stone chips. Some clear vein qtz chips. Light brownish orange dust. Dil Hcl (+). (7) .	04A	
20	25	5	Purple micaceous siltstone chips. ~~Some clear~~ which weatherto brown and yellow shades. Clear vein qt_z chips. Dil Hcl (+) (7).	05A	
25	30	5	This probably represents a more weathered horizon of 05 A type lithology. There are only a few purple siltstone chips, the remainder are soft, crumbly orange siltstone chips. Dil Hcl (+) Orange dust. (7).	06A	
30	35	5	Purple siltstone chips which weather to orange and brown shades. Orange dust. Dil Hcl (+) (7)	07A	
35	40	5	Purple, but orange weathering, siltstone chips Orange dust. Dil Hcl (+) (7).	08A	
40	45	5	As for 08A, except that the dust is more purple and less orange in colour implying a lesser degree of weathering (7).	09A	
45	50	5	Purple siltstonechips which weather to a reddish brown colour. Brown dust. Dil Hcl (+) (7).	10A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. E460/172.5
Sheet No. 2 of 0248

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
50	55	5	Weathered purple siltstone chips. White, and dark grey speckled, qtzite chips. Brownish pink dust. Dil Hcl (+) (7).	11A	
55	60	5	Weathered now ochreous coloured siltstone chips Some grey coloured vein qtz chips. Brownish orange dust. Conc Hcl (+).	12A	
60	65	5	Brown siltstone chips. Purplish brown dust. Conc Hcl (+) (7).	13A	
65	70	5	Weathered purple siltstone chips – alter to orange colours. Purplish brown dust. Conc Hcl (+) (7).	14A	
70	75	5	Weathered Purple shale chips. Orangeish brown dust. Conc Hcl (+) (9).	15A	
75	80	5	Vein qtz chips very common. Weathered purple siltstone chips. Light brown dust. Conc Hcl (+) (7).	16A	
80	85	5	Weathered siltstone chips, bleached to shades of pale grey and ochre. Some limonite stained qtz vein chips. Pale brown dust. Conc Hcl (+) (7).	17A	
85	90	5	Pale grey siltstone chips with brown spotty stains. The stains are due to limonite but it is not seen weather the iron originated in pyrite. Pale brown dust. Some small qtz chips. Conc Hcl (-) (6).	18A	
90	95	5	Some very small purple shale chips, larger qtz vein chips. Deep brownish orange dust. Conc Hcl (-) (6).	19A	
95	100	5	Nearly all dark orange dust. Few chips of qtzite composed of silt size grains. Conc Hcl (+) (7).	20A	
100	105	5	Purple siltstone chips. Dark orange dust as in 20A Conc Hcl (+) (7).	21A	

DESCRIPTIVE LOG.–

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0249

HOLE NO. E460/172.50
Sheet No. 3 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
105	110	5	Deep purple siltstone chips. Purple dust. Cocn Hcl (-) (6)	22A	
110	115	5	As for 22A, although dust is a little browner (6).	23A	
115	120	5	Purple shale chips. Dust is slightly micaceous Purple dust. Conc Hcl (-). (10).	24A	
120	125	5	A few very small purple siltstone chips. Brownish purple dust. Conc Hcl (-) (6).	25A	
125	130	5	Greyish purple shale chips. Pinkish brown dust. Conc Hcl (-((10)	26A	
130	135	5	Pale grey shale chips. Purple dust. Conc Hcl (-) (10).	27A	
135	140	5	Purple laminated micaceous siltstone chips. Pale purple dust. Conc Hcl (-) (6).	28A	
140	145	5	Few soft weathered purple siltstone chips. Few small black nodules Mn or goethite or other. Purple dust with a minor yellow contribution. Conc Hcl (-) (6).	29A	
145	150	5	Few purple siltstone chips. Purple dust. Conc Hcl (-) (6).	30A	
150	155	5	Purple micaceous siltstone chips. Light brownish purple dust. Conc Hcl (-) (6).	31A	
155	160	5	As for 31A (6).	32A	
160	165	5	Purple micaceous siltstone chips. Purplish brown dust. Conc Hcl (-) (6).	33A	
165	170	5	Purple micaceous siltstone chips. Reddish purple dust. Conc Hcl (-) (6).	34A	
170	175	5	Purple siltstone chips. Chips of irregulary shaped black jasperoid(?). Deep purple dust Conc Hcl (-) (6).	35A	
175	180	5	As for 35A (6)	36A	
180	185	5	Purple micaceous siltstone chips. Light brown dust. Few small vein qtz chips. Conc Hcl (+) (7).		

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0250

HOLE NO. E460/172.50
Sheet No. 4 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
185	190	5	As for 37A. Also few dark grey jasperoid (?) chips						
			(7).	38A					
190	195	5	Pale grey qtzite chips. Clear qtz vein chips. Pale	39A					
			brown dust. Some dark grey hasperoid(?) chips.						
			Very slightly calcareous dust (7).						
195	200	5	Light purple siltstone chips, slightly micaceous	40A					
			Pale purplish brown dust. Small white carbonate						
			nodules fairly common (7).						
200	205	5	Weathered siltstone chips. original colour probably	41A					
			purple now browns and orange. Purplish brown dust						
			Very slightly calcareous (6).						
205	210	5	Light purple siltstone chips. Brown weathered	42A					
			stains (limonitic?) on joints. Light Non calc-						
			areous (6).						
210	215	5	Light purple siltstone chips. Black specks of						
			unknown composition very common in the dust.	43A					
			Dust is fairly micaceous. Very slightly calcareous						
			Light purple brown dust (6).						
215	220	5	Weathered purple siltstone chips. More of the black	44A					
			grains, which may have 2 cleavages at right angles						
			Purplish brown dust. Very slightly calcareous (6).						
220	225	5	Light purple but darker weathering, siltstone chips,	45A					
			some of which contain v.f. sand size black grains						
			These grains have no regular shape. The dust is						
			moderately rich in muscovite flakes. One v.c.						
			sand size sperical concretion (?), of limonite (?)						
			Light brown dust which is slightly calcareous (6).						
225	230	5	Purple micaceous siltstone chips. Some ochreous						
			limonite stains and lumps. Pinkish brown dust						
			which is slightly calcareous (6).	46A					
230	235	5	Purple siltstone chips. Dust is moderately	47A					
			micaceous slightly calcareous. Brownish purple dust (6).						

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. E460/172.50
Sheet No. 5 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
235	240	5	Purple micaceous siltstone chips. Occasional small black goethite (?) lumps. Light purplish brown dust. Very slightly calcareous (6).	48A	
240	245	5	Purplish grey, weathered, micaceous siltstone chips. Brow dust. Slightly calcareus (6).	49A	
245	250	5	Pale grey siltstone chips. Slightly micaceous light brown dust. Some chips of dark stained qtzite. Non-calcareous (6).	50A	
250	255	5	Pinkish silty argillite chips. Pale pinkish brown dust. Fine sand size black chips in the dst - goethite? Non-calcareous (9).	51A	
255	260	5	Pale pinkish purple micaceous siltstone chips. Light brown dust. Slightly calcareous (6).	52A	
260	265	5	Pale puprle, but brown weathering siltstone chips slightly micaceous. Pale brown dust, non calc. (6)	53A	
265	270	5	As for 53A (6).	54A	
270	275	5	As for 53A. Weathering produces brown and tan stains on some surfaces. (6).	55A	
275	280	5	Weathered, brown micaceous siltstone chips. Purplish brown dust. Non calcareous (6).	56A	
280	285	5	Weathered pale brown qtzite chips composed of silt size grains. Light brownish dust. Non calcareous (6).	57A	
285	290	5	Brown, but weathered, siltstone chips. Deep brownish orange dust. Non calcareus (6).	58A	
290	295	5	Light brown, weathered, micaceous siltstone chips Light brown dust. Non calcareous (6).	59A	
295	300	5	Purple and brown, but weathered, laminated siltstone chips. Pale pinkish brown dust. Non-calcareous (6).	60A	
300	305	5	Pale grey, but orange mottled, laminated siltstone chips. Pale brown dust. Moderately calcareous (6).	61A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

6252

HOLE NO. E460/172.50
Sheet No. 6 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
305	310	5	Pale purple, weathered micaceous siltstone chips	62A	
			Light brown dust. Slightly calcareous (7).		
310	315	5	Pale grey, relatively unweathered, siltstone	63A	
			chips. Qtz vein chips in the dust. Slightly		
			calcareous. Light brown dust (7).		
315	320	5	As for 63A (7).	64A	
320	325	5	Dark grey, very micaceous, shale chips which	65A	
			weather to a light grey shade. Mixture of		
			medium grey and light brown dust. Non calcareous		
			(10).		
325	330	5	As for 65A (10).	66A	
330	335	5	Dark grey micaceous shale chips. Predominately	67A	
			dark grey dust. Very slightly calcareous (10).		
335	340	5	As for 67A (10).	68A	
340	345	5	As for 67A (10).	69A	
345	350	5	Dark grey, but light grey and brown weathering,	70A	
			variably micaceous shale chips. Some local limonite		
			staining slightly calcareous - on small white carb-		
			onate lumps only. Dark grey dust (10).		
350	355	5	Dark grey shale chips and dark grey v.f. sand-	71A	
			stone chips. both of which are variably micaceous		
			(muscovite) (9).		
355	360	5	As for 71A, except that the coarser fraction is more	72A	
			common. Weathers to a pale grey or light brown		
			colour (9).		
360	365	5	As for 72A (9).	73A	
365	370	5	Wet sample w ich has cemented together. Appears	74A	
			to be the same as 71A (9)		
370	375	5	Light brown solidified mud. Non calcareous some	75A	
			qtz vein chips together with some small dark grey		
			lumps (10).		

0253

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. E460, 172.50
Sheet No. 7 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
375	380	5	As for 75A (10).	76A					
380	385	5	Light brown solidified mud. Large qtz vein chips common, often with well developed crystal faces. Non calcareous (10).	77A					
385	390	5	As for 77A. Dark stains common on some qtz faces (10).	78A					
390	395	5	Blaok shale chips. Qtz vein chips. All chips covered in brown mud (10).	79A					
395	400	5	All light brown solidified mud (10).	80A					
400	405	5	Mainly light brown solidified mud, some chips of highly micaceous black shale. The mud is also highly micaceous and is non calcareous (10).	81A					
405	410	5	Black micaceous shale chips. Qtz vein chips. Weathering of some chips results in red, brown and yellow mottles (10).	82A					
410	415	5	A mixture of black shale and purple shale chips not known weather black weathers to purple. Qtz vein chips common. Weathering results in orange weathering stins. Brown and grey dust. Non calcareous (10.	83A					
			END OF HOLE						

DESCRIPTIVE LOG – AUGER DRILL

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. B467/173.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – A. J. Drummond

CO-ORDINATES – 467 north 173.50 east.
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED – 0254

DEPTH (ft) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	'A' and 'B' horizon soil chips which vary in colour from pale pink to dark brown. Very calcareous.	01A	
5	10	5	Light brown, cream and white, predominantly clayey soil chunks. Very calcareous.	02A	
10	15	5	Ochreous to cream structureless clay chunks. A couple of large weathered qtzite chips, probably being part of the transported detritus. Only slightly calcareous.	03A	
15	20	5	Ochreous clay chunks. Slightly calcareous.	04A	
20	25	5	Tan to ochreous clay chunks. Slightly calcareous.	05A	
25	30	5	Tan to ochreous clay chunks. V.slightly calcareous.	06A	
30	35	5	Light grey to ochreous clay chunks and chips. Light orange dust.	07A	
35	40	5	As for 07A	08A	
40	45	5	As for 07A	09A	
45	50	5	Whitish bluish grey clay chunks which are generally coated in orage to yellow dust. Slightly calcareous.	10A	
50	55	5	Same chunks as in 10A. Dust is dark pinkish red and non calcareous.	11A	
55	60	5	Ochreous to dark red weathered, soft argillite chips. Deep orange dust which is quite calcareous.	12A	
60	65	5	As for 12A	13A	
65	70	5	As for 12A	14A	
70	75	5	As for 12A	15A	
75	80	5	As for 12A except that the dust is dark red and is now only slightly calcareous.	16A	
80	85	5	As for 16A	17A	
85	90	5	Light orange to purple weathered, porous, and soft argillite chips, some of which are quite	18A	

DESCRIPTIVE LOG -

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0255

HOLE NO. E467/173.50
Sheet No. 2 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			micaceous. Very slightly calcareous dust.		
90	95	5	Light brown weathered shale chips. Some qtz vein chips. Light brown non-calcareous dust.	19A	
95	100	5	Pale grey weathered siltstone chips. A few qtz vein chips, often coated by a black layer (limonite?) Light ochreous brown, non-calcareous dust.	20A	
100	105	5	Sample is entirely light brown, non calcareous dust, (very fine and powdery).	21A	
105	110	5	Sample is mainly light brown, non calcareous, powdery dust. A few chips os slightly micaceous brown argillite.	22A	
110	115	5	Light brown to ochreous argillite chips. Sample is mainly fine pale orange dust.	23A	
115	120	5	Light grey weathered shale chips which appear quite porous. Pale orange, non calcareous dust.	24A	
120	125	5	as for 24A. A few large very irregularly shaped qtz chips.	25A	
125	130	5	Pale grey porous shale chips. Pale orange, non calcareous dust.	26A	
130	135	5	As for 26A	27A	
135	140	5	As for 26A although dust is becoming browner.	28A	
140	145	5	Pale purplish brown, slightly micaceous, argillite chips. Light purplish orange dust which is slightly calcareous.	29A	
145	150	5	Light brown siltstone chips, soft and weathered Pale pinkish brown dust - non calcareous.	30A	
150	155	5	Pale grey weathered argillite chips, some of which contain limonite pseudomorphs after pyrite. Pale creamy non calcareous dust.	31A	
155	160	5	Pale brown weathered argillite chips. Pale creamy brown, non calcareous dust.	32A	
160	165	5	Pale orange/brown micaceous argillite chips.	33A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0256

HOLE NO. E467/173.5
Sheet No. 3 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
			Light orange, non calcareous dust.						
165	170	5	As for 33A	34A					
170	175	5	As for 33A	35A					
175	180	5	As for 33A	36A					
180	185	5	As for 33A	37A					
185	190	5	Light purple, but weathered, argillite chips.	38A					
			Light orange, non calcareous dust.						
190	195	5	As for 38A	39A					
195	200	5	Pale purple, but ochreous weahtering, argillite	40A					
			chips. Orangey brown dust.						
200	205	5	As for 40A	41A					
205	210	5	Light purple, weathered and soft argillite chips.	42A					
			Purplish orange dust, non calcareous.						
210	215	5	Light grey, weathered, soft siltstone chips.	43A					
			Weathered light purple argillite chips are more						
			common. Light brownish dust, non calcareous.						
215	220	5	Light purplish brow , micaceous argillite chips.	44A					
			Purplish, non calcareous dust.						
220	225	5	As for 44A	45A					
225	230	5	As for 44A	46A					
230	235	5	Weathered, light purple but red-speckled,	47A					
			moderately micaceous argillite chips. Orangey						
			brown dust, non calcareous.						
235	240	5	As for 47A	48A					
240	245	5	Light brown, weathered and porous, moderately	49A					
			micaceous shale chips. Light pinkish brown dust						
			non calcareous. A few angular qtz vein chips.						
245	250	5	Weathered, light purple, micaceous shale chips,	50A					
			purplish brown, non calcareous dust.						
250	255	5	As for 50A	51A					
255	260	5	As for 50A	52A					
260	265	5	Light purple weathered shale chips. Orangey brown						

