CONTENTS ENVELOPE 2418 E.L. 126

TENEMENT: Exploration Licence 126

TENEMENT HOLDER: Bridge Minerals Pty. Ltd.

REPORT:

REPORT:

PLANS:

CONTENTS ENVELOPE 2418

BRIDGE MINERALS PTY. LIMITED

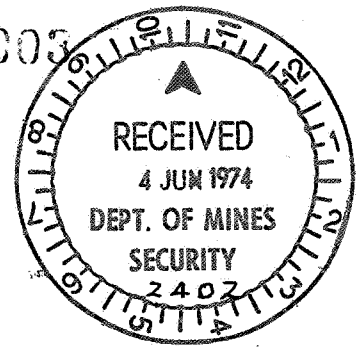
STATUTORY QUARTERLY REPORT

EXPLORATION LICENCE AREA NO. 126

(FORMERLY E.L. 44 AND S.M.L. 712)

PERIOD ENDED 31ST MARCH 1974

0003



1. Introduction

E.L. 126 was granted on 4 March 1974 to Bridge Minerals Pty. Limited. It covers the same area as the former S.M.L. 712 and E.L. 44, which it replaces. This report summarises exploration and expenditure on the relinquished S.M.L. 712 and E.L. 44, and on the new E.L. 126, from 1 January to 31 March 1974.

Exploration activities during the quarter were carried out predominantly on the Mountain of Light area (in the former E.L. 44) and on Coalfields prospect (in the former S.M.L. 712).

2. Coalfields Prospect

The results of investigations carried out at Coalfields Prospect before the period were reviewed in conjunction with a ground appraisal of the geology of the area. The known surface geochemical copper anomaly was found to be open to the west, and investigations were therefore extended west of the original area of interest. Gridding and auger-geochemical sampling have been carried out in the period under review (Appendix I).

3. Mountain of Light

Full results of the program of auger-geochemical drilling carried out at the end of the last quarter are shown in Appendix II.

Much of the Mountain of Light grid has been restored, because it was falling into disrepair.

Selected samples from the 1972 percussion and diamond drilling programs have been assayed for cobalt, vanadium and precious metals (Appendix III). Results have been moderately encouraging and other selected samples will be re-assayed.

4. Summaries of Expenditure

Expenditure in the quarter to 31.3.74 on the present E.L. 126 is shown under the heading "Total". Sub-division is into the former S.M.L. 712 and the former E.L. 44 (within which is the further sub-division "Fox") which are replaced by E.L. 126.

0004

	SML 712	EL 44	Fox	Total
Admin. & Overhead	536.47	552.40	405.34	1,494.21
Geological				
Salaries	1,609.41	1,657.21	1,216.05	4,482.67
Sampling	207.13	184.14	176.13	567.40
Lit Search	18.18	18.18	18.19	54.55
Vehicle Hire		167.25		167.25
Meals & Accommodation			19.70	19.70
General				
Option Payment		7.52		7.52
Entertainment			.88	.88
Drilling				
Equipment			179.77	179.77
Rig Hire			250.00	250.00
	2,371.19	2,586.70	2,266.06	7,223.95

APPENDIX I

BRIDGE MINERALS PTY. LIMITED

AUGER GEOCHEMICAL LOG 0005

State : S.A.
Area : Copley
Prospect : Coalfields
Drilled By : Bridge Minerals
Drillers : J. Shirley, P. Jones
Logged By : J. Shirley

Co-ordinates: As noted
Depth : As noted
Date : February, 1974
Auger Size : 3.5 in.
Machine : Fox' auger
Water Table : -

LINES ARE RECORDED IN PROGRESSIVE ORDER FROM WEST TO EAST

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PP Cu	As	Co
356W-124S	Light and Ferruginous Tapley Hill formation.	None	5'	A5081	20	*	10
356W-125S	Sandstone; medium grained, porous, highly altered, partially leached, sugary texture.	"	5'	A5030	70	*	10
356W-126S	Siltstone; part of tillite, light colour, iron rich bands.	"	5'	A5079	180	*	10
356W-127S	Silty tillite, light coloured, highly altered, partially leached, iron rich bands.	"	5'	A5078	220	10	5
356W-128S	Sandstone, medium grained, highly altered, well leached porous, light coloured.	"	5'	A5072	65	*	5
356W-129S	Siltstone, tillite band, strongly altered partially leached.	"	5'	A5076	150	*	*
356W-130S	Tillite, well altered light coloured, mine erratics.	Malacite	5'	A4929	2200	20	20
356W-131S	Tillite Sandstone, gypsum veins, light colour, brecciated.	None	5'	A4930	45	10	*
356W-132S	Diapir, ferruginous semi-gossanous veins, brecciated and iron rich.	"	5'	A4931	20	*	25
356W-133S	Quartzite sandstone, diapiric, iron rich, fine grained, brown colour, siliceous	"	5'	A4932	30	20	*

* less than 2 ppm

Drillers : Copley Machine : Page 2

Logged By : Coalfields Water Table :

0006

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PP		
					Cu	As	Co
356W-134S	Sandstone, iron rich, partially kaolinised, siliceous, non-porous, fine grained.	None	5'	A4933	90	*	15
356W-135S	S.A.A., tillite fragments, erratics up to ¼" in diameter, highly ferruginous.	"	5'	A4934	25	20	20
356W-136S	Shale, red ferruginous Tapley Hill Shale.	"	5'	A4935	20	*	20
356W-137S	S.A.A.	"	5'	A4936	30	20	20
356W-138S	S.A.A. dark colour, silicified, and kaolinised.	"	5'	A4937	40	20	20
358W-123S	S.A.A. light red, iron rich.	"	5'	A5069	35	*	5
358W-124S	Tillite; silty fine grained, light reddish iron rich, partially chewed up.	"	5'	A5070	30	10	10
358W-125S	Tillite; iron rich, gypsiferous, altered, unleached, iron rich, chewed up.	"	5'	A5071	370	20	20
358W-126S	Silty tillite; cream coloured, partially leached, small erratics.	"	5'	A5072	130	10	15
358W-127S	Sandstone, altered, fine grained, porous, light coloured, moderately leached.	"	5'	A5073	90	*	*
358W-128S	Silty tillite, light coloured, fine grained iron rich bands, highly altered, partially leached.	"	5'	A5074	120	*	10
358W-129S	Sandstone, medium grained, altered, well sorted, slightly ferruginous, possible malacite, porous.	"	5'	A5075	20	*	10
358W-130S	Tillite; 30% pebbles, kaolinised, partially leached.	"	5'	A4945	70	10	*
358W-131S	Tillite, red, highly ferruginous, partially leached, diapirically influenced.	"	5'	A4944	110	10	20
358W-132S	Tillite, ferruginous, sheared up, calcite and gypsum, fine grained, diapirically influenced.	"	5'	A4943	40	*	10

Area : Copley Machine : Page 3

Prospect : Coalfields Water Table :

0007

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PP		
					Cu	As	Co
358W-133S	Tillite, fine grained, matrix, altered, partially leached, light grey colour, qtz. fragments.	None	5'	A4942	20	*	*
358W-134S	Ferruginous sandstone, fine grained, hard iron rich, fractured, part of tillite unit.	"	5'	A4941	30	10	20
358W-135S	Tapley Hill Shale, dark colour, silicified iron veins, hard, highly fractured.	"	5'	A4940	65	10	15
358W-136S	S.A.A. silicified bands, highly kaolinised locally.	"	5'	A4939	20	20	20
358W-137S	S.A.A. dark coloured.	"	5'	A4938	25	10	10
360W-122S	S.A.A. light brown ferruginous, fine grained.	"	5'	A5068	30	*	10
360W-123S	S.A.A.	"	5'	A5067	30	*	5
360W-124S	S.A.A. light brown ferruginous.	"	5'	A5066	80	10	20
360W-125S	Altered, partially leached, light coloured.	"	5'	A5065	100	10	10
360W-126S	Tillite, slightly ferruginous, light red colour, highly altered & undisturbed.	"	5'	A5064	40	*	10
360W-127S	Tillite, silty, highly altered erratics up to 3/8" in diameter, partially leached, undisturbed.	"	5'	A5063	60	*	5
360W-128S	Silty tillite, fine grained, partially leached, undisturbed, small erratics, highly altered.	"	5'	A5062	40	*	10
360W-129S	Siltstone, diapiric black manganesum rich, partially leached, gypsiferous.	"	5'	A5061	70	*	10
360W-130S	Sandstone, part of tillite, siliceous.	"	5'	A5060	120	*	5
360W-131S	Pebbly, fine grained, altered, moderately leached, light brown colour.	"	5'	A4946	55	*	5