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0257

HOLE NO. B467/173.50
Sheet No. 4 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
			non calcareous dust.	53A	
265	270	5	Sample Missing	54A	
270	275	5	Purple, weathered shale chips. Light orange dust non calcareous.	55A	
275	280	5	As for 55A	56A	
280	285	5	Light purplish brown, weathered, micaceous shale chips with kaolinized streaks and patches. Orange non-calcareous dust.	57A	
285	290	5	Light brown to orange, weathered argillite chips. Light orangey brown dust.	58A	
290	295	5	Light purplish brown shale chips. Non calcareous brownish orange dust.	59A	
295	300	5	Light brown, very weathered and soft, argillite chips. Non calcareous, orangey brown dust.	60A	
300	305	5	Pale bluesh grey argillite chips which have been extensively kaolinized. Extensive areas of dark tan limonite whose occurence is mainly controlled by bedding. Dark tan dust, n-calcareous.	61A	
305	310	5	Dark purple, weathered and soft, micaceous, shale chips. Dark brownish red n-calcareous dust.	62A	
310	315	5	Very weathered purple and yellow argillite and nodules. Light orange dust, n-calcareous.	63A	
315	320	5	As for 63A	64A	
320	325	5	As for 63A	65A	
325	330	5	As for 63A	66A	
330	335	5	As for 63A	67A	
335	340	5	Agglomerations of light orange, n-calcareous dust	68A	
340	345	5	Pale orange n-calcareous dust. A few 'A' horizon soil chips containing vegetable matter - hence obvious contamination of the sample.	69A	
345	350	5	Weathered, purple and brown, slightly micaceous fine siltstone chips. N-calcareous.	70A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0258
HOLE NO. E467/173.50
Sheet No. 5 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
350	355	5	Purple, but red spotted, micaceous shale chips. Light orange, n-calcareous dust.	71A					
355	360	5	Pale brown, but white streaked, very micaceous shale chips. Light khaki dust, n-calcareous.	72A					
360	365	5	Purple shale chips. N-calcareous, orangey brown dust.	73A					
365	370	5	Weathered purple and orange shale chips which are slightly micaceous. N-calcareous, brownish red dust.	74A					
370	375	5	As for 74A	75A					
375	380	5	As for 74A	76A					
380	385	5	Pale purple, very weathered and soft, argillite chips. Light brown, n-calcareous dust.	77A					
385	390	5	As for 77A	78A					
390	395	5	Pale ochreous, very weathered, argillite chips. Light ochreous, n-calcareous dust.	79A					
395	400	5	As for 79A	80A					
400	405	5	Pale purple, micaceous shale chips. Light brown, n-calcareous dust.	81A					
405	410	5	Light brown, shale chips. Quartz vein chips quite common. Medium brown dust. N-calcareous	82A					
410	415	5	Dark to light brown weathered shale chips. Qtz vein chips. Medium brown dust, n-calcareous.	83A					
415	420	5	As for 83A	84A					
420	425	5	As for 83A but no qtz vein chips.	85A					
425	430	5	As for 85A	86A					
			END OF HOLE.						

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO E458/166.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – G. Chuck

CO-ORDINATES 458 north 166.50 east.
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED – 0255

DEPTH (ft.) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Red/brown silt and argillaceous material of the soil horizons. Qtz grains predominate. Highly calcareous. (overburden).	01A	
5	10	5	Similar to 01A, No rock chips. Calcareous (overbu)	02A	
10	15	5	Light yellow/orange uncalcareous powder. Chips of weathered, very weakly to un-ferruginized silty argillite or f.g. siltstone. Qtzose, slightly laminated (9).	03A	
15	20	5	As for 03A - slightly f.g. and more ferruginized. Orange n-calcareous dust (9).	04A	
20	25	5	As for 04A (9).	05A	
25	30	5	As for 04A, some chips are extremely f.g. qtzose Some of these are completely unweathered, & as a grey colour. Weathered varieties retain texture but are highly ferruginized (9).	06A	
30	35	5	As for 06A (9).	07A	
35	40	5	Similar dust - weathered silty argillite (9).	08A	
40	45	5	As for 08A (9).	09A	
45	50	5	As for 08A (9).	10A	
50	55	5	Purplish dust derived from a purple, weathered, silty argillite (9).	11A	
55	60	5	As for 11A, with micro,-qtztes as well (9).	12A	
60	65	5	As for 08A (9).	13A	
65	70	5	Dust and chips of weathered silty argillite. N-c.	(9) 14A	
70	75	5	As for 14A (9)	15A	
75	80	5	As for 14A. Slightly less feruginized (9).	16A	
80	85	5	As for 16A (9).	17A	
85	90	5	As for 16A (9).	18A	
90	95	5	As for 16A, weathering less pronounced (9).	19A	
95	100	5	As for 19A (9).	20A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0260

HOLE NO. B458/166.50
Sheet No. 1 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
100	105	5	Almost unferruginized silty argillite. Most of the samplie is chips. Some 8-10mm chips of qtz. (9).	21A	
105	110	5	Fresh, grey, qtzose coarse argillite. Uncalcareous Sample 80% rock chips. (9).	22A	
			END OF HOLE.		

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO E458/167.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – G. Chuck

CO-ORDINATES – 458 north 167.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED – 0261

DEPTH (ft) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Highly calcareous soil and clay "chips". Siltstone –argillite chips – highly weathered & ferruginized (overburden).	01A	
5	10	5	Light brown calcareous dust with chips of silty argillite of purplish colour. Some with lamination Well rounded hematite 4mm (9).	02A	
10	15	5	Chips of argillite (silty) and a pinkish calcareous dust. Rock chips n-calcareous (9).	03A	
15	20	5	As for 03A, but n-calcareous (9).	04A	
20	25	5	As for 04A, with some weathered chips of purple argillite (micaceous) (9).	05A	
25	30	5	As for 05A (9)	06A	
30	35	5	As for 05A (9).	07A	
35	40	5	Mainly purple silty argillites. N-calcareous. V. little mica. Purple dust (9).	08A	
40	45	5	As for 08A, with chips of well laminated argillite of the same purple colour (9).	09A	
45	50	5	As for 09A – slightly more qtzose (9)	10A	
50	55	5	As for 08A (9).	11A	
55	60	5	Grey-purple silty argillite with yellow n-calc. dust (9).	12_a	
60	65	5	As for 12A, but weathered to a yellow/brown silty argillite (9).	13A	
65	70	5	As for 12A, but more weathered most chips are soft and limonitzed. (9).	14A	
70	75	5	Very weathered, light brown, uncalcareous silty argillate. Detrital magnetite (?) common in silt sized grains. Sample 85% dust (9).	15A	
75	80	5	As for 15A – more micaceous and slightly more weathered (9)	16A	

0262

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. B458/167.50
Sheet No. 2 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
80	85	5	Much less weathered silty argillite-whitish matrix and fresh quartz within. Non-calcareous Some chips with small pyrite (limonite) euhedron (less than 1mm). Dust yellowish and approximately 60% of sample (9).	17A	
85	90	5	As for 17A, more laminated but less pyrite (9).	18A	
90	95	5	As for 18A- no pyrite, 70% chips, some highly ferruginized chips (9).	19A	
95	100	5	Similar rock type to 17A. No pyrite observed. Non-calcareous. Lamination in argillite. (9).	20A	
100	105	5	As for 20A (9).	21A	
105	110	5	As for 20A with some chips of siltstone (poorly rounded qtz 30% of rock in muddy micaceous matrix) (9).	22A	
110	115	5	As for 20A, but less weathered. Some argillite are very qtzose and f.g. Others are silty argillites, and usually micaceous (9).	23A	
115	120	5	As for 23A. Some chips highly qtzose coarse argillite. Some grains magnetite (?) in dust.	24A	
			END OF HOLE		

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. 0263
Sheet No. 7 of

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO	ASSAYS (ppm)
280	285	5	Dark purple siltstone chips. Large vein grit chips with well developed crystal faces. Light brown non calcareous dust (6)	57 A	
285	290	5	Light grey siltstone chips. Light grey non calcareous dust (6)	58 A	
290	295	5	As for 58 A, v. small amt dust	59 A	
295	300	5	Light blueish grey siltstone chips, pale brown mudstone chips. Pale brownish grey dust (6)	60 A	
300	305	5	Pale grey v fine grained chips, light grey siltstone chips more common. Light brownish grey dust. (6)	61 A	

DESCRIPTIVE LOG – PERCUSSION DRILL

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO E461/169.50
Sheet No.1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – A.J.Drummond

CO-ORDINATES – 461 north 169.50 east.
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED – 0264

DEPTH (ft) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	0	5	Dark brown, pale yellow, orange and white. A & B horizon soil chips and dust Dil Hcl (+).	01A	
5	10	5	Chips and dust of creamy yellow weathered siltstone chips. Muscovite flakes in the dust. Dil Hcl (+).	02A	
10	15	5	Chips of pale purple weathered siltstone, variety micaceous. Muscovite flakes in the dust. Occasional chips of brown stained qtz. Light brown dust. Dil Hcl (+).	03A	
15	20	5	Bleached purple siltstone chips. Light brown dust Dil Hcl (+).	04A	
20	25	5	Chips of weathered purple, micaceous siltstone. Pale purplish brown dust. Dust is slightly calcareous.	05A	
25	30	5	Weathered purple, slightly micaceous siltstone chips, often bleached white. Coarser chips are richer in muscovite and in addition, have well developed limonite pseudomorphs after pyrite. Pale purplw dust. Conc Hcl (+) on small carbonate lumps only.	06A	
30	35	5	Pale purple, but weathered, siltstone chips. Fine light orange dust. Conc Hcl (+) on small Co_3 lumps only.	07A	
35	40	5	Purple and orange weathered v.f. sndstn. chips. Orange dust. Conc Hcl (-).	08A	
40	45	5	Light purple, but weathered, slightly micaceous siltst. chips. Pale brownish pruple dust. Conc Hcl (+) but only on rare small carbonate lumps.	09A	
45	50	5	Light purple, weathered, micaceous siltst. chips Rarer very weathered red v.f. sndst. chips. Orange/brown dust. Conc Hcl (-).	10A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. E461/169.50
Sheet No. 2 of

DEPTH (ft). From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
50	55	5	Light purple, weathered micaceous chips. Orange brown dust. Conc Hcl (-).	11A	
55	60	5	As for 11A purple dust?	12_a	
60	65	5	Weathered purple siltstone chips, variably discoloured to white, red and ochre. Purplish brown dust Conc Hcl (-).	13A	
65	70	5	As for 13A	14A	
70	75	5	Purple siltstone chips. Ochreous weathering argillite chips. Pale purplish brown dust. Conc Hcl (-).	15A	
75	80	5	Purple micaceous shale chips. Pale purplish brown dust. Conc Hcl (-).	16A	
80	85	5	Purple micaceous siltstone chips. Pale pinkish brown dust. Conc Hcl (-).	17A	
85	90	5	Purple, white and yellow banded, micaceous siltstone chips. Purplish brown dust. Conc Hcl (-).	18A	
90	95	5	Purple siltstone chips which weathered white. Purplish pink dust. Non-calcareous.	19A	
95	100	5	Reddish purple siltstone chips. Very fine orange dust.	20A	
100	105	5	Purple, but red weathering, micaceous siltstone chips. Occasional vein qtz chips. Light brown dust. Conc Hcl (-).	21A	
105	110	5	Chips of weathered silty argillite. The silt weathers orange; the argillite white. Muscovite flakes in the dust. Pale brown dust. Conc Hcl (-).	22A	
110	115	5	Chips of weathered brown/purple slightly micaceous siltstone. Large qtz vein chips. Occasional red/black jasperoid (?) chips. Light orange dust.	23A	
115	120	5	Purple weathered siltstone chips. Light brown dust. Conc Hcl (+) but on ver small carbonate lumps only.	24A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0266

HOLE NO. E461/169.50
Sheet No. 3 of

DEPTH (ft.) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
120	125	5	Very weathered siltstone chips. Original colour not known, now is orange. Chips of well indurated white qtzite with black blotches. Light brown dust. Conc Hcl (-).	25A	
125	130	5	Purple siltstone v.f. sandstone chips, both fairly micaceous. Black qtz chips., in the dust. Light brown dust. Conc Hcl (-).	26A	
130	135	5	Light purple siltstone chips. Light purplish brown dust. Conc Hcl (-).	27A	
135	140	5	Orange but weathered siltstone chips which contain shiny weathered black lumps possibly weathered sulphides. Pale orange dust Conc Hcl (-).	28A	
140	145	5	Few orange, very weathered calc-siltstone chips. Remainder is pale brown dust Dil Hcl (+).	29A	
145	150	5	White, weathered siltstone chips with some shiny black blotches which may be a sulphide weathering product. Pale ochreous dust. Conc Hcl (-)	30A	
150	155	5	Purple weathered siltstone chips. Limonite stains stains common. Pale and brown dust. Conc Hcl (-)	31A	
155	160	5	Pale orange and purple weathered siltstone chips. Small fine silt size shiny metallic dust flakes possibly sulphides. Pale brown dust. Conc Hcl (+) but only on small white carbonate lumps.	32A	
160	165	5	Weathered chips of purple siltstone. Pale brown dust. Conc Hcl (+) on small white carbonate lumps only.	33A	
			END OF HOLE.		

DESCRIPTIVE LOG – PERCUSSION DRILL

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO E460/170.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – A.J. DRUMMOND

CO-ORDINATES – 460 north 170.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED –

0267

DEPTH (ft.) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Dark brown 'A' horizon soil chips. Vegetable matter common. Pale blue clay lumps. Light brown soil chips. Multicoloured yellow, brown and white dust. Highly calcareous (overburden)	01A	
5	10	5	Pale grey siltstone chips. Greyish white qtzite chips with red oxidation specks clear qtz vein chips. The red specks in the qtzite is due to weathering of pyrite which is common it often has good cubic form. Light yellowish brown highly calcareous dust (7)	02A	
10	15	5	Soft, weathered, yellowish mudstone chips, some limonite stained. Qtz vein chips, some with well developed crystal faces. Yellow, moderately calcareous dust (10).	03A	
15	20	5	Pale grey argillite chips, light grey siltstone chips. Few very angular black chert chips. Light orange dust slightly calcareous (9).	04A	
20	25	5	Large light to medium grey qtzite chips. Light grey shale chips. Vein qtz chips. Light orange slightly calcareous dust. Few very angular black chert chips (9)	05A	
25	30	5	Yellow and purple weathering shale chips. Vein qtz chips quite common, some with limonite pyritohedrons. Yellow moderately calcareous dust (10).		
30	35	5	Weathered silty shale and siltstone chips. Colours vary according to weathering. Yellow, white and red shales are most common. Red spots on many chips. Qtz vein chips. some of which are common. Pale orange dust, moderately calcareous (6)	07A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0268
HOLE NO. E460/170.50
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
35	40	5	Weathered shale chips. Colours due to weathering white, red, purple. Light brown slightly calc-areous dust. Occasional vein qtz chips (10).	08A	
40	45	5	Weathered silty shale chips, new blotchy red and white. Light orangey brown, slightly calcareous dust (9)	09A	
45	50	5	Purple and white blotched, weathered, laminated shale chips. A considerable amoint of black chert in the form of very angular, irregular chips. Light brown, moderately calcareous dust (9)	10A	
50	55	5	Light grey to light purple, very weathered, slightly micaceous shale and silty shale chips. Black chert chips not uncommon. Qt vein chips pale pinkish brown, slightly calcareous dust (9).	11A	
55	60	5	The less weathered chips are a pale grey, well indurated siltstone, approaching a quartzite/ Weathering produces orange and red shades. Black chert chips and qtz vein chips both common. Pale pinkish brown (6).	12A	
60	65	5	Purple micaceous siltstone chips. Pale pinkish brown non calcareous dust (6)	13A	
65	70	5	Purple laminated siltstone chips. Fewer yellowish brown siltstone chips. Occasional qtz vein chips. Pinkish brown non calcareous dust (6).	14A	
70	75	5	Very weathered, yellow and purple siltstone chips, some of where are laminated. Light orange dust non calcareous (6)	15A	
75	80	5	Weathered purple siltstone chips Qtz vein chips Few fine sand size chert chips. Pale creamy orange dust, non calcareous. (6).	16A	
80	85	5	Weathered siltstone chips of variable colour – yellow, orange, white. A few pearly qtz chips	17A	

DESCRIPTIVE LOG —

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0269
HOLE NO. E460/170.50
Sheet No. 3 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
			Light orange noncalcareous dust (6)	17A					
85	90	5	Purple shale chips; when badly weathered, with orange spots. Variably, but generally only slightly micaceous.	18A					
90	95	5	Light grey, laminated shale chips, looking rather porours as some component has been selectively weathered out. Some white siltstone chips covered in red weathering spots. Non-calcareous light brown dust (9)	19A					
95	100	5	Purple micaceous shale chips, often extensively kaolinized, ten and white colours resulting. Vain qtz chips common, occasional angular black chert chips. Light brown non calcareous dust (10)	20A					
100	105	5	Sample is light grey, but purple weathering (or vice versa) argillite chips. Qtz vein chips, some with black limonite after pyrite, Light brown non-calcareous dust (10).	21A					
105	110	5	Sample is completely light brown dust except for some medium grey flinty chips. Non-calcareus (10)	22A					
110	115	5	Light brownish grey siltstone chips. Light brown non-calcareous dust (6).	23A					
115	120	5	Pale purple, laminated shale chips. Light grey featureless argillite chips. light brown, non calcareous dust (10).	24A					
120	125	5	Sample is entirely ochreous brown dust (10?)1	25A					
125	130	5	Light brown, very weathered, porous muddy very fine sandstone chips. Light grey qtzite chips, composed of siltsize particles, and containing weathered pyrite. Some limonitic pseudomorphs are still present, otherwise there is a tan limonite stain around a cavity. Non calcarous, pale fawn dust (6)	26A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. E460/170.50
Sheet No. 4 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
130	135	5	Pale grey shaly siltstone chips. Vein qtz chips common. Light brown, non-calcareous dust (6).	27A	
135	140	5	Light grey weathered, friable siltstone, chips. Muscovite flakes, small limonite lumps in the dust. One small malachite grain in the dust. Light brown, non-calcareous dust (6).	28A	
140	145	5	Light yellowish brown micaceous siltstone chips. Light brown non calcareous dust (6).	29A	
145	150	5	Light grey friable micaceous siltstone chips. Light brown, non-calcareous dust (6).	30A	
150	155	5	Yellow, soft, friable very weathered coarse siltstone chips. Sample is nearly all ochreous orange dust, non-calcareous (6).	31A	
155	160	5	As for 31A (6).	32A	
160	165	5	Light yellowish brown weathered shale chips. Light orange non-calcareous dust (10).	33A	
165	170	5	Soft, weathered, pale blue grey argillite chips. Pale orange non-calcareous dust (10)	34A	
170	175	5	Pale greyish siltstone chips which are generally badly weathered, Qtz vein chips common. Light orange non-calcareous dust (6).	35A	
175	180	5	Pale yellow weathered shale chips. Occasional muscovite flake in the dust (10)	36A	
180	185	5	Pale yellow argillite chips. Pale brown non-calcareous dust (10)	37A	
185	190	5	Pale grey, but brown weathering, micaceous silt-st. chips. Light grey weathered argillite chips Occasional very angular qtz vein chips. Light orange non-calcareous dust (6).	38A	
190	195	5	Pale brown slightly micaceous, weathered siltstone chips. Light ochreous brown, non-calcareous dust (6).	39A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0271

HOLE NO. B460/170.50
Sheet No. 5 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
195	200	5	Pale yellowish brown siltstone chips in a pale brown dust. A few small black nodules (fine sand size), possibly of goethite, Non-calcareous (6).	40A	
200	205	5	Pale yellowish brown, non-calcareous dust (9).	41A	
205	210	5	As for 41A	42A	
210	215	5	Pale grey, slightly micaceous shale chips. Pale yellowish brown, non-calcareous dust (10).	43A	
215	220	5	Pale grey, silty shale chips. A few v.f. sand size black heavey mineraly grains. Non-calcareous. pale brown dust (9).	44A	
220	225	5	Pale grey shale chips, some with siltier laminations. Few small vein qtz chips. Light brown, non-calcareous dust (9).	45A	
225	230	5	Light grey shale chips. Light brown non-calcareous dust (10).	46A	
230	235	5	Light grey siltstone chips. Chips of light brownish grey, very micaceous dust (6).	47A	
235	240	5	Light purple shale chips. Chips of laminated grey and purple siltstone and shalechips. The shale in the laminated chips is heavily micaceous. Non-calcareous light brown dust (9).	48A	
240	245	5	Light purple micaceous shale chips. Light grey Some dark brown lumps of what is presumably limonite. Light brown non-calcareous dust (9).	49A	
245	250	5	Weathered yellowish micaceous shale chips Yellowish brown, non-calcareous dust (10).	50A	
250	255	5	As for 50A (10)	51A	
255	260	5	Pale grey laminated siltstone and shale chips. the Siltstone is often considerably stainedby limonite. Light brown, non-calcareous dust (6).	52A	

DESCRIPTIVE LOG —

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0272

HOLE NO. E460/170.50
Sheet No. 6 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
260	265	5	Light grey siltstone chips often brown stained by limonite. Light brown, non-calcareous dust (6).	53A	
265	270	5	Light greyish brown, micaceous shale chips often with red weathering spots and streaks. Light yellowish brown dust, non-calcareous (10).	54A	
270	275	5	Pale grey argillite chips. Light yellowish brown non-calcareous dust (10).	55A	
275	280	5	As for 55A	56A	
280	285	5	Slightly purplish grey laminated shale chips.	57A	
			Purplish fine siltstone chips containing some black specks and marks of unknown composition - not thought to be limonite, biotite or detrital heavy minerals. Pale brown, non-calcareous dust (10).		
285	290	5	Pale brown laminated shale chips. Pale brown non-calcareous dust (10).	58A	
290	295	5	Light brownish grey silty shale chips. Few qtz vein chips. no well developed crystal faces (9)	59A	
295	300	5	Pale purplish grey shale chips, fissility seems quite variable. Limonite staining possibly along joints has penetrated into same chips. Black goethite or Mn spots are evident. Pale creamy brown non-calcareous dust (9).	60A	
300	305	5	Light grey micaceous shale chips. Pale brown, non calcareous dust (9).	61A	
305	310	5	As for 61A	62A	
310	315	5	As for 61A. Weathered lump of pyrite, now limonite originally a cluster of well developed crystals (9).	63A	
315	320	5	As for 63A. including the weathered pyirite (9).		
320	325	5	Pale grey, but purple weathering, micaceous shale chips. Qtz vein ships quite common. Dark	64A	

0273

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. -E460/170.50
Sheet No. 7 of

DEPTH			CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
From	To	Diff.							
			brown/black goethite chips possibly after pyrite						
			although no crystal form can be seen and is						
			often, intimately mixed with quartz. Pale						
			brown, non-calcareous dust (9).						

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO E458/168.50
Sheet No. 1 of

PROJECT – S.A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – G. Chuck

CO-ORDINATES – 458 north 168.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY –
COMMENCED –
COMPLETED – 0274

DEPTH (ft) From	To	Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
0	5	5	Soil chips of red/brown clay - calcareous. Minor specular hematite. Rounded qtz grains. Calcite particles (overburden).	01A	
5	10	5	Pinkish calcareous dust. Chips of siltstone & qtz rich "micro-qtzite" (overburden).	02A	
10	15	5	Pinkish/brown slightly calcareous dust. Chips of limonitized silty argillites and unlaminated argillite (9).	03A	
15	20	5	Uncalcareous pink/brown dust. Chips of purple mud-stone. No laminations, slightly silty (larger sized qtz grains) (9).	04A	
20	25	5	Mostly pinkish argillitic dust. Somechips of silty qtzose argillite (9).	05A	
25	30	5	As for 05A (9)	06A	
30	35	5	As for 05A (9)	07A	
35	40	5	As for 05A (9). With some 3mm grains of qtz within the dust (9).	08A	
40	45	5	As for 05A, with rare chips of black micro-crystalline rock (chert?). Most of the argillites highly ferruginized. Vein (?) qtz chips present - 5mm (9).	09A	
45	50	5	As for 05A, vein qtz up to 10mm dia. (9).	10A	
50	55	5	Dust a red/brown colour, uncalcareous. Only 5% of sample is chips, and these are ferruginized argillites with larger sized qtz present. Non-laminated (10).	11A	
55	60	5	As for 11A (10).	12A	
60	65	5	As for 11A - probably represents a claystone (10)	13A	
65	70	5	As for 13A (10).	14A	
70	75	5	Lighter coloured dust (uncalcareous) - more chips 30%. Chips are ferruginous silty argillite (9).	15A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0275

HOLE NO. E458/168.50
Sheet No. 2 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
75	80	5	As for 15A (9)	16A	
80	85	5	As for 15A - slightly micaceous in some chips (9)	17A	
85	90	5	Chips harder between qtz - rich mudstone and silt-	18A	
			stone (9).		
90	95	5	Sample consists of 80% chips-mostly well indurated	19A	
			siltstone, some banded, limonitized & pyritiferous		
			Other chips (minority) are weathered silty argillite		
			Some qtz chips (5mm) present (6).		
95	100	5	Qtzose siltstone, some argillites. All partly	20A	
			ferruginized (6).		
100	105	5	Similar to 20A. Possible slightly finer grained (6)	21A	
105	110	5	As for 21A. Misture of fine (c.argillite) & c.	22A	
			(f. to m. silts) chips. All slightly or highly		
			ferruginous. N-calcareous (6).		
110	115	5	As for 22A (6)	23A	
115	120	5	Possible finer grained than 23A. Qtz-rich, slightly	24A	
			pyritiferous. Some siltstone chips laminated (6).		
120	125	5	Probably finer still - now an argillite. Micaceous	25A	
			in part. Qtz grains (3-4mm) present (9).		
125	130	5	Yellowish/brown argillitic dust. 20% of Sample	26A	
			chips of ferruginized argillite (9).		
130	135	5	Sample 95% yellowish dust - derived from argillite.	27A	
			Chips are weathered argillite with scattered		
			silt-sized qtz (?) grains (9).		
135	140	5	As for 27A (9).	28A	
140	145	5	As for 27A (9).	29A	
145	150	5	As for 27A (9).	30A	
150	155	5	As for 27A (9).	31A	
155	160	5	Sample 100% dust (9).	32A	
160	165	5	Sample 100% dust (9).	33A	
165	170	5	As for 27A (9).	34A	

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO. E458/168.5C
Sheet No. 3 of

DEPTH (ft) From	To	Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
170	175	5	Sample 100% dust (9).	35A	
175	180	5	Very f. yellowish dust, 10% chips of argillite (10)	36A	
180	185	5	Dust similar to 36A. Chips are silty argillite (9).	37A	
185	190	5	As for 37A. Chips silty, qtzose argillite (9).	38A	
190	195	5	As for 38A (9).	39A	
195	200	5	As for 38A (9).	40A	
200	205	5	As for 38A, but dust contains larger chips of qtz. (9).	41A	
205	210	5	Sample consists of chips 1-2mm each - of qtz & well indurated, unweathered (?)silty argillite. Uncalcareous (9).	42A	
			END OF HOLE.		

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

HOLE NO – E458/170-12
Sheet No. 1 of

PROJECT – S. A. COPPER
LOCATION – COPPER CLAIM
LOGGED BY – Graeme Chuck

CO-ORDINATES – E458 north 170.50 east
COLLAR ELEVATION –
BEARING – INCLINATION –

DRILLED BY – 0277
COMMENCED –
COMPLETED –

DEPTH From	DEPTH To	DEPTH Diff	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
0	5		Red soil horizon with chips of lithic quartzose arenite, micaceous quartzose siltstone, and grey dolomite. (overburden)	01A					
5	10		Micaceous argillite, quartzose arenite. Calcareous dust (6)	02A					
10	15		Micaceous siltstone. Chips of vein quartz. Calcareous dust (6)	03A					
15	20		Mostly red, uncaclcareous dust with chips of soft, argillitic siltstone (9)	04A					
20	25		As for 04A (9)	05A					
25	30		Mostly micaceous silty argillite, some quartzose argillitic coarse siltstones. Uncalcareous dust (9)	06A					
30	35		Chips of fine grained micaceous siltstone, and silty argillites (9)	07A					
35	40		Chips of purple and orange silty micaceous argillites in an orange, uncalcareous dust (9)	08A					
40	45		As for 08A (9)	09A					
45	50		As for 08A (9)	10A					
50	55		As for 08A (9)	11A					
55	60		chips of quartzose, very micaceous siltstone; also the purple silty argillites of 08A, and pyritic reef quartz. Predominantly micaceous silty argillite (9)	12A					
60	65		Greyish, quartzose coarse siltstones. Reef quartz present (6)	13A					
65	70		Sample mostly brown argillitic dust, but there are a few chips of 13A type rock. Mostly argillitic dust and a few argillitic chips (10)	14A					
70	75		Chips mostly very fine grained, impure quartz argillites and silty argillites. Uncalcareous (9)	15A					
75	80		Mainly silty argillites and dust derived from them. Several chips of impure arenites (9)	16A					
80	85		Silty argillite. Brown uncalcareous dust (9)	17A					
85	90		Silty argillites, with some very limonitic chips (9)	18A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0278

HOLE NO. E-458/70-60
Sheet No. 2 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
90	95		As for 18A, with some vein quartz chips (9)	19A					
95	100		Mainly micaceous, grey silty argillite. Limonite chips could have replaced pyritic rock (9)	20A					
100	105		Highly micaceous silty argillites. Limonite chips still present (9)	21A					
105	110		Purple, silty, micaceous argillites (9)	22A					
110	115		Argillitic (non-calcareous) siltstone (9)	23A					
115	120		Micaceous, argillitic siltstone (9)	24A					
120	125		As for 24A (9)	25A					
125	130		Sample mainly orange, uncalcareous dust. Chips of grey - purple silty argillite, with larger muscovite plates present. Some chips contain limonitized lithic (?) fragments (9)	26A					
130	135		Micaceous siltstones, less chips of coarse grained quartzose siltstone (6)	27A					
135	140		Banded, arenaceous, micaceous siltstone. Orange an uncalceous dust (6)	28A					
140	145		As for 28A (6)	29A					
145	150		As for 28A (6)	30A					
150	155		Arenaceous, micaceous siltstones. Some chips are pure quartz in coarse silt-sized grains and recrystallized. Yellow/brown dust (6)	31A					
155	160		Chips are mostly quartzose coarse siltstones. Some reef quartz present. Most of the sample is yellow/brown uncalcareous dust (6).	32A					
160	165		Sample almost entirely orange dust. Few chips of weathered siltstone (6)	33A					
165	170		As for 33A (6)	34A					
170	175		As for 33A (6)	35A					
175	180		Micaceous siltstone, minor manganese - stained arenite. Yellow-brown uncalcareous dust (6)	36A					
180	185		Fine-grained quartzose siltstones, some with mica, manganese and others limonitized. Yellow-brown dust (6).	37A					