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses Cu	As	Pb
360W-132S	Shale (part of tillite?) hard, non fissile, red ferruginous	"	5'	A4947	40	20	2
360W-133S	Sandstone, fine grained, part of tillite unit, brown ferruginous.	"	5'	A4948	80	10	2
360W-134S	Tillite, small erratics light coloured.	"	5'	A4949	20	*	1
360W-135S	Siltstone-sandstone (part of tillite) iron rich, chewed up, diapiric?	"	5'	A4950	45	20	2
360W-136S	Black shale, part of Tapley Hill Shale	"	5'	A4951	35	10	2
362W-122S	Tapley Hill Shale, brown ferruginous siltstone.	"	5'	A5051	40	*	2
362W-123S	Light siltstone, part of T.H.S.	"	5'	A5052	60	10	1
362W-124S	Pebbly siltstone, fine grained, altered, moderately leached, gypsum rich.	"	5'	A5059	10	*	5
362W-125S	Pebbly tillitic sandstone, kaolinised, poorly leached erratics up to ¼" in diameter.	"	5'	A5058	70	10	1
362W-126S	Tillitic sandstone, coarse grained, quartzose, kaolinised, partially leached, locally iron rich.	"	5'	A5057	25	10	1
362W-127S	Siltstone, strongly kaolinised, light grey bands of quartz and gypsum, partially leached.	"	5'	A5056	20	*	5
362W-128S	Sandstone-siltstone, diapiric, chewed up, red ferruginous.	"	5'	A5055	10	*	7
362W-129S	Siltstone, Ferruginous, altered partially leached, gypsiferous.	"	5'	A5054	150	10	2
362W-130S	Sandstone, fine grained ferruginous, chewed up, possibly diapiric.	"	5'	A5053	160	*	2
362W-131S	Tillite, fine grained red ferruginous, altered, partially leached, small erratics.	"	5'	A4956	60	10	1

Prospect : Coalfields Water Table :

0009

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses Cu	As	Pb
362W-132S	Sandstone & tillite, very hard & silicified.	"	5'	A4955	20	20	
362W-133S	Tillite sandstone, light brown.	"	5'	A4954	40	*	10
362W-134S	Pebbly sandstone, altered, partially leached, white coloured, quartzose.	"	5'	A4953	10	*	10
362W-135S	Siltstone, dark colour, very hard, massive.	"	5'	A4952	55	20	20
364W-121S	Tapley Hill Shale, brown siltstone	"	5'	A5000	30	10	20
364W-122S	S.A.A., highly altered & moderately leached.	"	5'	A4999	45	*	
364W-123S	Siltstone (tillite) light grey, highly altered, pebbly bands, brecciated & gypsum veins.	"	5'	A4998	40	*	1
364W-124S	Sandstone, fine to medium grained, kaolinised, brecciated, gypsum veins.	"	5'	A4997	40	10	5
364W-125S	Sandstone (possibly scree) silicified & brecciated.	"	5'	A4996	110	*	10
364W-126S	Siltstone, highly altered, moderately leached, gypsiferous.	"	5'	A4995	550	80	50
364W-127S	Pebbly sandstone, light brown, fine grained, highly altered, poorly leached, chewed up.	"	5'	A4994	100	*	10
364W-128S	Siltstone, ferruginous, diapiric, part of tillite unit, highly altered, moderately leached.	"	5'	A4993	40	*	10
364W-129S	Tillite, diapiric, ferruginous, chewed up; gypsiferous, quartz veins.	"	5'	A4992	40	10	10
364W-130S	Tillitic siltstone, moderately leached, kaolinised, partially chewed up.	"	5'	A4991	30	*	10
364W-131S	Sandstone, red ferruginous, chewed up, diapiric, part of tillite unit.	"	5'	A4957	95	30	20

0010

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM Cu	As	Co
364W-132S	Siltstone, silicified, red ferruginous, part of tillite unit, poorly altered, unleached.	"	5'	A4958	15	40	25
364W-133S	Tillitic sandstone.	"	5'	A4959	30	20	25
364W-134S	Siltstone, top of tillite, red ferruginous coarse grained, altered poorly leached.	"	5'	A4960	30	*	20
366W-120S	Tapley Hill Shale, red ferruginous silt-stone.	"	5'	A4980	10	*	10
366W-121S	Tillitic siltstone, chewed up, moderately leached, altered.	"	5'	A4981	100	*	10
366W-122S	Tillite, fine grained, small erratics, highly altered, partially leached, iron locally.	"	5'	A4982	50	*	15
366W-123S	Fine grained kaolinised tillite, highly altered not leached, small erratics.	"	5'	A4983	80	*	10
366W-124S	Tillitic siltstone, fine grained, highly altered, partially leached, quartzose, small erratics.	"	5'	A4984	40	10	10
366W-125S	Tillite, chewed up, quartz veins & brecciated local iron enrichment.	"	5'	A4985	40	*	10
366W-126S	Tillite, chewed up, highly altered, poorly leached, minor gossanous material.	"	5'	A4986	95	*	10
366W-127S	Sandstone, pebbly brown medium grained, altered, poorly leached, chewed up.	"	5'	A4987	90	10	15
366W-128S	Diapir, dark to purple colour, chewed up, siliceous, gypsiferous.	"	5'	A4988	5	*	20
366W-129S	Diapir, purple coloured, S.A.A.	"	5'	A4989	25	*	15
366W-130S	Tillite, brown ferruginous, chewed up gypsiferous, diapiric.	"	5'	A4990	90	10	20

Area : Copley
Prospect : Coalfields
Machine :
Water Table :

0011

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PP Cu	As	Co
366W-131S	Ferruginous, chewed up siliceous breccia zone in tillite & S.S., high in iron and manganese.	None	5'	A4963	80	10	15
366W-132S	Tillitic sandstone, brown ferruginous bands, medium grained.	"	5'	A4962	20	20	10
366W-133S	Sandstone, coarse grained, kaolinised, light coloured.	"	5'	A4961	10	*	*
366W-134S	Siltstone, top of tillite, ferruginous, hard, dolomitic bands.	"	5'	A4967	Not received At Laboratory		
368W-119S	Tapley Hill Shale, red ferruginous siltstone, altered, poorly leached.	"	5'	A4979	20	10	20
368W-120S	S.A.A.	"	5'	A4978	20	10	30
368W-121S	Tillite, fine grained, light brown, altered, poorly leached, gypsiferous.	"	5'	A4977	60	10	*
368W-122S	Silty tillite, strongly kaolinised, quartzose moderately leached.	"	5'	A4976	40	*	*
368W-123S	Silty tillite, kaolinised, moderately leached, few erratics.	"	5'	A4975	10	*	10
368W-124S	Pebbly tillite, chewed up, partially leached, locally iron rich, gypsiferous.	"	5'	A4974	110	20	10
368W-125S	Siltstone-sandstone, part of tillite, light coloured, chewed up, altered, partially leached, gypsiferous.	"	5'	A4973	130	10	15
368W-126S	Siltstone, dark purplish banded, altered, partially leached, good diapir.		5'	A4972	10	20	40
368W-127S	Diapir, silicified, chewed up sandstone.	"	5'	A4971	10	*	10
368W-128S	Tillitic sandstone, red ferruginous, chewed up, diapiric, gypsiferous, altered.	"	5'	A4970	10	10	15

Prospect : Coalfields Water Table :

0012

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PP		
					Cu	As	Co
368W-129S	Diapiric sandstone, red ferruginous, fine grained, chewed up, iron rich, brecciated.	"	5'	A4969	35	10	30
368W-130S	Tillitic sandstone, brown ferruginous, medium to coarse grained, quartzose, silicified.	"	5'	A4968	70	10	10
368W-131S	Tillitic sandstone, brown ferruginous.	"	5'	A4964	65	*	10
368W-132S	Brown ferruginous tillite, medium grained.	"	5'	A4965	35	20	10
368W-133S	Black to dark purple ferruginous siltstone (part of tillite unit?)	"	5'	A4966	40	*	20

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BRIDGE MINERALS PTY. LIMITED

AUGER GEOCHEMICAL LOG

0013

State : South Australia
Area : Copley
Prospect : Mountain of Light (Fox Areas)
Drilled By : Bridge Minerals
Drillers : J. Shirley, P. Jones
Logged By : J. Shirley

Co-ordinates: As Noted
Depth : As Noted
Date : November 1973
Auger Size : 3.5 in.
Machine : Fox' Auger
Water Table : -

Lines are Recorded in Progressive Order from South to North

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM		
					Cu	Co	As
72N - 205E	Light brown ferruginous siltstone altered, partially leached.	None Visible	10'	A4828	50	*	*
72N - 204E	White to light brown siltstone altered, partially leached.	" "	10'	A4829	60	*	10
72N - 203E	Red Ferruginous gritty siltstone, coarse grained, greyer coloured with depth.	" "	7'	A4830	75	*	*
72N - 202E	Grey to light coloured siltstone, gritty, leached & altered.	" "	7'	A4831	25	*	40
72N - 201E	Light grey siltstone brownish tinge S.A.A.	" "	8'	A4832	55	35	*
72N - 200E	Light brown siltstone S.A.A.	" "	9'	A4833	45	20	*
72N - 199E	Grey siltstone, gritty, altered, moderately leached.	" "	9'	A4834	390	30	10
72N - 198E	S.A.A.	" "	7'	A4835	150	25	*
72N - 192E	S.A.A.	" "	7'	A4836	180	20	10
74N - 208E	Grey to brown siltstone, fe rich bands, fissile, altered partially leached.	" "	15'	A4801	50	5	*
74N - 207E	Brown to red ferruginous siltstone, altered, partially leached.	" "	15'	A4802	10	15	*
74N - 206E	Brown Fe siltstone, S.A.A.	" "	10'	A4803	55	25	*

* Less than 5 ppm

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Area : Copley

Prospect: Mountain of Light (Fox' Area)