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0275

HOLE NO. E458/170-S
Sheet No. 3 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
185	190		Fine grained quartzose, partly limonitized argillite.	38A					
			Some manganese present. Yellow-brown dust (10)						
190	195		Chips of micaceous siltstone and fine grained quartzose	39A					
			argillite (9)						
195	200		Fine-grained micaceous siltstones and argillites. Yellow	40A					
			dust (9)						
200	205		Micaceous fine grained, argillitic siltstone. Samples	41A					
			mainly orange dust (9)						
205	210		Pyritic siltstone chips - sample mostly yellow dust,	42A					
			(uncalcareous) (6)						
210	215		Pyritic siltstone - coarser in parts but mostly similar to	43A					
			42A Almost every chip contains pyrite (6)						
215	220		Arenaceous, micaceous, quartzose siltstone. Quartz	44A					
			grains occur as larger rounded grains in a quartzose,						
			silty matrix. No pyrite noted (6)						
220	225		As for 44A - with some finer-grained siltstones (6)	45A					
225	230		Light grey, quartzose, micaceous siltstones, with larger	46A					
			sand-sized quartz grains present as<5%. Light yellow						
			brown uncalcareous dust (6)						
230	235		As for 46A (6)	47A					
235	240		As for 46A (6)	48A					
240	245		Some soft chips of 46A, but sample is mostly fine yellow	49A					
			uncalcareous dust with a few chips of soft weakly limonitic						
			argillite (10)						
245	250		Most chips are fine grained micaceous siltstones; but these	50A					
			are rarer chips of silty quartzose arenite and coarse quartzose						
			siltstone. Pale yellow - grey noncalcareous dust (6)						
250	255		Chips of quartzose micaceous siltstones which contain rare	51A					
			quartz grains of sand size (6)						
255	260		Sample mainly yellow uncalcareous dust, with few chips	52A					
			of fine-grained siltstone (9)						

DESCRIPTIVE LOG –

UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

0280
HOLE NO. E-58-170-SD
Sheet No. 4 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)
260	265		Fine to medium grained, quartzose micaceous, banded siltstones. Yellow - brown uncalcareous dust (6)	53A	
265	270		Similar to 53A but with rare chips of a very fine grained quartzose arenite (6)	54A	
270	275		As for 54A but coarse quartzose siltstone more prominent (6)	55A	
275	280		As for 55 A (6)	56A	
280	285		Sample mainly brown dust, with a few chips of micaceous fine-grained siltstones (9)	57A	
285	290		Chips of micaceous, quartzose siltstone and pyritic, quartzose siltstone and pyritic, quartzose arenite in a light brown dust (6)	58A	
290	295		Medium-highly micaceous siltstone, limonilized in some chips (6)	59A	
300	305		Fine to coarse grained micaceous, quartzose siltstone and chips of pyritic (very small, rare pyrite/limonite euhedra) arenite (6)	60A	
305	310		Fine-medium grained, light grey, micaceous siltstone (6)	61A	
310	315		Mainly light-grey, micaceous to highly micaceous siltstone. Rare chips of limonitized, highly pyritic arenite, with manganese staining (6)	62A	
315	320		Light grey micaceous (muscovite) siltstone, with extremely small pyrite (?) euhedra in the coarser chips (6)	63A	
320	325		Med-coarse grained quartzosem micaceous siltstone chips in a light brown dust which accounts for only about 10% of the sample (6)	64A	
325	330		As for 64A, but about half the chips are unmicaceous silt-sized quartz grains (6)	65A	
330	335		Chips of med-coarse quartzose, micaceous siltstone, Some vein quartz chips (6)	66A	
335	340		Change in lithology. Sample is 95% darkish brown dust and small pellets of micaceous fine-grained siltstone (?) Several chips of this lithology present (9)	67A	

DESCRIPTIVE LOG –

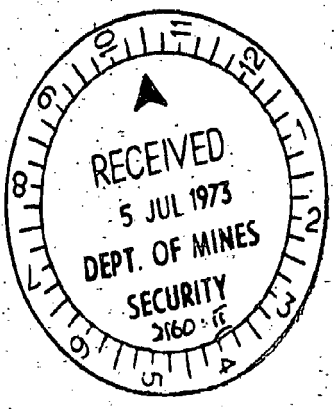
UTAH DEVELOPMENT COMPANY
(Mineral Development & Geology)

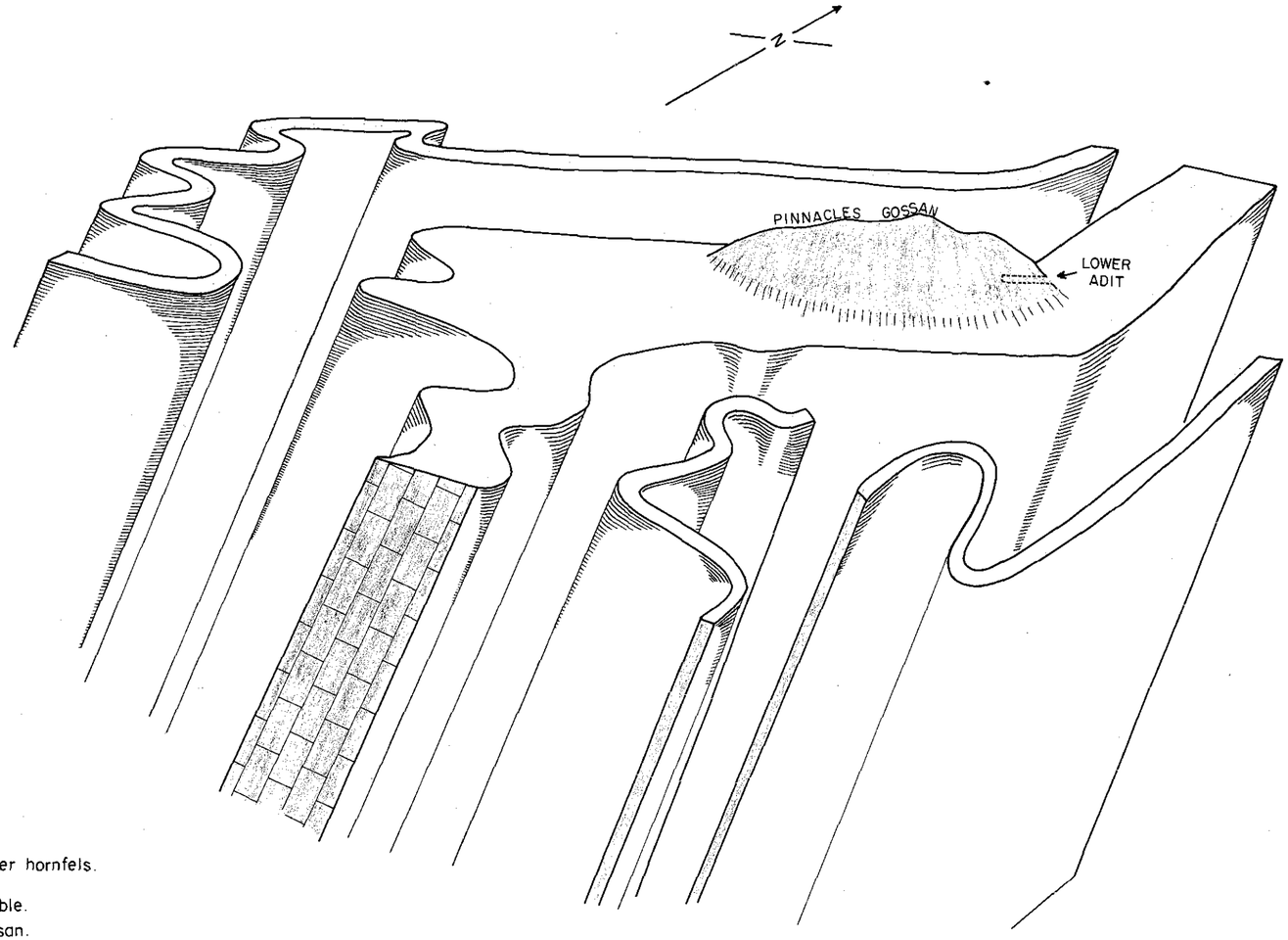
0281
HOLE NO. E45E/120-50
Sheet No. 5 of

DEPTH From	DEPTH To	DEPTH Diff.	CORE DESCRIPTION	SAMPLE NO.	ASSAYS (ppm)				
340	345		As for 67A - dust is non-calcareous (9)						
			END OF HOLE						

APPENDIX VII

PLATES





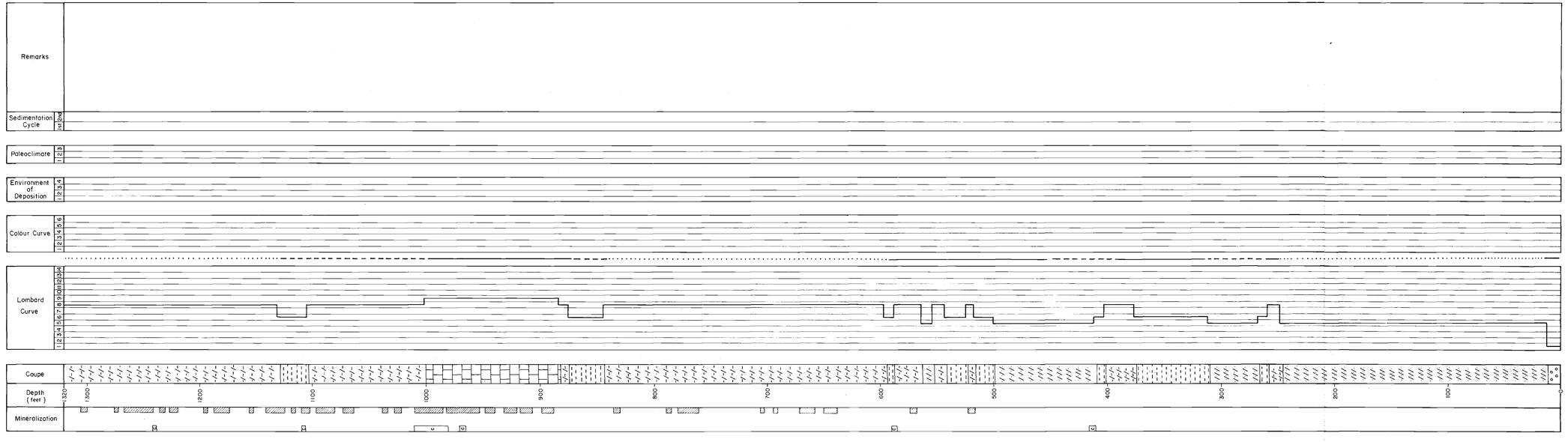
3 - D STRUCTURAL SKETCH
PINNACLES AREA
SPECIAL MINING LEASE NO. 717
YUDNAMUTANA - SOUTH AUSTRALIA

UTAH DEVELOPMENT COMPANY
(Exploration Department)

RECEIVED
2 AUG 1973
DEPT. OF MINES
SECURITY
2160-II

2160(II)-1

FIGURE II
Report No. 214
R.G. Chuck
Adelaide
June 1973



KEY

Colour
1. Red
2. Yellow
3. White
4. Green
5. Grey
6. Black

Climate
1. Glacial
2. Temperate
3. Hot

Environment of Deposition
1. Continental
2. Deltaic
3. Marine
4. Lagoonal

Transgressive oscillating
"I" Sequence
Regressive oscillating

Mineralization
Visible pyrite
Copper assays
0·05 %
0·50 – 1·00 %
1·00 % >

PREVISIONELLE DIAGRAM

STRATIFORM COPPER SEARCH

PROJECT. S.M.L. 717.
LOCATION. Yereling Grid (line 084·00 E).
SCALE. 1:500.
COMPILED FOR. Percussion holes YX 07, 08, 09, 10 & 11.
COMPILED BY. R. G. Chuck.

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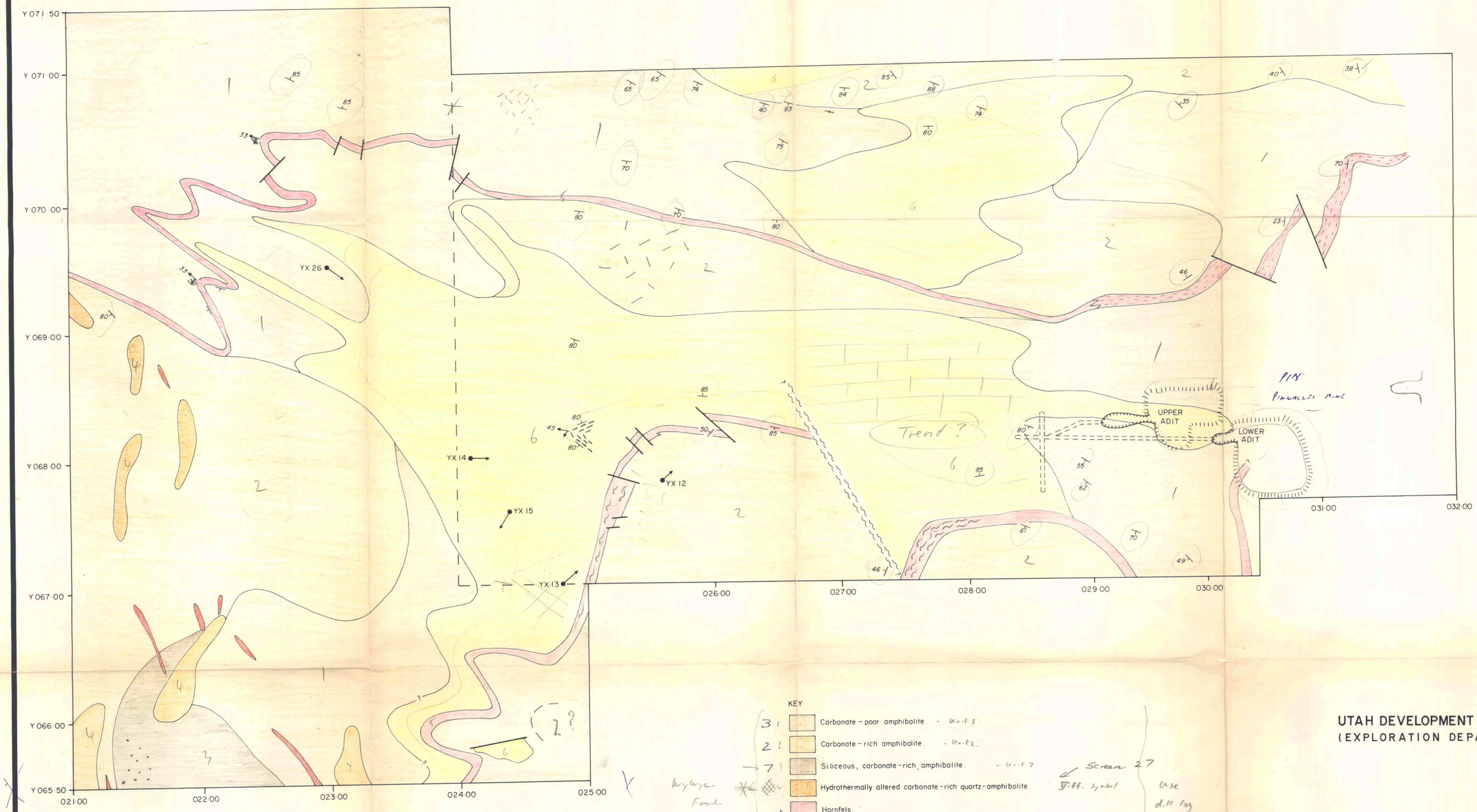
UTAH DEVELOPMENT COMPANY
(Exploration Department)

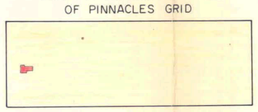
FIGURE III
Report No. 214
R.G.Chuck
Adelaide
June 1973



KEY

- Carbonate – poor amphibolite. – Unit 3
- Carbonate – rich amphibolite. – Unit 2
- Siliceous, carbonate-rich, amphibolite. – Unit 7
- Hydrothermally altered carbonate-rich quartz-amphibolite.
- Hornfels. (facies variation) Unit 4
- Actinolite marble. – Unit 1
- Quartz veins. – Diff. Symb
- Lithological boundary.
- Strike of bedding.
- Dip and strike of bedding.
- Strike of vertical bedding.
- ~~Overturned anticlinal cross fold~~ Plunge of fold axis
- Fault.
- Shear zone.
- Percussion drill hole.
- Adit showing sub-surface projection of drives.