0014

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM		
					Cu	Co	As
74N - 205E	Light greenish brown siltstone, altered, partially leached & at bottom of hole.	None Visible	20'	A4804	50	20	*
74N - 204E	Light brown siltstone altered partially leached.	" "	15'	A4805	160	*	10
74N - 203E	Red & grey banded siltstone, altered, leached, highly gypsiferous.	" "	15'	A4806	60	20	10
74N - 202E	Grey to light brown siltstone, altered, moderately leached.	" "	22'	A4807	20	*	*
74N - 201E	Light grey siltstone, S.A.A.	" "	8'	A4808	100	10	20
74N - 200E	Grey siltstone, ferruginous for first 15', altered, moderately leached.	" "	25'	A4809	240	20	30
74N - 199E	Siltstone grey to light brown, red coloured altered, moderately leached.	" "	20'	A4810	150	40	10
74N - 198E	Grey gritty quartzose siltstone, altered, partially leached.	" "	12'	A4811	100	30	20
74N - 197E	Greenish-grey gritty siltstone, coarse grained, altered, partially leached.	" "	15'	A4812	5	80	10
76N - 19720E	Light grey to white leached gritty siltstone, altered.	" "	12'	A4813	50	10	*
76N - 198E	S.A.A.	" "	10'	A4814	170	60	*
76N - 199E	Light brown siltstone to grey, gritty, altered.	" "	11'	A4815	550	45	40
76N - 200E	S.A.A.	" "	10'	A4816	180	*	30
76N - 210E	S.A.A. highly altered and leached.	" "	8'	A4817	55	*	*
76N - 202E	S.A.A. light grey (greenish) fine grained, not gritty.	" "	9'	A4818	55	*	*
76N - 203E	White to light green S.A.A.	" "	10'	A4819	75	*	*

Area : Copley
Prospect: Mountain of Light (Fox' Area) 0015

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM		
					Cu	Co	As
76N - 204E	S.A.A.	None Visible	10'	A4820	45	*	*
76N - 205E	S.A.A. has a darker coloured, altered, well leached.	" "	7'	A4821	45	*	*
76N - 206E	Brown ferruginous siltstone, altered, partially leached.	" "	7'	A4822	40	5	10
76N - 207E	Brown ferruginous siltstone.	" "	10'	A4823	20	10	10
76N - 210E	Purple to reddish brown siltstone, highly altered, moderately leached, micaceous.	" "	0-14.5	A4709	80	45	20
76N - 209E	Brown ferruginous siltstone, altered, partially leached.	" "	0-13'	A4710	25	15	*
76N - 208E	Purplish grey to reddish siltstone, highly altered, moderately leached.	" "	0-10'	A4711	45	25	5
78N - 207E	Brown ferruginous siltstone, altered poorly leached, grit hard.	" "	0-10'	A4705	65	*	10
78N - 208E	Typical brown ferruginous siltstone.	" "	0-12'	A4706	30	10	*
78N - 209E	Typical brown ferruginous siltstone.	" "	0-11'	A4707	20	20	*
78N - 210E	Purplish brown siltstone, well altered, partially leached.	" "	0-13'	A4708	35	90	20
79N - 203E	Grey to greenish siltstone, strongly kaolinized and leached.	" "	10'				
79N - 202E	" " " "	" "	8'	A2901	100	*	*
79N - 201E	Grey-greenish siltstone, kaolinized and leached ferruginous bands, minor silicification.	" "	10'	A2902	70	*	*
79N - 200E	Intensive silicification and leaching, quartzose, grey-greenish siltstone.	" "	7'	A2903	70	*	10

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0016

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM		
					Cu	Co	As
79N - 199E	Quartzose grey-greenish siltstone, well leached and altered, silicified bands.	None Visible	10'	A2904	35	*	10
79N - 198E	S.A.A.	" "	7'	A2905	65	*	20
80N - 213E	Brown ferruginous siltstone, poorly altered unleached.	" "	0-10'	A4697	20	20	*
80N - 212E	Brown to tan ferruginous siltstone, altered, poorly leached.	" "	0-11'	A4698	30	*	10
80N - 211E	Brown to red siltstone, highly altered & well leached, some lesser leached bands.	" "	0-12'	A4699	20	*	*
80N - 210E	Grey brown to light red siltstone, gritty altered, well leached bands.	" "	0-12'	A4700	30	*	10
80N - 209E	Brown siltstone, altered, poorly leached gritty iron veins.	" "	0-11'	A4701	30	15	*
80N - 208E	Brown to red ferruginous gritty siltstone altered poorly leached.	" "	0-11'	A4702	25	20	*
80N - 207E	Grey siltstone, red iron rich bands highly altered moderate to well leached.	" "	0-15'	A4703	90	10	10
80N - 20625E	Grey siltstone, highly altered, well leached iron veins.	" "	0-13'	A4704	110	*	*
82N - 206E	Greenish-grey siltstone, highly altered partially leached.	" "	0-14.5'	A4689	55	*	20
82N - 207E	Brown ferruginous siltstone altered poorly leached, gritty.	" "	0-12'	A4690	50	40	7[illegible]
82N - 208E	Brown siltstone, gritty & quartzose strongly iron veined altered, poorly leached.	" "	0-13'	A4691	90	60	[illegible]

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0017

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM		
					Cu	Co	As
82N - 209E	Brown ferruginous, coarse gritty siltstone, altered poorly leached.	None Visible	0-12'	A4692	30	25	10
82N - 210E	Brown ferruginous siltstone, iron veins	" "	0-11'	A4693	25	15	*
82N - 211E	Brown ferruginous siltstone, altered partially leached.	" "	0-13'	A4694	30	10	10
82N - 212E	Brown siltstone, altered poorly leached.	" "	0-10'	A4695	35	15	10
82N - 213E	Brown siltstone, dark colour, poorly altered unleached.	" "	0-9'	A4696	35	20	*
83N - 198E	Light brown ferruginous siltstone, quartzose leached, altered, close to diapir?	" "	10'	A2906	710	500	Over 10
83N - 199E	Light brown ferruginous siltstone, quartzose leached, altered, close to diapir?	" "	10'	A2907	170	25	Over 100
83N - 200E	Greenish-grey siltstone, well leached and altered.	" "	10'	A2908	45	10	20
83N - 201E	Greenish-grey siltstone, well leached, altered quartzose.	" "	10'	A2909	660	25	Over 100
83N - 202E	Grey-greenish siltstone, light brown Fe-rich bands, well leached & altered.	" "	10'	A2910	600	10	20
83N - 20230E	Grey to slightly ferruginous banded siltstone well leached & altered.	.8 to 1% Cu	10'	A2911	7800	*	70
83N - 203E	Grey to slightly ferruginous banded siltstone well altered and leached.	.3 - .4% Cu	10'	A2912	640	*	*
83N - 20350E	S.A.A.	None Visible	10'	A2913	65	*	*
84N - 204S0E	Grey siltstone, highly altered, partially leached.	" "	0-10'	A4712	110	10	30

Area : Copley
Prospect: Mountain of Light (Fox' Area)

0018

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM		
					Cu	Co	As
84N - 206E	Greenish-grey siltstone highly altered, partially leached.	None Visible	0-13'	A4713	40	*	*
84N - 207E	Grey to light siltstone, highly altered, moderately leached.	" "	0-23'	A4714	170	20	20
84N - 208E	Grey to light brown siltstone, altered poorly leached, gritty.	" "	0-14'	A4715	430	10	10
84N - 209E	Brown ferruginous gritty siltstone, typical.	" "	0-12.5'	A4716	20	10	10
84N - 210E	Brown ferruginous siltstone typical.	" "	0-20'	A4717	25	10	20
85N - 204E	7' of Scree.	" "	7'	No Sample			
85N - 203E	Brown Scree Material	" "	10'	A2914	90	*	20
85N - 202E	Grey siltstone, highly altered & leached.	" "	10'	A2915	140	*	20
85N - 201E	Light greenish-grey siltstone, highly altered & leached.	" "	10'	A2916	440	5	60
85N - 200E	Light greenish-grey siltstone, highly altered & leached.	" "	10'	A2917	220	55	20
85N - 199E	Light greenish-grey siltstone, highly altered & leached.	" "	10'	A2918	1200	40	50
85N - 198E	Light brown to grey siltstone, quartzose and highly leached & altered.	" "	9'	A2919	660	240	80
85N - 197E	Dark grey siltstone, well leached, iron banding, well altered.	" "	9'	A2920	65	290	20
86N - 213E	Brown ferruginous siltstone, typical.	" "	0-12'	A4720	30	15	10
86N - 213E	Purplish-brown siltstone, altered, poorly leached, hard.	" "	0-10'	A4721	25	20	20
86N - 212E	Brown ferruginous siltstone, altered, poorly leached, lighter grey bands.	" "	0-20'	A4719	20	10	*
86N - 212E	Reddish-brown siltstone, typical.	" "	0-19'	A4722	25	10	*