S.M.L. 717 SHOWING LOCATION OF PINNACLES GRID



UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

INTERPRETATIVE GEOLOGY
PINNACLES GRID
SPECIAL MINING LEASE NO. 717
YUDNAMUTANA – SOUTH AUSTRALIA

PLATE 6

Scale 1:500

METRES 10 0 10 20 30 40 50 METRES

FEET 25 0 25 50 75 100 125 150 FEET

Project Senior Geologist . . . N.J. Rowlands.
Interpretation by . . . R.G. Chuck.
Drawn by . . . A.J. Hitchcox.
ADELAIDE. JUNE 1973.

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R.G. Chuck
Adelaide
June 1973

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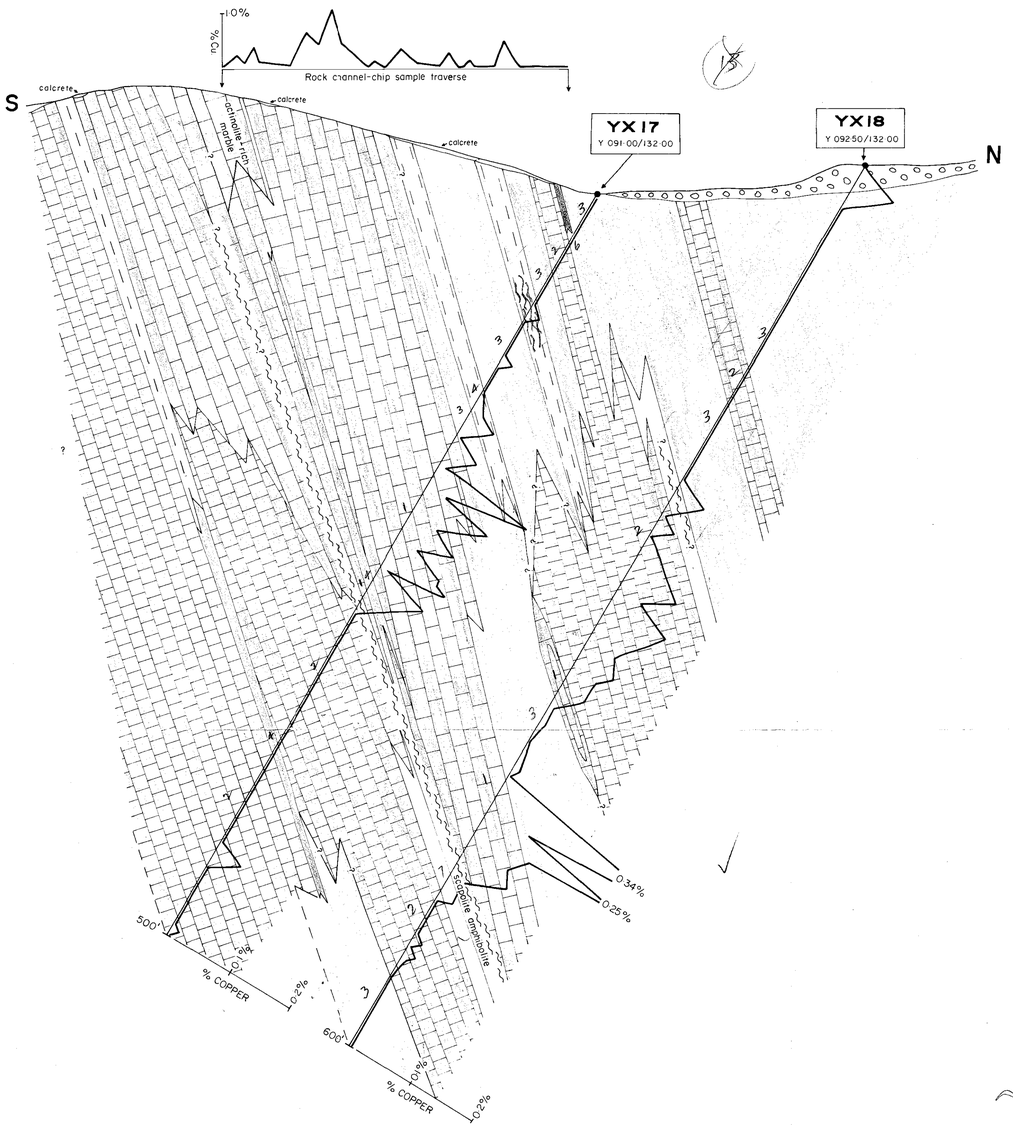
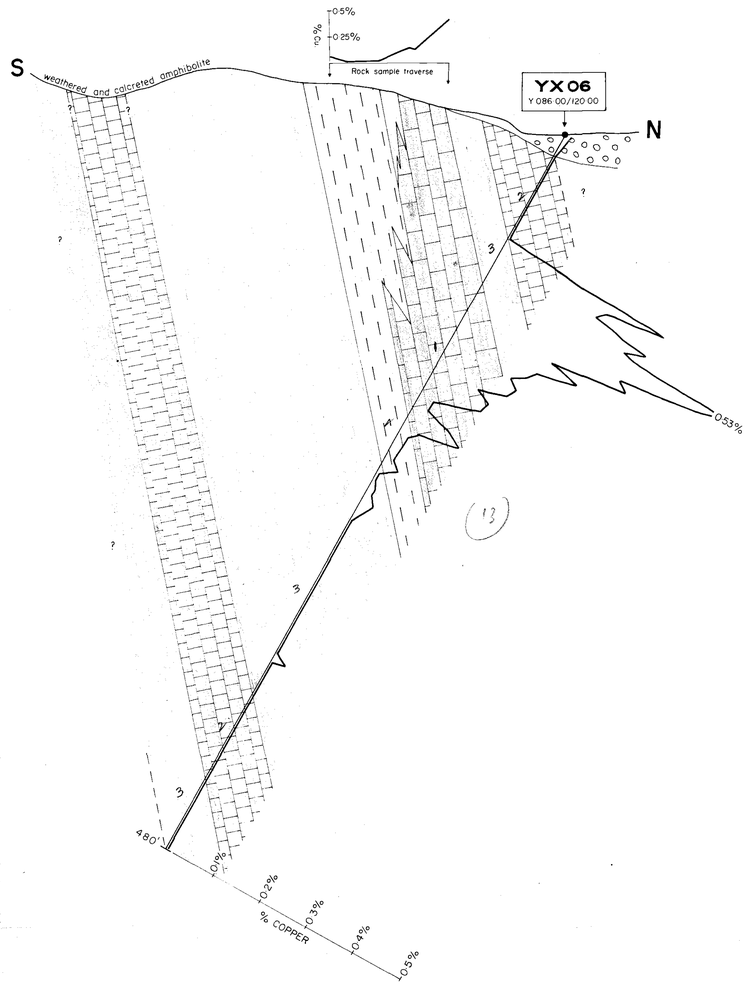
COCKSCOMB EAST



COCKSCOMB WEST



UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

ROTARY PERCUSSION DRILL HOLE
CROSS SECTIONS
COCKSCOMB AREA

SPECIAL MINING LEASE NO. 717

YUDNAMUTANA – SOUTH AUSTRALIA

PLATE 7

Scale 1:500

METRES 10 0 10 20 30 40 50 METRES

FEET 25 0 25 50 75 100 125 150 FEET

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R.G. Chuck
Adelaide
June 1973

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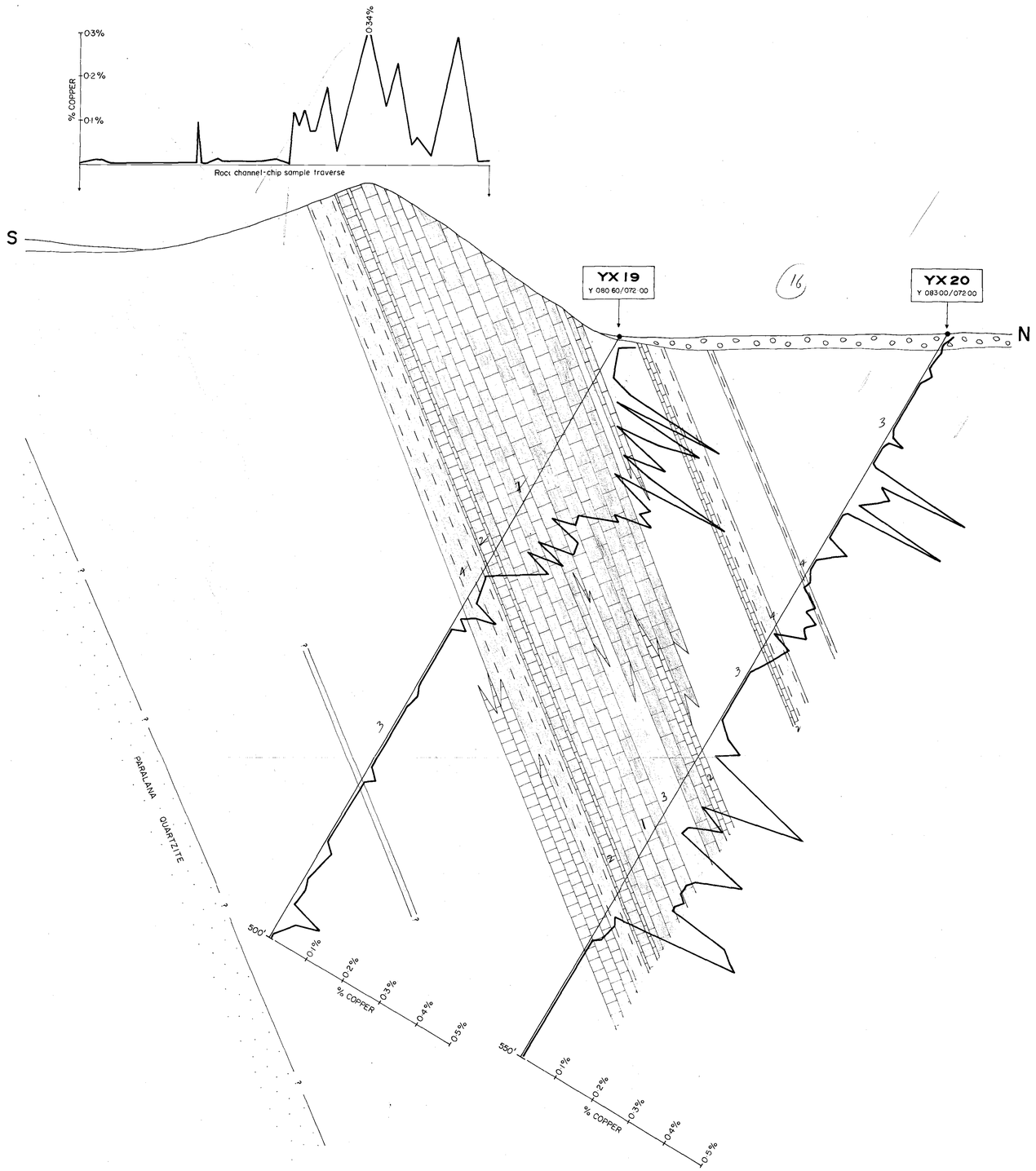
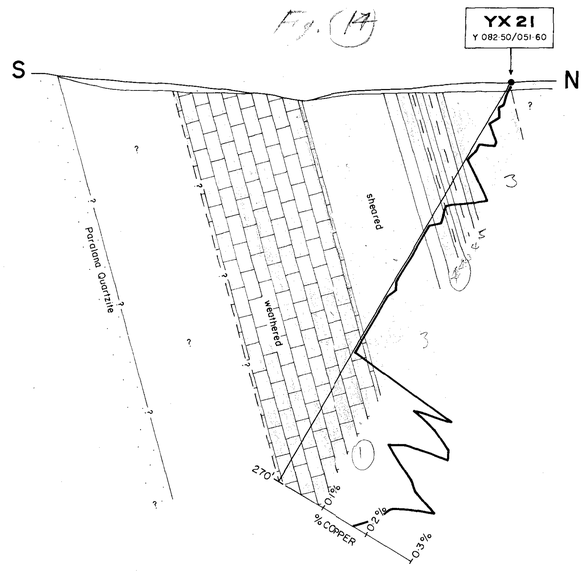
Fig. 13, 15

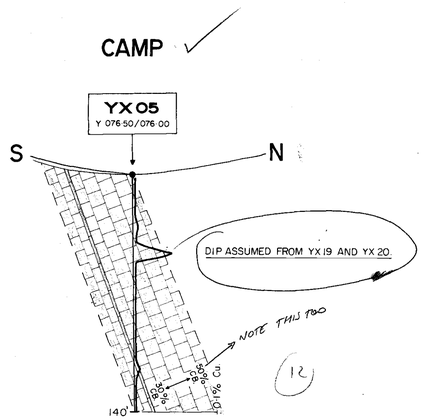
WEST CAMP



BLACK QUEEN



CAMP



UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

ROTARY PERCUSSION DRILL HOLE CROSS SECTIONS CAMP AND BLACK QUEEN AREAS

SPECIAL MINING LEASE NO. 717

YUDNAMUTANA – SOUTH AUSTRALIA

PLATE 8

Scale 1:500

METRES 10 0 10 20 30 40 50 METRES

FEET 25 0 25 50 75 100 125 150 FEET

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2160 II

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R.G. Chuck
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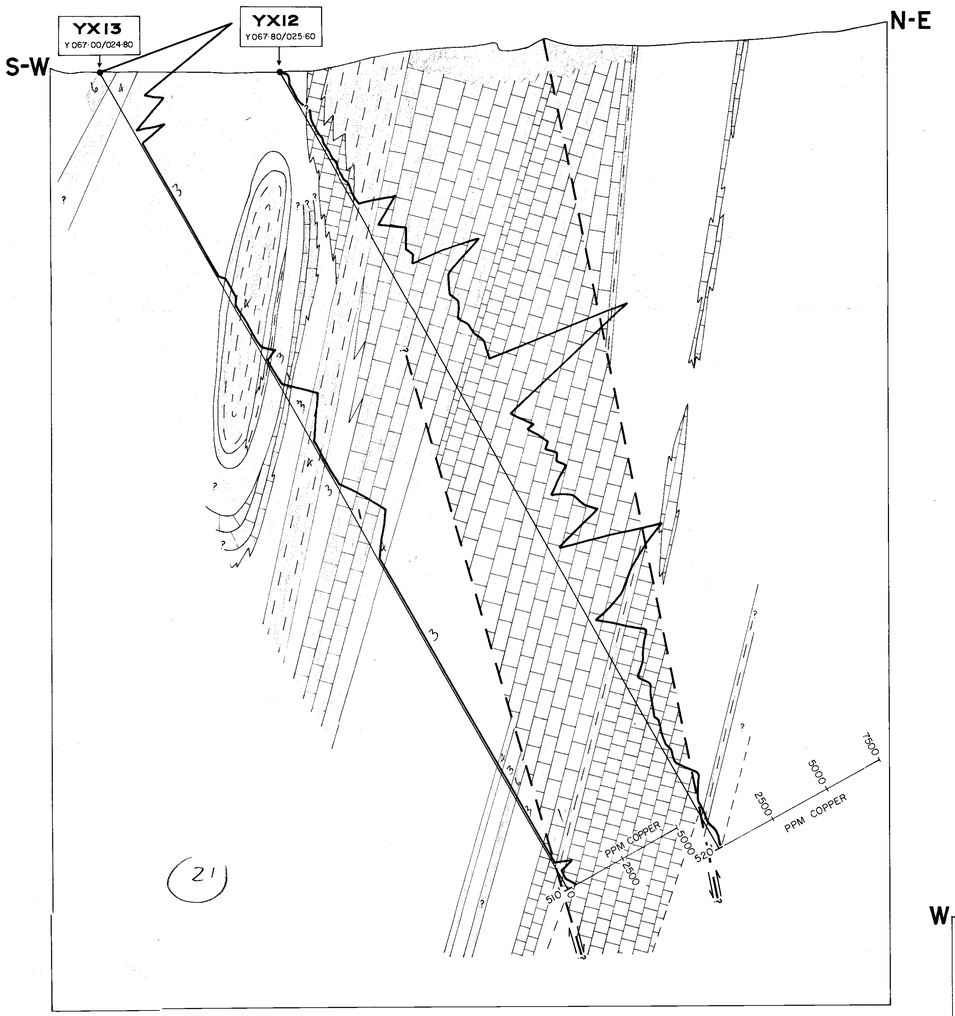
1 AND 2