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0019

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM		
					Cu	Co	As
86N - 211E	Ferruginous silt-stone, typical.	None Visible	0-6'	A4718	25	10	10
86N - 211E	Reddish-brown siltstone, typical.	" "	0-7'	A4723	20	10	10
86N - 210E	Brown siltstone, slightly colour banding, altered, partially leached.	" "	0-20'	A4724	80	30	20
86N - 209E	Purple to grey silt-stone, altered, poorly leached, iron veins, hard.	" "	0-5'	A4725	150	15	50
86N - 208E	Brown to red ferrug-inous siltstone, altered, poorly leached, gritty typical.	" "	0-14.5'	A4726	40	30	20
86N - 207E	0-10 Scree, 10-32 grey siltstone, altered, partially leached, has good malachite around 20'-25' mark, brown bands at bottom, gritty.	" "	0-32'	A4727	2900	25	*
86N - 206E	0-10' Scree, 10-15' grey siltstone, altered, poorly leached, hard.	" "	0-15'	A4728	50	*	10
86N - 205E	0-13' Scree, 13-20' grey siltstone, gritty, altered, partially leached.	" "	0-20'	A4729	130	*	10
86N - 204E	Scree	" "	0-8'	A4730	20	*	20
96N - 200E	0-8' Scree, 8-15' brown ferruginous fine grained S.S., and grey siltstone, chewed up, iron veins altered, poorly leached.	" "	0-15'	A4688	20	20	*
97N - 200E	0-5' Scree, 5-11' brown ferruginous siltstone, diapiric looking, gritty chewed up, altered, partially leached.	" "	0-11'	A4687	480	110	10
98N - 200E	0-12' Scree, 12-24' fine grained red S.S., grey siltstone bands, light, altered, partially leached.	" "	0-24'	A4686	50	*	*

Area : Copley

Prospect: Mountain of Light (Fox' Area) 0020

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM		
					Cu	Co	As
99N - 200E	0-12' Scree, 12-25' grey gritty quartzose siltstone, highly altered, moderately leached.	None Visible	0-25'	A4684	35	*	*
	Grey siltstone, quartzose & micaceous highly altered moderately leached.	" "	25-40'	A4685	30	*	*
99N - 202E	0-8' Scree, 8'-15' brown to white fine grained S.S., even-grained, highly altered.	" "	0-15'	A4675	20	15	10
	Brown to purplish fine grained S.S. chewed up.	" "	15-30'	A4676	15	30	20
	Red to brown S.S., sugary texture, chewed up, purple bands.	" "	30-45'	A4677	55	10	10
100N - 202E	0-8' Scree, 8-15' fine to medium grained S.S., light colour, non-rich diapiric bands.	" "	0-15'	A4673	110	15	*
	Fine grained S.S., reddish to purple siltstone bands, 20-25', chewed up, grey siltstone bands.	" "	15-35'	A4674	65	40	10
100N - 200E	0-10' Scree, 10-20' light brown micaceous quartzose, fine grained S.S. altered, leached (gritty siltstone).	" "	0-20'	A4678	35	*	*
	Gritty siltstone, light brown, micaceous highly leached & altered.	Minor Cu	20-40'	A4679	60	*	*
	Micaceous siltstone, altered, highly leached, light brown.	None Visible	40-55'	A4680	390	*	*
101N - 200E	0-10' Scree, 10-20' brown to grey siltstone, altered, well leached, gritty bands chewed up, iron rich at bottom of hole.	" "	0-20'	A4681	25	*	*
	S.A.A.	" "	20-23'	A4682	25	*	*

Area : Copley

Prospect: Mountain of Light (Fox' Area) 0021

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PP Cu	Co	A
101N - 202E	0-2' Scree, purple siltstone, gypsum, chewed up, minor S.S. diapiric looking, altered well leached, medium grained purple to red S.S. quartzose sugary texture, well undurated.	None Visible	2-15'	A4670	45	*	*
			15-30'	A4671	55	15	*
	Fine grained brown to purple S.S. sugary texture, hard.		30-40'	A4672	120	10	*
102N - 200E	0-8' Scree, 8-22' brown to tan siltstone, quartzose, coarse grained, micaceous, chewed up altered, partially leached.	" "	0-22'	A4683	45	*	*
103N - 202E	0-10' Scree, 10-15' S.S. & siltstone 15-25' good siltstone, brown to white, highly altered & leached, bands of greenish siltstone altered & leached, quartzose & micaceous highly altered, moderately leached red sugary S.S., medium grained well silicified bottomed in black & red diapiric siltstone altered and leached.	" "	0-25'	A4667	70	30	*
			25-40'	A4668	70	50	1
			40-50'	A4669	1200	210	*
10370N - 202E	10' of Scree, red fine grained S.S. & bands of brown siltstone, highly leached & altered, chewed up.	" "	0-33'	A4666	25	20	*
104N - 204E	Scree, hig hard bottom.	" "	10'	A4665	30	.15	1
104N - 202E	Light green pebble sandstone.	" "	5.5'	A4655	25	*	*
105N - 202E	" " "	" "	8'	A4656	60	*	1
105N - 204E	0-15' Scree, 15-28' dolomite, purple S.S. (fine grained) well chewed up, dolomite in bands.	" "	0-28'	A4664	30	20	*

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0022

Co-Ords	Description	Mineralisation	Depth	Sample No.	Analyses PPM		
					Cu	Co	As
106N - 202E	Brown diapiric silt-stone grey to brown ferruginous silt-stone bands quartzose and chewed up.	None Visible	0-35'	A4657	800	15	*
106N - 204E	Brown dolomite & grey siltstone, altered partially leached.	" "	15-40'	A4663	80	15	*
107N - 202E	Brown fine to medium grained S.S. altered, unleached.	" "	0-40'	A4658	40	20	*
107N - 204E	Brown siltstone & dolomite, minor S.S. altered partially leached.	" "	0-15'	A4660	20	20	10
107N - 204E	S.A.A., with red sugary dolomite.	" "	15-40'	A4661	55	15	10
107N - 204E	Grey siltstone, altered, partially leached, dolomite bands.	" "	0-15'	A4662	30	20	*
108N - 202E	Scree, unable to penetrate rock.	" "	0-4'	A4659	120	*	30

APPENDIX III

MOUNTAIN OF LIGHT ORE BODY

GEOCHEMICAL ASSAYS OF SELECTED SAMPLES

FOR COBALT, VANADIUM AND PRECIOUS METALS

Drill Hole	Footage From	Footage To	Length Ft.	Sample Number	Assays PPM Co	Assays PPM V
DH-8	100	105	5	8-1	430	200
	105	110	5	8-2	2500	300
	110	115	5	8-3	Not received	
	115	120	5	8-4	3100	50
	120	125	5	8-5	2600	50
	125	130	5	8-6	2400	50
DH-10	70	75	5	10-1	20	100
	75	80	5	10-2	15	300
	80	85	5	10-3	15	100
	85	90	5	10-4	170	300
	90	95	5	10-5	170	100
DH-19	140	145	5	19-1	5	20
	145	150	5	19-2	15	100
	150	155	5	19-3	10	100
	155	160	5	19-4	10	50
	160	165	5	19-5	10	100
	165	170	5	19-6	20	100
DH-23	65	70	5	23-1	35	200
	70	75	5	23-2	20	100
	75	80	5	23-3	25	100
	80	85	5	23-4	10	100
RE-3	160	165	5	B0-100	45	50
	165	170	5	B0-101	50	100
	170	175	5	B0-102	60	50
RE-4	100	105	5	B0-128	50	50
	105	110	5	B0-129	25	100
	110	115	5	B0-130	30	50
	115	120	5	B0-131	30	50
	120	125	5	B0-132	65	100

The above samples were composited into Sample C-1 which on fire assay was found to contain less than 01. ppm Au and less than 0.1 ppm Ag.

S.A. E.L. AREAS

0024

NOS. 116 ("MOUNT OGILVIE"), 117 ("ANCEPENA HILL"), 118 ("BELTANA") AND 126 ("LEIGH CREEK")

(BRIDGE MINERALS PTY. LIMITED)

AND ON SIX MINERAL CLAIMS HELD BY THE COMPANY WITHIN THE FORMER E.L. AREA NO. 52 ("TARLTON KNOB")

(H. R. GILLESPIE)

STATEMENTS OF EXPENDITURE FOR QUARTER ENDED 30th JUNE, 1974

(Additional to Quarterly Reports Submitted mid-July, 1974)

	E.L. 126	E.L. 126 ("Fox' Leases")	"Flinders ELs" (Nos. 116, 117, 118)	Tarlton
Administration Overhead	1,403.74	815.51	2,145.83	83.16
Geological				
Salaries	4,211.25	2,446.49	6,437.51	249.47
Sampling			126.45	
Travel		.32	182.14	
Maps and publications	151.06	161.79	43.02	
Vehicle expenses			587.73	285.75
Meals and accommodation		45.88	771.03	
Equipment		40.90	467.95	
Field Wages			80.00	
Vehicle hire	381.00	190.50	1,047.75	
Drafting	30.26	12.62	62.64	
Costeaning	481.60		949.65	
General				
Entertainment		11.85	51.75	
Communications			30.49	
Freight			118.35	
Legal expenses			80.00	
Stamp duty			34.42	
Registration fee	4.00			
Advertising - staff		21.14		
	6,662.91	3,747.00	13,216.71	618.38
TOTAL E.L. 126	$10,409.91			

BRIDGE MINERALS PTY. LIMITED

STATUTORY QUARTERLY REPORT

EXPLORATION - LICENCE AREA NO. 126

PERIOD ENDING 30TH JUNE, 1974

0025

1. Mountain of Light Prospect

The restoration of the pegged grid over Mountain of Light prospect has been completed. A considerable proportion of the pegs required replacement (if missing) or re-establishment (if fallen). All pegs were re-numbered and flagged.