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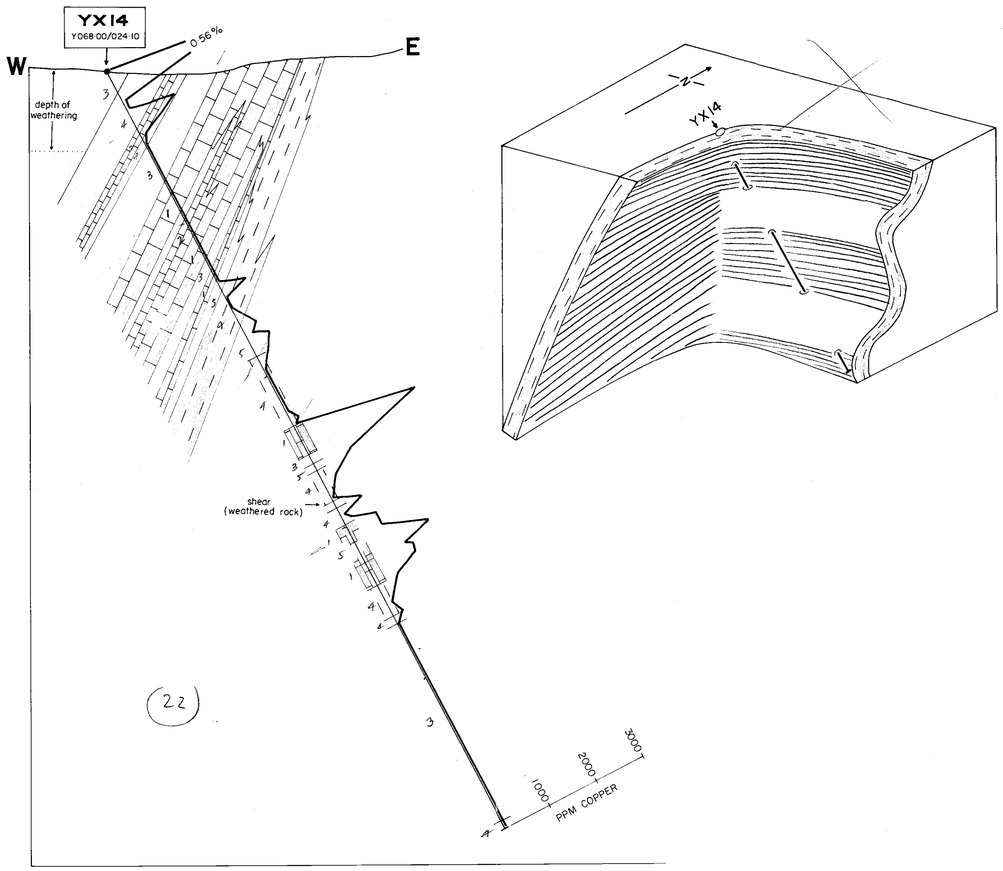

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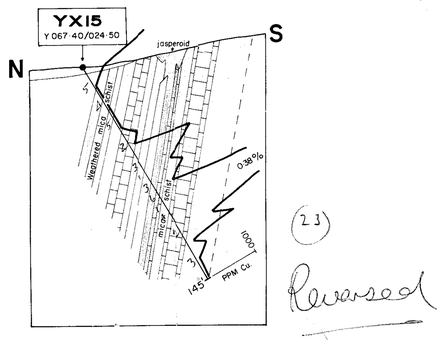

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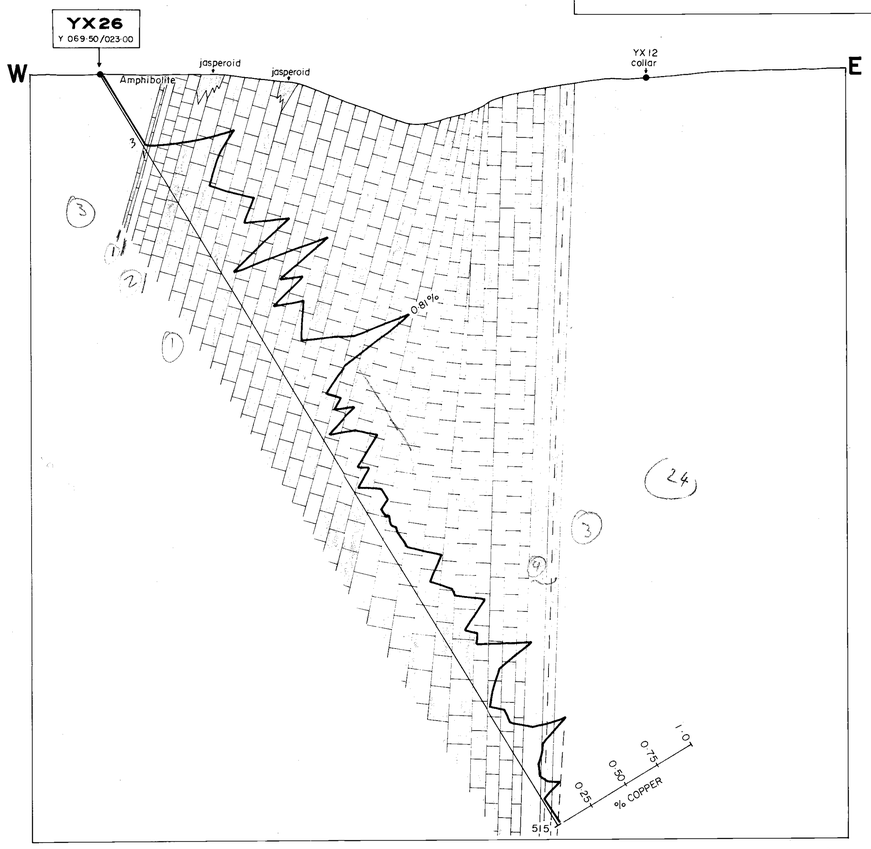

UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

ROTARY PERCUSSION DRILL HOLE CROSS SECTIONS PINNACLES AREA

SPECIAL MINING LEASE NO. 717

YUDNAMUTANA – SOUTH AUSTRALIA

PLATE 9

Scale 1:500

METRES 10 0 10 20 30 40 50 METRES

FEET 25 0 25 50 75 100 125 150 FEET

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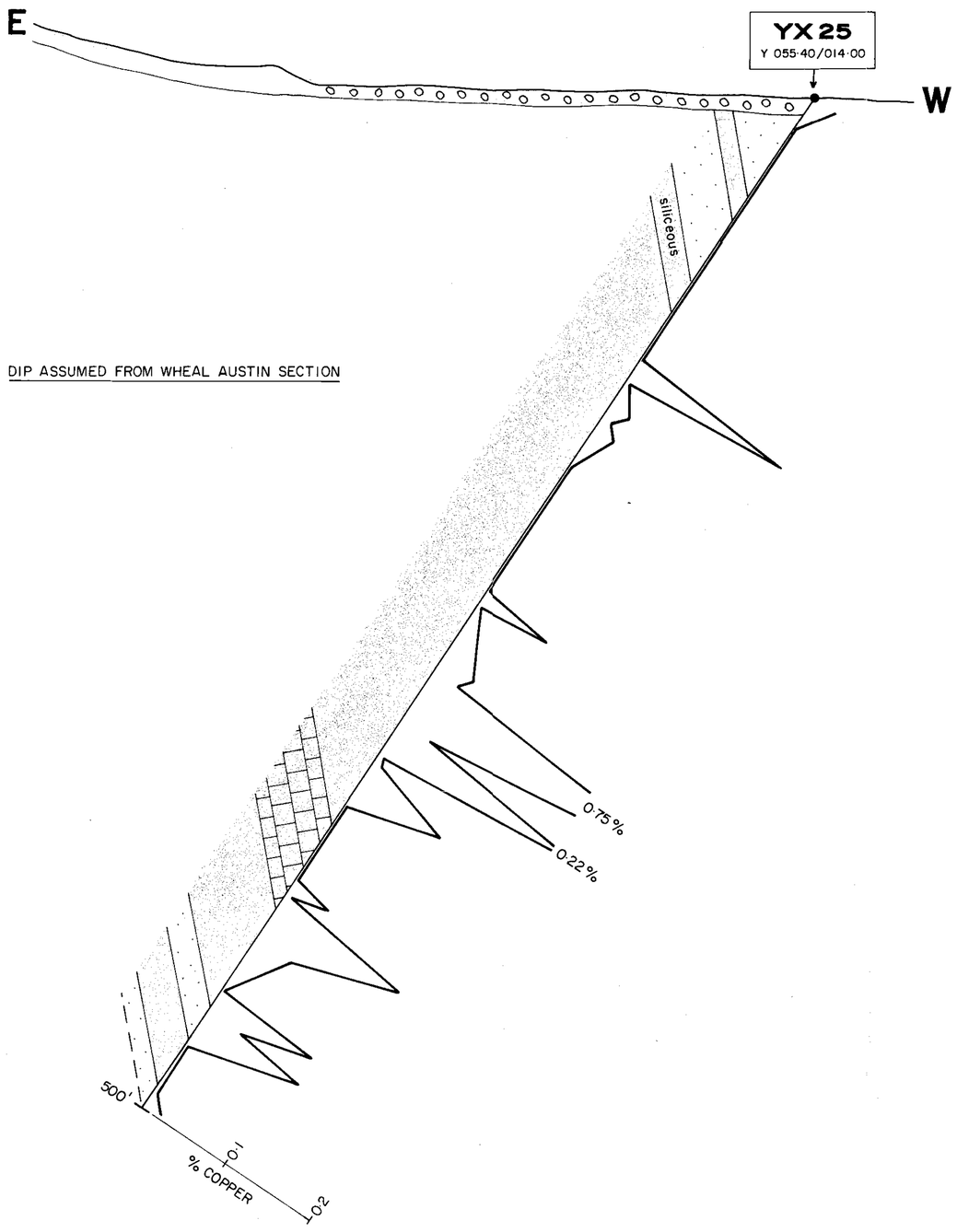
Fig. 18 & 19

Fig. 21, 22, 23, 24



DIP ASSUMED FROM WHEAL AUSTIN SECTION

UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

ROTARY PERCUSSION DRILL HOLE
CROSS SECTIONS
WHEAL AUSTIN NORTH AREA

SPECIAL MINING LEASE NO. 717

YUDNAMUTANA - SOUTH AUSTRALIA

PLATE 10

Scale 1:500

METRES 10 0 10 20 30 40 50 METRES

FEET 25 0 25 50 75 100 125 150 FEET

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SECURITY
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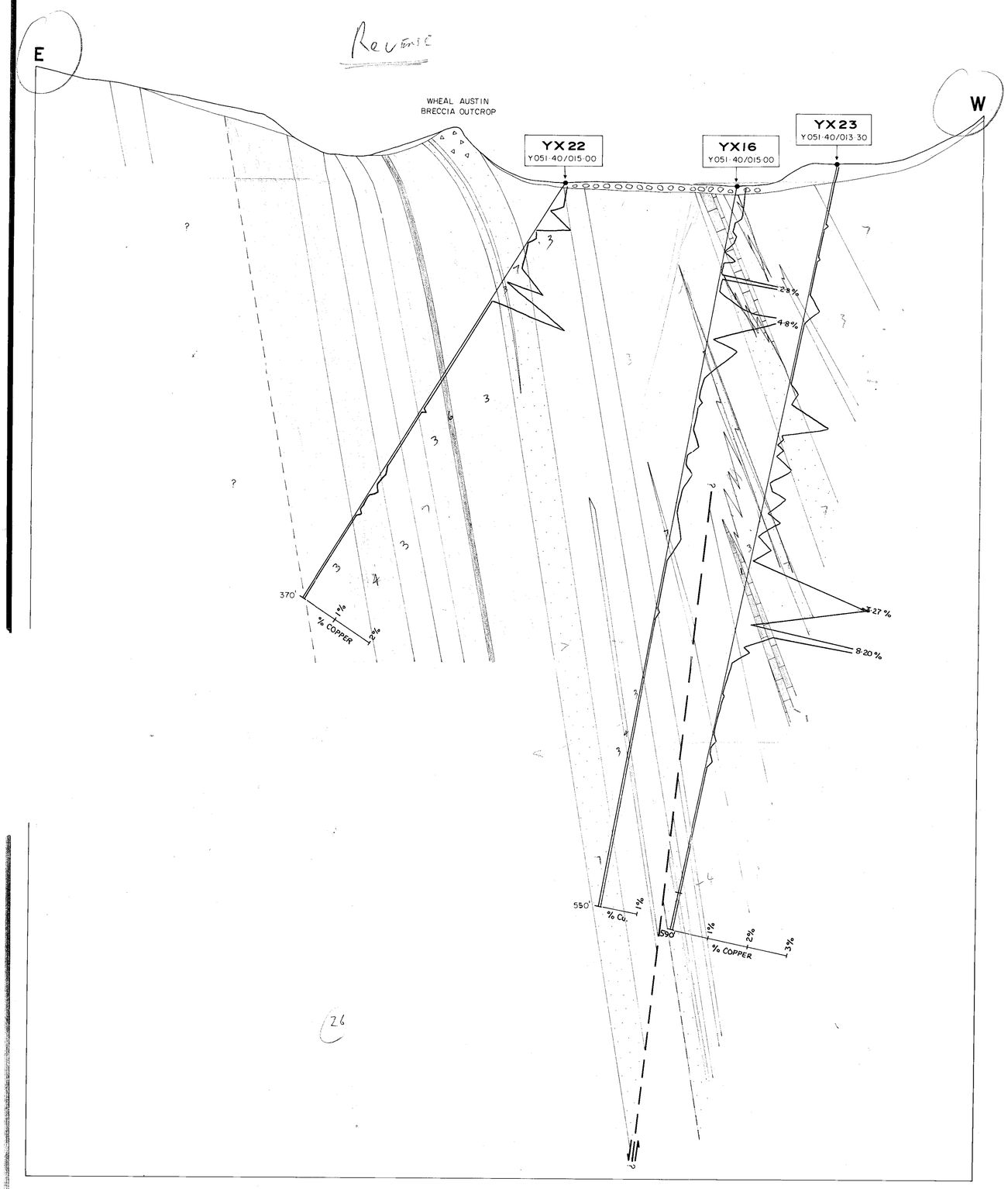
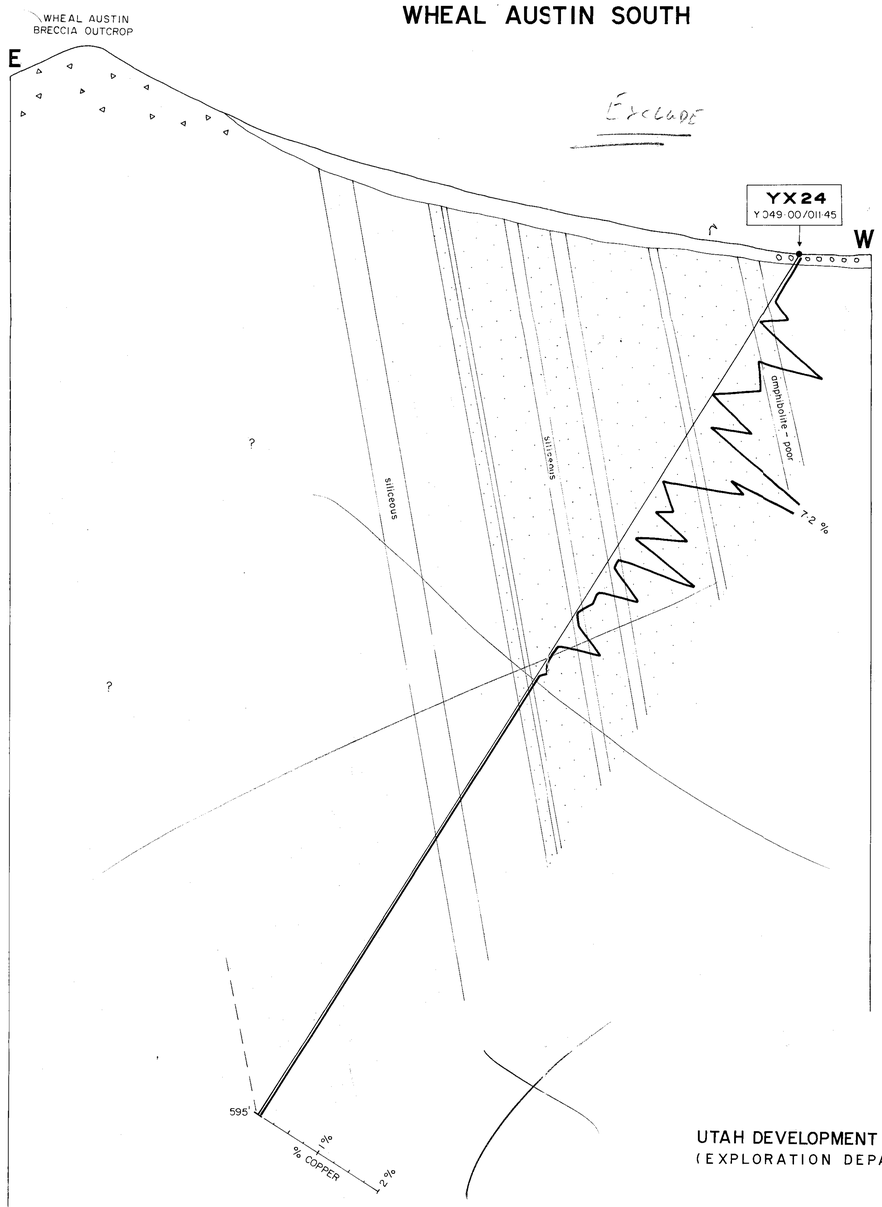
(16)

WHEAL AUSTIN



WHEAL AUSTIN SOUTH



UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

ROTARY PERCUSSION DRILL HOLE CROSS SECTIONS WHEAL AUSTIN AREA

SPECIAL MINING LEASE NO. 717

YUDNAMUTANA - SOUTH AUSTRALIA

PLATE 5

Scale 1:500

METRES 10 0 10 20 30 40 50 METRES

FEET 25 0 25 50 75 100 125 150 FEET

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SECURITY
SAD. E.

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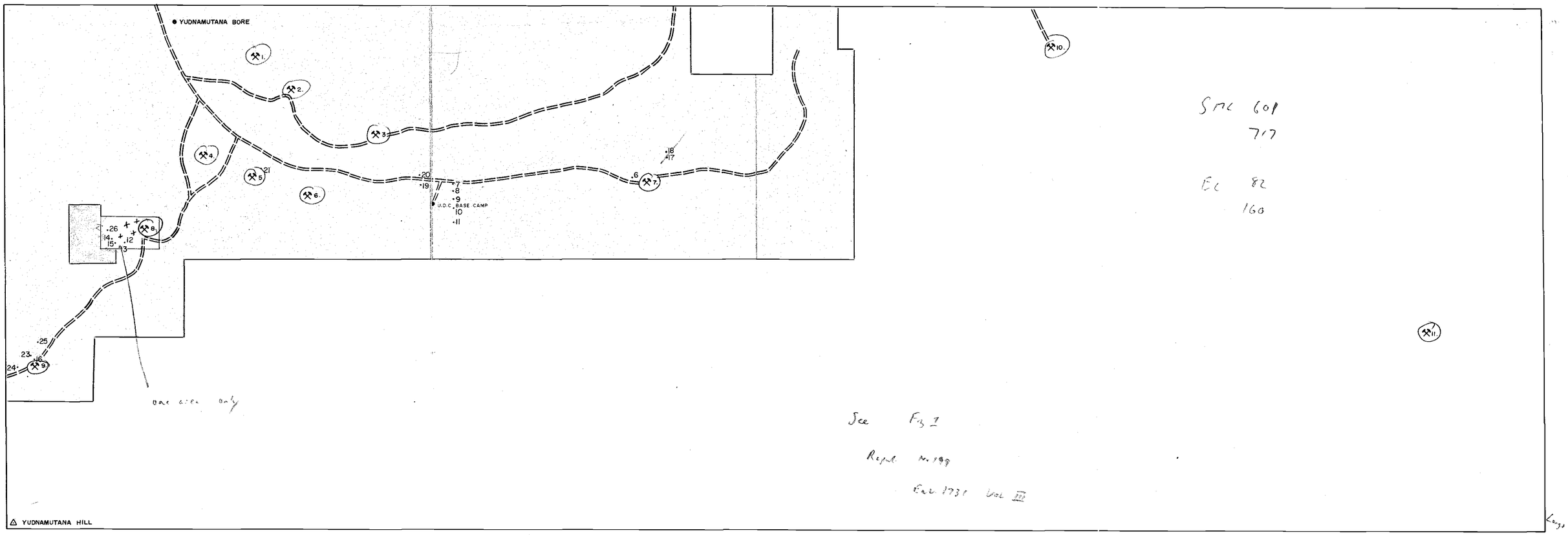

TENANCY S.M.L 601 _ 24/6/71 – 23/6/72.

SAMLING AND FIELD WORK LOGISTICS :-

	TOTAL	
	This quarter	To date
Nº OF SOIL SAMPLES	–	–
Nº OF ROCK CHIP SAMPLES	128	128
Nº OF PETROLOGICAL SPECIMENS	241	241
GRID AREA PEGGED (sq. miles)	0·05	0·05
GRID AREA SOIL SAMPLED (sq. miles)	–	–
AREA MAPPED (sq. miles)	0·05	0·05
ROAD BUILDING (miles)	1·7	1·7
COSTEANING (feet)	275	275
Nº OF CHANNEL CHIP SAMPLES	48	48
Nº OF PERCUSSION DRILL HOLES	22	22
PERCUSSION DRILLING FOOTAGE	10490	10490
Nº OF PERCUSSION DRILL SAMPLES	2098	2098
AREA COVERED BY MAGNETICS (sq. miles)	–	–
No. of sludge samples	13	13
No. of rock chip samples	5	5
No. of costeans	2	2
Total No. of samples assayed	2287	2287

GRID AREAS.

Pinnacles Grid. ✓

Yerelina Grid. ✓

Pinnacles Grid Extension.

·17 YX designated percussion holes. X

KEY TO LOCALITIES.

1. Wheal Gleeson
2. Wheal Gleeson South
3. Wealthy King Mine
4. Yuda Mine
5. Black Queen Mine
6. Black Queen East Mine ✓
7. Cockscomb Mine
8. Pinnacles Mine
9. Wheal Austin
10. Wheal Frost
11. Commonwealth Mine

UTAH DEVELOPMENT COMPANY
(MINERAL DEVELOPMENT & GEOLOGY)

PROGRESS SUMMARY MAP
SPECIAL MINING LEASE NO. 717
YÚDNAMUTANA — SOUTH AUSTRALIA

PLATE I

Scale 1:15,840

FEET 1000 0 1000 2000 3000 4000 5000 6000 FEET

METRES 0 500 1000 1500 METRES

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SECURITY

FIG 8

2160(II)-9

UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

FACTUAL GEOLOGY
PINNACLES GRID
(WESTERN GRID EXTENSION)
SPECIAL MINING LEASE NO. 717
YUDNAMUTANA – SOUTH AUSTRALIA

PLATE 2

SCALE 1:500

FEET 20 0 20 40 60 80 FEET
METRES 5 0 5 10 15 20 METRES

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S. AUST.
366-5

TN
(Magnetic deviation 7°E)

Y071·50 Y071·00 Y070·50 Y070·00 Y069·50 Y069·00 Y068·50 Y068·00 Y067·50 Y067·00 Y066·50 Y066·00 Y065·50

021·00 021·50 022·00 022·50 023·00 023·50 024·00 024·50 025·00

YX26 YX14 YX15 YX13

Pet mc 80 85 88 33 75 70 60 65 55 52 67 74 py ca cp mc

6000 5000 4000 3000 2000 1000 PPM Cu

1500 1000 500 PPM COPPER

3000 2000 1000 PPM COPPER

Soil to 3'

Removed by excavation

slickensides

REFERENCE (no stratigraphic significance)

- Creek gravels.
- Scree, soil and calcretion.
- Jasperoid. Cryptocrystalline silica replacement of marble ?

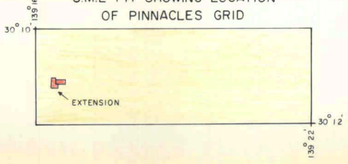
LOWER CALLANA BEDS – WYWYANA FORMATION

- Carbonate – poor amphibolite. Mainly actinolite/tremolite rock with 10–30% free carbonate.
- Carbonate – rich amphibolite. Mainly actinolite/tremolite rock with 30–60% free carbonate.
- Hyrothermally altered carbonate – rich quartz–amphibolite. Banded amphibole-calcite-quartz rock_felspar.
- Actinolite marble. Brown-weathering marble with >60% free carbonate, and varying amounts of actinolite and magnetite. Malachite and chalcopyrite common.
- Hornfels.
- Amphibolitic (?) hornfels. } Facies variations (?).
- Scapolitic hornfels. }
- Quartz, orthoclase (?), amphibolitic rock. Up to 80% quartz/felspar, usually banded. Contains pyrite and chalcopyrite (hydrothermally altered metaquartzite).
- Quartz veins, often with specular hematite.

- Lithological boundary.
- Fault showing displacement direction.
- Overturned anticlinal "cross fold" showing direction and angle of plunge, and direction of major fold axis.
- Strike of bedding.
- Strike of vertical bedding.
- Dip and strike of bedding.
- Dip and strike of joint plane.
- Strike of vertical joint plane.
- Pet Petrological specimen site.
- Rotary percussion drill hole collar showing azimuth.
- Grid baseline steel peg.
- Grid point – wooden peg.
- py Pyrite.
- cp Chalcopyrite.
- ca Calcite.
- ma Malachite.
- Copper profile for costean sampling (scale shown).
- Bulldozed costean (filled in)
- Prospectors excavation.

SOUTH AUSTRALIA SHOWING LOCATION OF S.M.L 717

S.M.L 717 SHOWING LOCATION OF PINNACLES GRID



Project Senior Geologist . . . N.J.Rowlands
Mapped by . . . R.G.Chuck.
Drawn by . . . A.J.Hitchcox.
Date . . . May 1973.
ADELAIDE. S.A.

2160(II)-10

KEY (Geolog mnemonics in brackets)

RECENT — OVERBURDEN [OVBN] Soil, scree etc. Creek gravels etc.

Woultana Volcanics

MARBLE. 60 – 90% calcite, varying amounts of actinolite, biotite and magnetite [MARB].

CARBONATE – RICH AMPHIBOLITE [CBAC]. 30 – 60% calcite, varying amounts of actinolite, other amphibole, biotite and minor magnetite.

CARBONATE – POOR AMPHIBOLITE [ACXX]. 0 – 30% calcite, remainder usually mixtures of actinolite and other amphibole.

AMPHIBOLITE SCHIST [AMSC]. Actinolite/amphibole/mica with slight to marked schistosity. Often grades into hornfels.

LOWER CALANNA BEDS (Paralana Qtz & Wywyana Fm.)

HORNFELS [HORN]. Fine grained, siliceous hornfels, amphibolitic in part. (quartz, amphibole, mica).

SCAPOLITE SCHIST [SCSC]. As for Amphibolite Schist, with up to 30% scapolite.

HEMATITE – SILICA ROCK [HEXX]. Surface expression of probable magnetite-rich marbles and amphibolites. Often contain sulphides and/or malachite. Termed "jasperoid" in Pinnacles mine area.

SILICEOUS AMPHIBOLITES [QZAM] and [CASI]. Amphibolites and/or calcite with varying amounts of quartz.

AMPHIBOLITIC QUARTZITE [AMOQ]. Pink to grey fine grained, re-crystallised quartzite with varying amounts of amphibole.

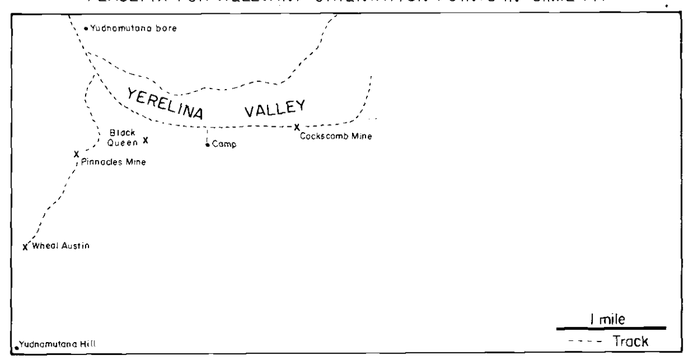
Shanahan Conglomerate. Quartzose conglomerate with ferruginous matrix.

MT. PAINTER COMPLEX — Freeling Heights Quartzite (pre-Adelaidean basement).

Geomorphic surface.
Lithological boundary, – – – Limit of information.
Unconformity.
Rotary percussion drill hole showing hole designation, grid co-ordinates and depth.
Fault.
Shear zone.
Profile of copper assay (scale shown).

Project Senior Geologist. . . N.J. Rowlands.
Drilling by. . . Boring Enterprises. Hahndorf S.A.
Logging and compilation by. . . R.G. Chuck.
Drawn by. . . A.J. Hitchcox.
ADELAIDE. JUNE 1973.