It was noted that percussion-drilling samples obtained in earlier programmes at Mountain of Light, and stored on the site, were deteriorating. These samples were repacked and moved to more secure and accessible storage. A number of samples which had become contaminated beyond reclamation had to be discarded.

Two further batches were selected from these percussion-drilling samples for assay for cobalt, following the encouraging results noted from the first such batch to be so tested (reported in the Quarterly Report for the period ended 31st March 1974). The assay results from one of the two batches are reported in Appendix I.

The Company's geologists have completed a detailed appraisal of the potential of the Mountain of Light prospect indicated by all drilling carried out up to now. As had been suspected, it was shown that both the tonnage and grade calculated by an independent consulting group in a computer study prepared for the Company in early 1973 are very conservative. During this revision of the area, a few localities in which there is potential for moderate additional reserves were identified. However the additional potential present in these areas is not believed to warrant confirmatory drilling at the present time.

2. Coalfields Prospect

The costeans at Coalfields prospect were re-logged, then backfilled.

APPENDIX I

MOUNTAIN OF LIGHT OREBODY

GEOCHEMICAL ASSAYS OF SELECTED SAMPLES FOR COBALT

Drillhole Number	Footage From	Footage To	Length (ft)	Sample Number	Co Assay (ppm)
RDH- 3	60	65	5	3-1	55
	65	70	5	3-2	5
	70	75	5	3-3	10
	75	80	5	3-4	10
	80	85	5	3-5	20
	85	90	5	3-6	15
	95	100	5	3-7	10
	105	110	5	3-8	15
DH- 8	90	95	5	8-7	40
RDH-16	80	85	5	16-10	60
	85	90	5	16-11	85
RDH-19	35	40	5	19- 1	5
	40	45	5	19- 2	5
	45	50	5	19- 3	5
	50	55	5	19- 4	10
	55	60	5	19- 5	5
	60	65	5	19- 6	10
	65	70	5	19- 7	10
	70	75	5	19- 8	5
	75	80	5	19- 9	10
	85	90	5	19-11	5
DH-23	105	110	5	23- 2	15
	110	120	10	23- 3	10
	120	125	5	23- 5	10
DH-47	100	105	5	47- 1	10
	105	110	5	47- 2	20
	110	115	5	47- 3	5
	115	120	5	47- 4	10
	120	125	5	47- 5	30
DH-53	175	180	5	53- 1	320
	180	185	5	53- 2	120
	185	190	5	53- 3	65
	190	195	5	53- 4	170
	195	200	5	53- 5	110
PE- 2	5	10	5	A-027	15
	10	15	5	A-028	10
	15	20	5	A-029	15
	20	25	5	A-030	10
RS- 2	5	10	5	C-026	5
	10	15	5	C-027	10
	15	20	5	C-028	10
	20	25	5	C-029	10
	25	30	5	C-030	35
	30	35	5	C-031	20

BRIDGE MINERALS PTY. LIMITED

11TH LEVEL, 37 YORK STREET, SYDNEY. 2000

PHONE: 29 1531 CABLES: "BRIDGEOIL", SYDNEY

0027

June 4, 1975

Director of Mines,
Box 38, P.O.,
Adelaide, S.A. 5001.

Dear Sir:

Re: Quarterly Report -- E.L.126
Period to 4th June, 1975

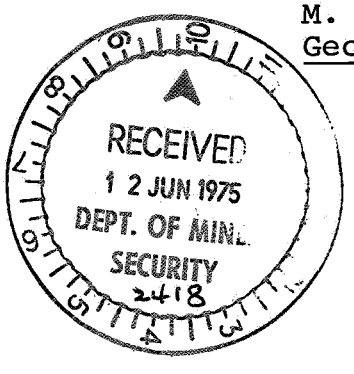
During the quarter, this company continued its investigation of the proposed heap leaching of the Mountain of Light Copper Deposit. On May 1st, discussions were held with Mr. Ian Grant and Mr. Bruce Robinson of the South Australian Department of Mines, and Mr. Dave Allen of the Australian Mineral Development Laboratories, regarding a trial heap leaching programme. On May 2nd, discussions were held with Mr. Jack Minogue and Mr. Bruce Robinson of the South Australian Department of Mines, to examine environmental considerations with respect to the proposed operation. As a result of these discussions, it was decided that this company should submit a preliminary environmental statement for the Mountain of Light project. This report has been prepared and was despatched to Mr. Bruce Robinson on the 2nd June. A copy of the report is attached.

A summary of expenditure for the quarter will be forwarded as soon as the accounts are finalized.

Yours faithfully,
BRIDGE MINERALS PTY.LTD.

M. I. HATCHER,
Geologist.

MIH:ddc



0028

MOUNTAIN OF LIGHT PROJECT

PRELIMINARY ENVIRONMENTAL IMPACT STATEMENT

BRIDGE MINERALS PTY. LTD.

CONTENTS

INTRODUCTION

Bridge Minerals Pty.Ltd., has proven 750,000 tonnes of 1.22% near surface oxidized and supergene sulphide copper mineralization at the Mountain of Light. After carrying out a preliminary feasibility study, it would appear that this ore can be mined and heap leached economically. However, a number of factors in the proposed operation have to be checked and a scaled-down leach heap is proposed for this purpose. Therefore, the immediate objective of the company is to carry out this pilot plant study. If the operation can be shown to be viable, the ultimate objective is to mine and treat the proven deposit.

The aim of this report is to outline the effects the pilot plant study and the proposed operation will have on the environment as it exists in this area today.

LOCAL AND REGIONAL ENVIRONMENT

Locality

The Mountain of Light Copper Deposit is situated approximately 3 kms south-east of the township of Copley on the North Moolooloo Road. Copley is approximately 540 kms north of Adelaide on the western margin of the Flinders Ranges (Fig.1). The copper deposit is in Class C of the South Australian State Planning Authority's Development Plan for the Flinders Ranges which was gazetted on 8th February, 1973.

History

Mining and mineral exploration has played a major role in the development of the Northern Flinders Ranges since the 1860's. The earliest records of the mines in the Mountain of Light area date back to the 1890's. The mines were worked intermittently until 1926, but problems in concentrating the ore and the flooding of the mine at lower levels stopped the mine from making any significant profits. Serious exploration in the area resumed in 1968, when Cyprus Mines Corporation worked on the area and then J.J. Korda and Co. Bridge Minerals Pty.Ltd. gained control of the area in September, 1971.

The Leigh Creek Coalfield which lies to the west and north-west of the Mountain of Light was discovered in 1888, during the sinking of the Copley railway dam. However, it was not until 1944 that regular coal shipments were sent south. The coal is now mined at the rate of 1.5 million tonnes per year and railed 255 kms to the Thomas Playford Power Station at

138°20'E

138°25'E

138°30'E

30°25'S

30°30'S

30°35'S

NORTH FIELD

Lobe 'D'

Lobe 'C'

Telford R.S.

Leigh Creek

TELFORD BASIN

Lobe 'B'

Copley

COPLEY BASIN

Lobe 'A'

AROONA DAM

MOUNTAIN OF LIGHT GRID AREA

LOCATION MAP COPLEY AREA

1" = 1 mile

Road

Track

Railway

DUPLICATE

Fig. 1

Port Augusta. Leigh Creek is now the commercial and social centre of this region.

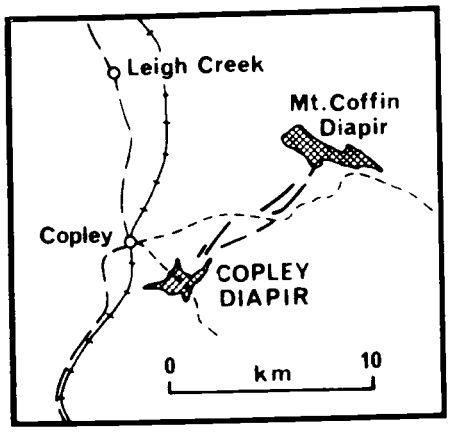
Copley is the old mining settlement in the region. At the turn of this century, over 3,000 men, mostly miners, working in the region, were collecting their mail from the Copley Post Office. The town is now overshadowed by Leigh Creek situated six miles to the north. Like so many northern towns, Copley is treeless; galvanized iron shacks, deserted houses, old car bodies and rubbish heaps surround the town. The aboriginal and white population in the town would be approximately 50. The town is a poor reminder of the bustling, thriving centre of seventy-five years ago.

Geology

The Proterozoic sediments in the Mountain of Light area are gently folded into a broad anticline, which has been pierced by older sediments which form the Copley Diapir. The diapir rim rocks consist of Umberatana Group tillite, the Tapleys Hill Formation shales and the grey and green siltstones and shales of the Amberoona Formation. The sediments in the Copley diapir consist of brecciated siltstones, shales sandstones, carbonate and minor tyffacious lithologies. This strata is often brecciated and shows no obvious stratagraphic relationships. Fig.2 is a geological map of the Mountain of Light area.

Physiography

The Mountain of Light deposit occurs in an area of undulating country with ridges formed by the Proterozoic Umberatana Group tillite and mesas of gently dipping Jurassic sandstone.



Location Map

0 500 1000
metres

Paltridge North

D.H. 38
D.H. 39
D.H. 36

M N

RECENT – PLEISTOCENE — Alluvium and Pleistocene gravels

TERTIARY — Silcrete-duricrust profiles

JURASSIC — Medium grained sandstone

PALAEOZOIC ? — Quartz hornblende dolerite

PROTEROZOIC

ADELAIDE SYSTEM

CALLANA BEDS / UMBERATANA GROUP

- Tapley Hill Formation with Tindelpina Shale
- Unnamed tillite
- Willouran age quartzites, sandstones, siltstones and dolomites in diapirs

Fault

Dip and Strike

× Cu. occurrence

— — Paltridge claims

— — Rosmann claims

— — Fox claims

BRIDGE MINERALS PTY. LTD.

GEOLOGICAL PLAN
MOUNTAIN OF LIGHT AREA
E.L. 126. SOUTH AUSTRALIA

Date: 12-12-74	Geologist: M.I. Hatcher
Drawn: G.J. Goodwin	Drwg. No.: M.L. 91.

Fig. 2.

To the west is a depressed area, covered by Quaternary gravels and clays which overlie the Triassic Leigh Creek Coal Measures. To the east the country is steeper and more rugged as the Flinders Ranges proper is entered. The Mountain of Light area is approximately 300 metres above sea level.

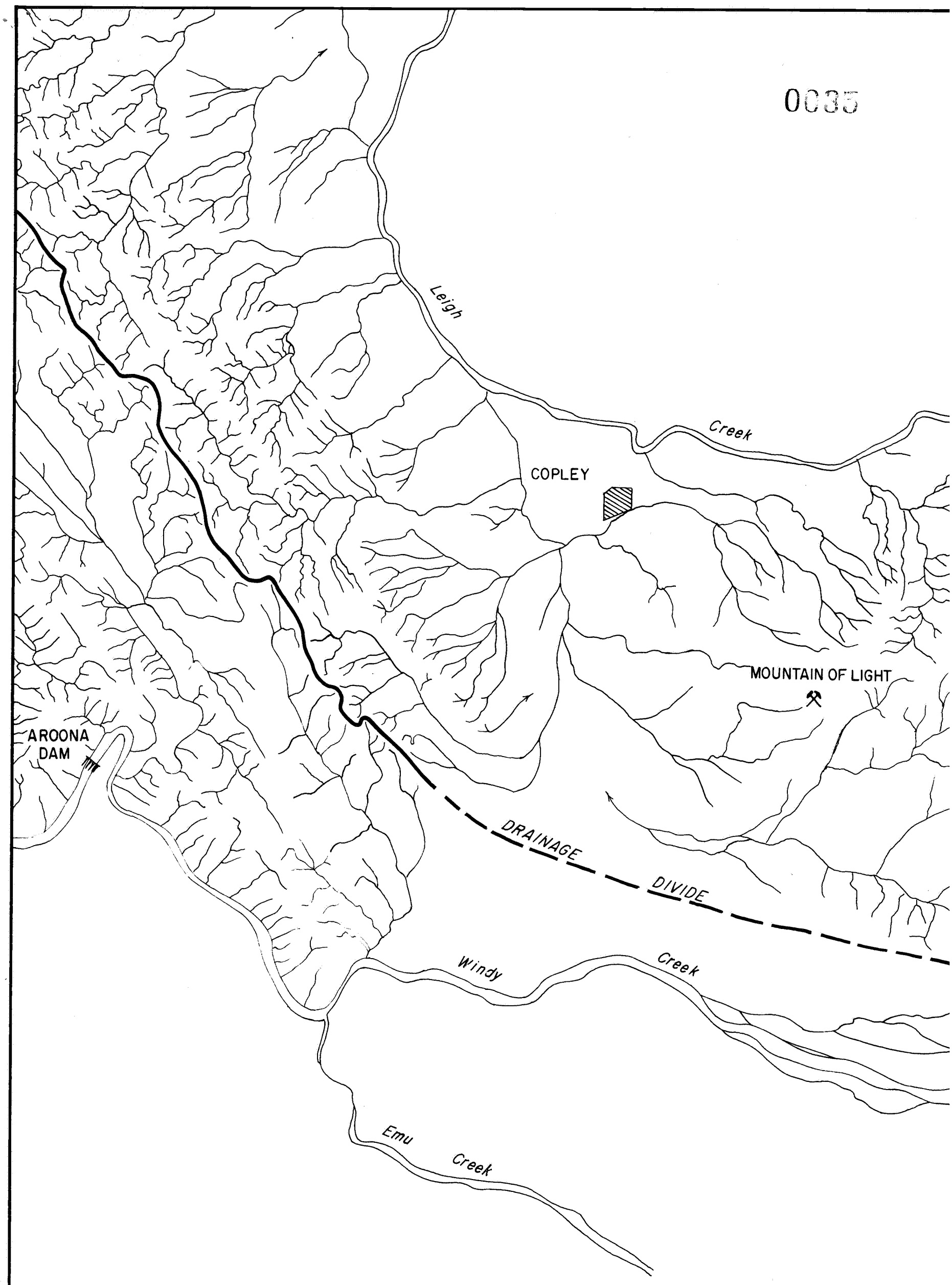
The watercourses in the vicinity of the Mountain of Light drain into the Leigh Creek and thence to the Lake Eyre drainage system. The copper deposit is approximately 3 kms. from the drainage divide between the Leigh Creek and Windy and Emu Creeks, which feed the Aroona Dam (Fig. 3).

Climate

The average annual rainfall is 150mm. However, the annual rainfall is irregular and can vary from a few millimeters up to 610mm. The rainfall is fairly regularly distributed throughout the year. When it does rain heavily, flash floods and sheet flooding are common. The floods are short lived and surplus water is quickly absorbed into the soil.

The main airstreams are from the south to southwest and the northeast. However, it is the strong, northerly winds from the centre of the continent which generally bring rain and are often accompanied by dust storms.

January and February are the hottest months of the year with day temperatures being constantly in the 34^{o}-40^{o} C. range. During this period after prolonged hot spells the night temperature does not fall substantially. However, during the rest of the year the night temperature



DRAINAGE PLAN
COPLEY AREA

1" = 1 mile.

Fig. 3

are generally significantly lower. In July, the coldest month, night temperatures below freezing point are commonly experienced. Humidity is invariably low and the evaporation rate is approximately 220 m.m.p.a.

Vegetation

The vegetation in this area would be classified as arid grasslands. In the vicinity of the Mountain of Light, there are no trees or shrubs. The timber was probably removed for mining and subsequent sheep grazing has inhibited regeneration. The natural vegetation in this area consists of salt bush, blue bush and porcupine grass. Following heavy rains, native flowering plants, e.g."hops","salvation Jane" burst into life for a short time.

Soils

In the mine area there is little topsoil. The trees were removed during past mining operations and over-grazing removed the ground cover. As a result, erosion has now removed what soil had been present. Adjacent to the mine area in the depressions between ridges and in the flat area bordering the Coalfields in the west, reddish-brown predominantly sandy soil with inter-stratified gravels have accumulated. These soil horizons vary from a few cms to up to 2 metres in the west.

Hydrogeology

The water table in the mine area is at about 80ft. from the surface and in the lower country to the west it is

slightly shallower. Analysis of the water is shown below.

Underground Water Sample (Mine Area - 85')

Conductivity (E.C.) U.S./cm	6,250
Ca Cation	
milligrams g/l	219
milli equivalents g/l	11.0
Mg Cation	
milligrams g/l	111
milli equivalents g/l	9.1

In adjacent areas at depths of 250ft. water flows of approximately 5,000 galls. per hour have been estimated and at 500ft. flows of 20,000 galls. per hour were estimated. All estimates on water flows were made by drillers experienced in water boring. Samples of the water were handed to the pastoral lease holder, Mr. Jack Dunne. The water flows appear to be controlled by fault shears and joints associated with the diapiric intrusion.

Land Use

The area surrounding the copper deposit is pastoral lease held by Mr. Jack Dunne of Copley. To the east, the country is held by Mr. Jock Hirsh of Leigh Creek Station. It is essentially sheep grazing country with a few cattle and horses. To the west is the Copley Coal basin, the most southern of the coal deposits in the Leigh Creek coalfield. No mining activity has been planned for this basin in the near future.

Local Facilities and Industries

Copley

In Copley, there is a roadhouse, post office, hotel, a petrol station with mechanic, and an earthmoving business. The town also has a railway station.

Leigh Creek

Leigh Creek is a State Government town with a population of approximately 1,000 people. All houses and community facilities were built by the government and are controlled and run by them. There are a number of privately owned businesses in the town. These include a garage, two stores, a butcher shop, a newsagency and hairdresser. The Electricity Trust of South Australia has built a swimming pool, extensive sports facilities, a large community hall, and has planted and maintained a large number of trees throughout the town.

The Telford railway station is located at Leigh Creek and the town is the centre for the State Police, the Bank of Adelaide, and telephone communications in the area.

Wildlife

Red Kangaroos, Euros and Emus are common in the area especially in drought periods when waterholes in the Ranges dry up. A variety of birds are common in the area. Crows, Golden Eagles and Wedgetail Eagles, have

adapted to the intrusion of man by scavenging scraps of food around the towns and preying on the bodies of animals killed by cars on the roads. White cockatoos are common around waterholes and bores. The rabbit population fluctuates considerably but they are an everpresent menace in the region.