PLACEFIX FOR RELEVANT ORIENTATION POINTS IN S.M.L 717



UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

KEY TO ROTARY PERCUSSION DRILL HOLE CROSS SECTIONS

SPECIAL MINING LEASE NO. 717

YUDNAMUTANA – SOUTH AUSTRALIA

PLATE 3

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UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

CORRELATION DIAGRAM

ROTARY PERCUSSION DRILL ~~HOLES~~ SECTIONS

YX07 – YX11

SPECIAL MINING LEASE NO. 717

YUDNAMUTANA – SOUTH AUSTRALIA

PLATE 4

Scale 1:500

METRES 10 0 10 20 30 40 50 METRES

FEET 25 0 25 50 75 100 125 150 FEET

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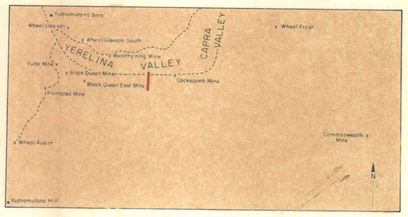
SECURITY

SOUTH AUSTRALIA SHOWING LOCATION OF S.M.L. 601

S.M.L. 601 SHOWING LOCATION OF DRILL TRAVERSE



REFERENCE

- Creek gravels.
- WYWYANA FORMATION.
  - Carbonate – poor amphibolite [ACXX]* Mainly amphibole /actinolite with < 30% calcite. Magnetiferous in places.
  - Carbonate – rich amphibolite [CBAC] Amphibole /actinolite, 30–60% calcite.
  - Marble [MARB] Minor amphibole (other than actinolite) and magnetite. Cupriferous and pyritic in this section.
  - Hornfels [HORN] Amphibolitic slatey hornfels.
  - CALC-SIL ROCK — Calc–Silicate rock [ALXX] Silica (quartz) present.
- LOWER CALLANA BEDS
- PARALANA QUARTZITE (boundary defined as first appearance of quartite below Wywyana Formation).
  - QUARTZITE — Amphibolitic quartzite [QG] Grey, fine-grained orthoquartzite with amphibole (minor actinolite). Rarely pyritic.
  - Hornfels [HORN] Scapolitic and/or siliceous in places. May grade into scapolite amphibolites on the surface. Pyritic in part.
  - Carbonate – poor amphibolite (As for Wywyana Formation above).
  - Carbonate – rich amphibolite (As for Wywyana Formation above)
  - Scapolite Schist. Scapolite hornfels and amphibolites.
  - Shanahan Conglomerate Member.
  - FREELING HEIGHTS QUARTZITE. Pinkish/grey quartzite.
- MOUNT PAINTER COMPLEX

[*] Lithological mnemonics for Geolog.

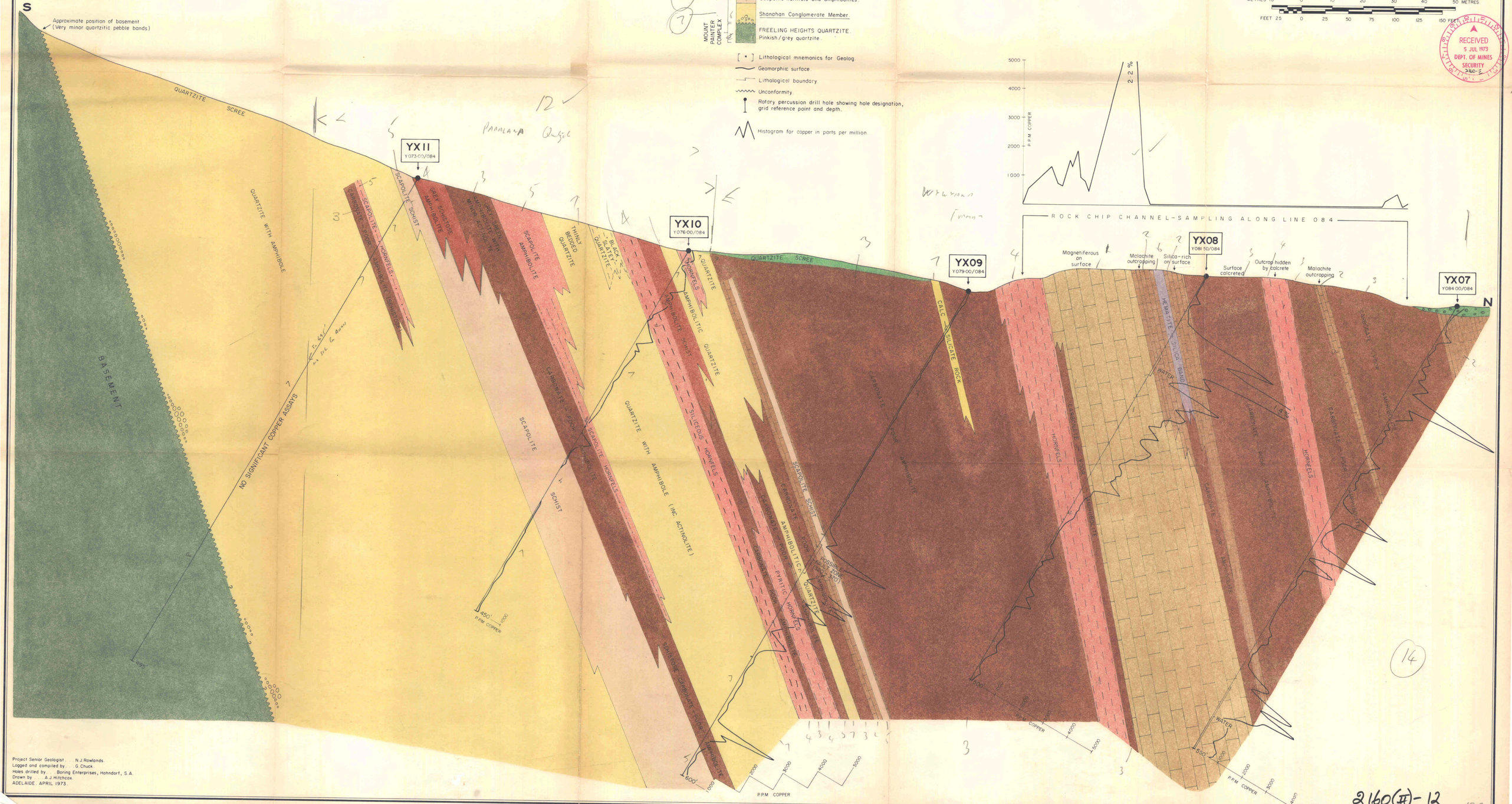
Geomorphic surface.

Lithological boundary.

Unconformity.

Rotary percussion drill hole showing hole designation, grid reference point and depth.

Histogram for copper in parts per million.



Project Senior Geologist . . . N.J Rowlands.
Logged and compiled by . . . G. Chuck.
Holes drilled by . . . Boring Enterprises, Hahndorf, S.A.
Drawn by . . . A.J. Hitchcox.
ADELAIDE. APRIL 1973.

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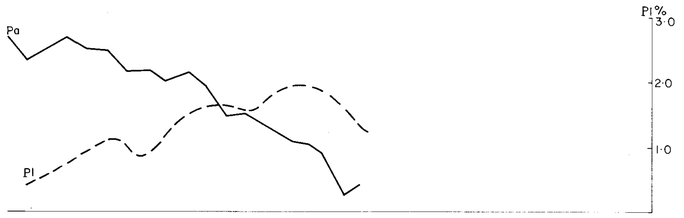
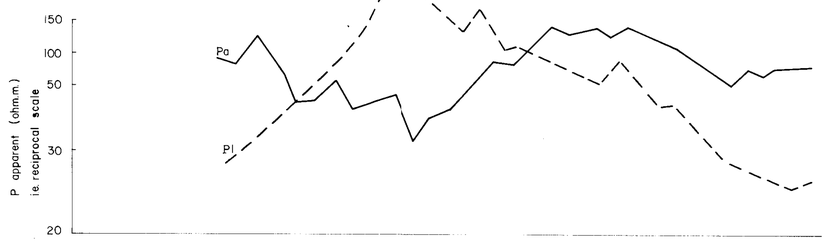
TRAVERSE ALONG E48IN





KEY

M.1,2 & 3 = Intervals with visible pyrite chalcopyrite and sative copper mineralization in varying amounts

C = Conductive zone

R = Resistive zone

ESI = Electrical sounding

Pa = Apparent resistivity profile

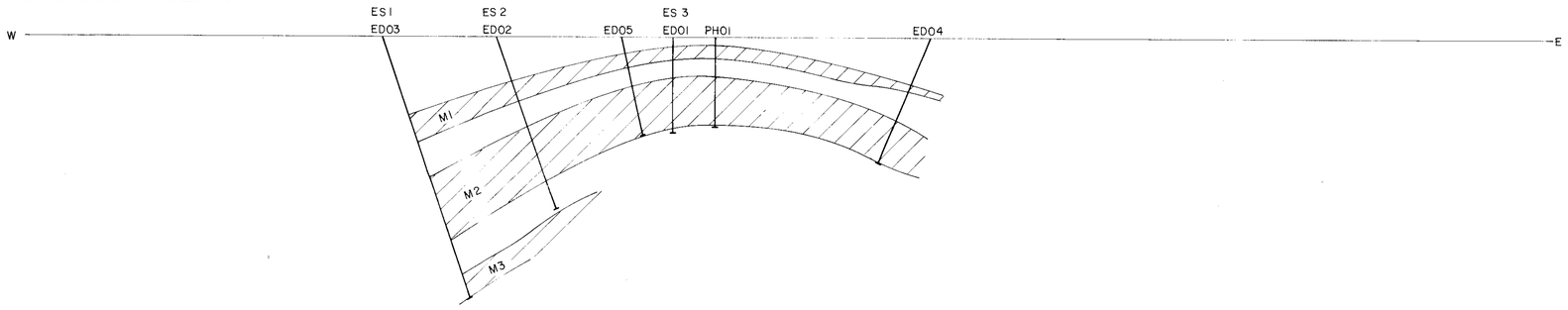
PI = Apparent polarizability profile

P = Resistivity

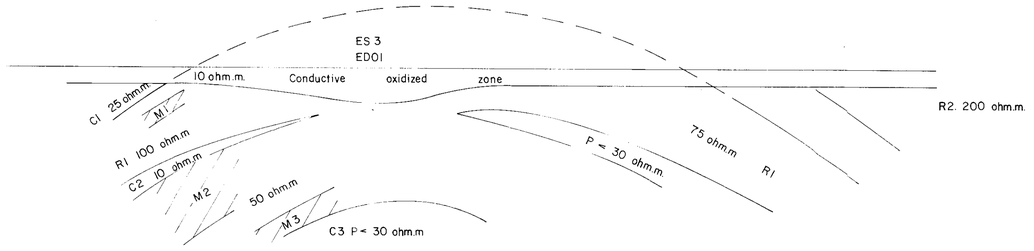
AB = 2000 ft. } GRADIENT ARRAY

MN = 100 ft }

GITOLOGICAL SECTION



ELECTRICAL SECTION



UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

I.P. RESISTIVITY SURVEY
SOUTHERN ELECTRICAL SECTION
REINTERPRETATION
COPPER CLAIM GRID

EXPLORATION LICENCE N°. 57

EURELIA – SOUTH AUSTRALIA

PLATE I

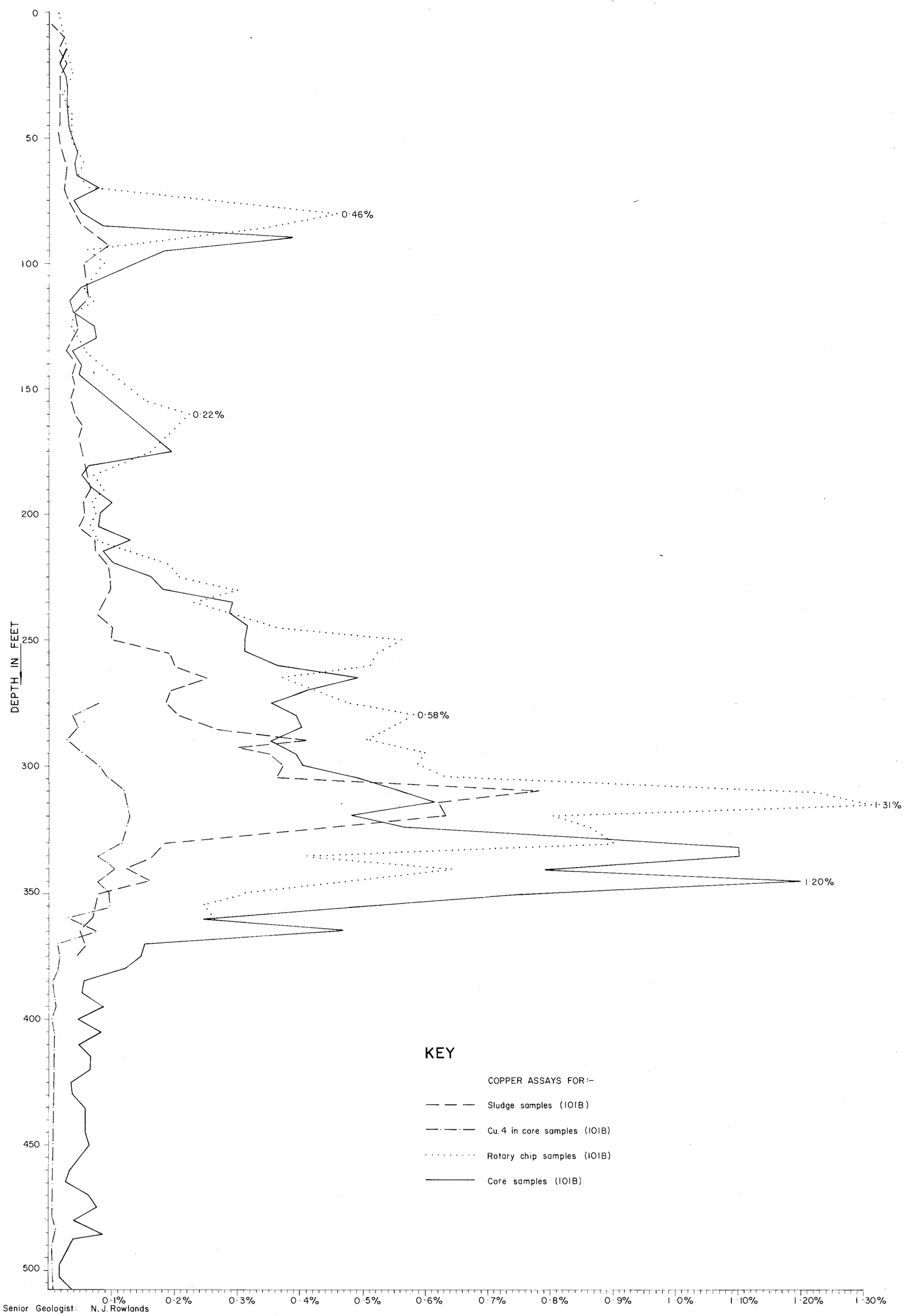
Scale 1:5,000

FEET 500 0 500 1000 1500 FEET

METRES 100 0 100 200 300 400 METRES

Project Senior Geologist : N. J. Rowlands
Compiled by : N. J. Rowlands
Drawn by : J.W. Liddell
ADELAIDE JUNE 1973

2160(11)13



Project Senior Geologist: N. J. Rowlands
Compiled by: N. J. Rowlands
Drawn by: J. W. Liddell
ADELAIDE JUNE 1973

UTAH DEVELOPMENT COMPANY
(EXPLORATION DEPARTMENT)

GEOCHEMICAL REORIENTATION
COMPARATIVE COPPER PROFILES
ED09 AND E459/168·50
COPPER CLAIM GRID

EXPLORATION LICENCE Nº. 57

EURELIA – SOUTH AUSTRALIA

PLATE 2

2160-(II)14