Historical and Aboriginal Relics

All the old mining and concentrating equipment from the Mountain of Light mines has been removed for the value of its brass and cast iron. Unlike more isolated mines, it is completely devoid of artifacts which have significance to the early history of mining in the area. The last relic of past mining, the smokestack of the smelter at the Mountain of Light, which had served as a landmark in the area for over half a century, was destroyed by vandals in 1968.

No aboriginal relics have been discovered or are recorded in the mine area at the Mountain of Light.

PROPOSED OPERATION

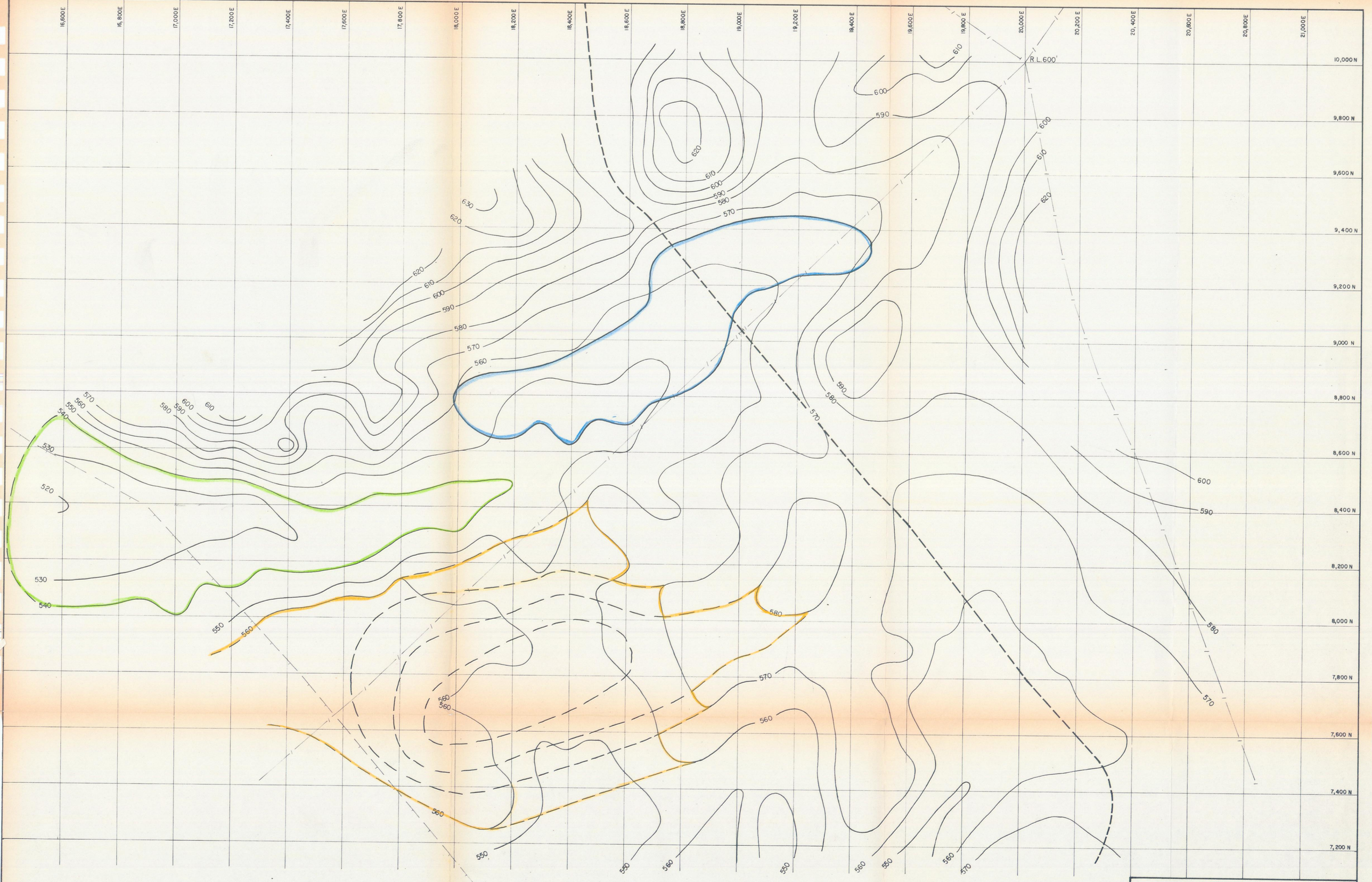
i) Objective

At the Mountain of Light, Bridge Minerals Pty. Ltd. has proven 750,000 tonnes of 1.22% Copper, within 45 metres of the surface. The ultimate objective of the company is to mine and treat this copper mineralization. However, before a mining operation can be planned, it will be necessary to carry out a pilot plant study. Therefore, the immediate objective of this company is to test the viability of the proposed operation using a pilot plant.

ii) Description of Proposed Operation

Open Cut mining, heap leaching with sulphuric acid, and precipitation of copper by scrap iron, will be used in the proposed operation at the Mountain of Light. The concentrates will be trucked to Copley which is 3 kms to the north-west and despatched to southern ports by rail.

Fig. 4 shows the proposed open cut which will be used to mine the oxide-supergene suphide copper deposit. The deposit dips at approximately 10° to the south. Approximately 10 to 25 metres of friable siltstone overburden will have to be stripped off to expose the deposit, which is approximately 25 metres thick (Fig. 5). The deposit has a projected surficial area of 2.5 ha. The surface area of the proposed pit will be approximately 4.8 ha.



BRIDGE MINERALS PTY. LTD.

PROPOSED PIT PLAN
MOUNTAIN OF LIGHT
COPLEY AREA
DUPLICATE

GEOLOGIST: M. HATCHER	DRAWN: G. GOODWIN
DATE: 4:6:75	DRWG. No.:

Fig. 4

Costean geochemistry projected 20 m E.

A
NORTH

B
SOUTH

Cu. ppm.
500
400
300
200
100
0

Shaft 6·5 m W. of sec'n
DH 1 6·1 m E. of sec'n
RDH 5
RDH 40 7·6 m W. of sec'n
DDH 2
DH 53
RDH 2

WATER TABLE

0·02 0·38 1·93 0·16 0·34 0·60 0·58 0·32 0·24 1·14 0·71 0·34 0·30 0·14 0·04 0·05 0·07
51·9 m

0·03 0·01 0·04
10·7 m
I
30·5 m
II
0·02 0·02 0·75 2·31 5·35 3·62
45·75 m
0·85 1·90 0·37 0·63 1·68 2·38 0·91 0·05 0·05
III

<0·01
0·02 <0·01 1·48 0·30 0·03 0·40 0·02 0·03 0·04 0·09 0·07 0·06 0·31 2·65 0·75 0·37
61 m

<0·01 0·33 0·27 0·09 0·07 0·21 0·12 0·11
30·5 m

WATER TABLE

Paltridge North leached siltstones

Coarsely bedded, medium grained, feldspathic sandstone

I Malachite, azurite

II Native copper, cuprite, chalcocite

III Chalcocite with native copper

Assay values are % Cu.

metres
0 10 20 30 40 50

DUPLICATE

Fig. 5

Overburden excavated initially to expose the ore will be placed on the surface as a permanent mound. This mound will be so designed to conform with the local undulating topography. Top soil will be removed separately and placed on the mound and other bare surfaces produced by mining. After the initial excavation, the overburden and waste will be placed in mined-out sections of the pit.

The ore will be placed in heaps indicated in Fig.4, where it will be leached with sulphuric acid. Ultimately, the heaps will contain 750,000 tonnes of ore. The ore will be stacked to a maximum height of 7 metres. After leaching of the heaps has been completed, they will be contoured and covered with topsoil, so that they do not contrast with the surrounding topography.

The ore will be placed on compacted impermiable pads and leached with sulphuric acid at a pH of from 2-2.4. After passing through the ore heap the liquor containing dissolved copper and other salts will have a pH of 3.0-3.2. The liquor will be stored in impermiable tanks and then passed through 'cementation' cells, in which copper will be precipitated on scrap iron. The effluent from the precipitation cells will have a pH of 3.8-4.2 and will be passed into impermiable reservoirs where excess iron in solution will be precipitated before recyling the liquor back to the ore heaps.

The proposed open cut and heap leaching dumps lie between two parellel east-west ridges, in a shallow 120 metre wide gully. On the northern side of the gully is a 20 metre high sandstone ridge and to the south is a 10 metre high ridge (Fig.4). The surface contours show that the mining and treatment area will not be visible from the north and south. The high country to the east protects this flank from view. However, it may be possible to see the western end of the leach heap from the Copley-Adelaide road, which is 4 kms to the west.

The only power requirement in the operation will be for pumps to distribute the liquors. Therefore, whilst a diesel powered generator may be required there will be no significant atmospheric emission. As the ore will not be crushed, the only source of dust will be from the mining. By keeping the haul roads damp, the dust problem can be minimized.

All company employees will be accommodated in existing housing at Leigh Creek, Copley, or Leigh Creek Station. Water supply for the operation will come from:-

1. The Leigh Creek-Sliding Rock pipeline.
2. Bores in the mine area.
3. Dewatering of the open pit.

It is expected that mining operations will take 2 years to complete, and that leaching will continue for a minimum of 5 years.

iii) Description of Pilot Plant Study

The immediate intention of this company is to construct a scaled-down ore heap and carry out a pilot plant study of the leaching process. The aim of the study will be to test the viability of the proposed operation and to refine techniques which will be used in the proposed operation.

Approximately 4,000 tonnes of ore will be required for this study. This will involve the stripping of approximately 50,000 tonnes of overburden. The location of the excavation, ore heap and overburden dump is shown in Fig.6. The top soil will be removed separately and placed on the overburden dumps which will be contoured to fit in with the local topography.

In addition to supplying economic information to the company, the pilot plant study will help in supplying information about the environmental problems likely to be experienced in the development of this deposit. The technical information that is collected will be available to the S.A. Department of Mines and the Australian Mineral Development Laboratories.

16,600 E 16,800 E 17,000 E 17,200 E 17,400 E 17,600 E 17,800 E 18,000 E 18,200 E 18,400 E 18,600 E 18,800 E 19,000 E 19,200 E 19,400 E 19,600 E 19,800 E 20,000 E 20,200 E 20,400 E 20,600 E 20,800 E 21,000 E

10,000 N
9,800 N
9,600 N
9,400 N
9,200 N
9,000 N
8,800 N
8,600 N
8,400 N
8,200 N
8,000 N
7,800 N
7,600 N
7,400 N
7,200 N

R.L. 600'

Proposed sampling cut

Proposed leach dump

Proposed overburden dump

Road

Fence

Telephone line

SCALE
0 200 400 600 FEET

BRIDGE MINERALS PTY. LTD.

PROPOSED PIT PLAN
MOUNTAIN OF LIGHT
COPLEY AREA
DUPLICATE

GEOLOGIST: M. HATCHER	DRAWN: G. GOODWIN
DATE: 4:6:75	DRWG. No.:

Fig. 6

ENVIRONMENTAL PLANNING

Planning of this operation has been aimed at a development which will cause minimal disturbance to the present environment and on the cessation of the operation, leave some beneficial features.

The cementation plant, dams and sheds will be transportable. The overburden removed initially will be piled into mounds which will be contoured to fit in with the undulating topography of the region.

Previous mining operations in this area and overstocking by pastoralists have had a drastic effect on the local vegetation. Natural vegetation will be encouraged to grow over overburden mounds and an attempt to grow trees in selected areas will be made. Water from bores and from the dewatering of the open cut will be used to promote the growth of natural vegetation.

Obviously, problems will arise during the operation which even the most careful planning cannot forecast. However, Bridge Minerals Pty.Ltd., as manager of the project, will undertake to monitor the operation to ensure that its impact on the existing environment is minimal, and that on completion of the project some continuing beneficial features will be established in the area.

138°30'
138°45'
139°00'
30°00'
30°15'
30°30'
30°45'
31°00'

Lorna Doone
White Lead
Nichols Knob
Big Lode
Mt. Burr
Broken Range
Apex
Doleríte Hill
Federal
Liberation
Dead Finish
Victory
South Creek
E.L. 116
Voca Vocana Hill
Mt. Rose
Coalfields
Booborco
Sunday Well
Peel Box
LEIGH CREEK
RELINQUISHED AREA
Elsie Adair
West Jubilee
Diamond Jubilee
E.L.126
COPLEY
Mountain of Light
RETAINED AREA
Copper King
Cu, Ba
E.L. 117
Angepena Barite
Mt. Bayley
Beltana
New Year
Iron Blow
Copper Queen
E.L. 118
Harveys Return
Black Feather
Enterprise
Red Range
Walter
Six Mile
Old Nuccaleena

1: 250,000
0 4 8 12 Miles

2418(II)-1

BRIDGE MINERALS PTY. LTD.	
LOCATION OF PROSPECTS & EXPLORATION LICENCES LEIGH CREEK DISTRICT SOUTH AUSTRALIA	
GEOLOGIST : D.J.W.	DRAWN : G.J.G.
DATE : 22·10·74	DRWG. NO.: SA/38

FIG. 1

16,600E 16,800E 17,000E 17,200E 17,400E 17,600E 17,800E 18,000E 18,200E 18,400E 18,600E 18,800E 19,000E 19,200E 19,400E 19,600E 19,800E 20,000E 20,200E 20,400E 20,600E 20,800E 21,000E

10,000N 9,800N 9,600N 9,400N 9,200N 9,000N 8,800N 8,600N 8,400N 8,200N 8,000N 7,800N 7,600N 7,400N 7,200

R.L. 600'

Proposed pit

Proposed leach dump

Proposed overburden dump

Road

Fence

Telephone line

SCALE
0 200 400 600 FEET

2418(II)-2

BRIDGE MINERALS PTY. LTD.

PROPOSED PIT PLAN
MOUNTAIN OF LIGHT
COPLEY AREA

GEOLOGIST: M. HATCHER	DRAWN: G. GOODWIN
DATE: 4:6:75	DRWG. No.:

Fig. 4

16,600E 16,800E 17,000E 17,200E 17,400E 17,600E 17,800E 18,000E 18,200E 18,400E 18,600E 18,800E 19,000E 19,200E 19,400E 19,600E 19,800E 20,000E 20,200E 20,400E 20,600E 20,800E 21,000E

10,000N 9,800N 9,600N 9,400N 9,200N 9,000N 8,800N 8,600N 8,400N 8,200N 8,000N 7,800N 7,600N 7,400N 7,200N

R.L. 600'

Proposed sampling cut

Proposed leach dump

Proposed overburden dump

Road

Fence

Telephone line

SCALE

0 200 400 600 FEET

2418(III)-3

BRIDGE MINERALS PTY. LTD.

PROPOSED PIT PLAN
MOUNTAIN OF LIGHT
COPLEY AREA

GEOLOGIST: M. HATCHER	DRAWN: G. GOODWIN
DATE: 4:6:75	DRWG. No.:

Fig. 6

BRIDGE MINERALS PTY. LIMITED

STATUTORY QUARTERLY REPORT

EXPLORATION LICENCE NO. 126

FOR THE QUARTER ENDED 30 SEPTEMBER, 1974

Only limited field work in this exploration licence has been carried out during the quarter. Investigations have been concentrated on evaluation studies.

Field operations consisted solely of collection of additional samples from drill cuttings for further cobalt analysis. Results of this work, while of interest, did not support the encouragement received in earlier re-sampling.

Following completion of a revision assessment of the Mountain of Light prospect ore potential (reported in Quarterly Report for 30 June, 1974) detailed economic evaluation studies were commenced. In conjunction with the latter studies, comparative evaluations of various beneficiation processes and techniques were undertaken.

The above studies are currently in progress, however, it is expected that additional field test work will be programmed on completion of this work.

BRIDGE MINERALS PTY. LIMITED

11TH LEVEL, 37 YORK STREET, SYDNEY. 2000

PHONE: 29 1531 CABLES: "BRIDGEOIL", SYDNEY

0046

16 December, 1974

The Director of Mines
Department of Mines
Box 38, P.O. Rundle Street
Adelaide
South Australia, 5001

Dear Sir:

Quarterly Report E.L. 126
Period Ended 4 December, 1974

During this quarter the company has carried out a detailed study of the feasibility of treating the secondary copper mineralisation proved at the Mountain of Light. A number of metallurgical methods have been investigated using the laboratory testwork carried out by AMDEL for this company in July, 1973. After analysis of this information it is concluded that sulphuric acid leaching offers the greatest potential for generating a cash flow from the property. A comparison of the viability of agitated leaching, heap leaching and saturated heap leaching is being carried out and further metallurgical testwork is planned for the New Year.

Expenditure for the quarter to follow.

Yours faithfully,
BRIDGE MINERALS PTY. LIMITED

M. I. Hatcher
Geologist

MIH:set

BRIDGE MINERALS PTY. LIMITED

AND

AURORA OIL N.L.

0047

STATUTORY QUARTERLY REPORT

SIX MINERAL CLAIMS WITHIN THE

FORMER E.L. NO. 52 ("TARLTON KNOB")

PERIOD ENDED 31 DECEMBER, 1974

No field work was carried out on these Claims within the period.

It is anticipated that deep drilling will be carried out to test the mineralised zones identifiable at the surface. It is the holders' intention to carry out this drilling consecutively with that programmed for mid-1975 at Mountain of Light within E.L. 126, held by Bridge Minerals Pty. Limited.

0048

ANNUAL EXPLORATION REPORT 1974

EXPLORATION LICENCE 126

COPLEY REGION

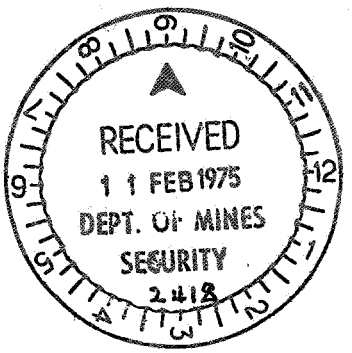
SOUTH AUSTRALIA

M. Hatcher, B.Sc. Hons.
Assoc. M.A.I.M.M.
15 January, 1975

ANNUAL EXPENDITURE REPORT E.L. 126 COPLEY
FOR YEAR ENDED 31/12/74

0049

	TOTAL YEAR	
ADMINISTRATION		
Salaries		6,623.11
GEOLOGICAL		
Salaries	19.869.36	
Feasibility Study	41.34	
Travel	479.40	
Maps & Publications	310.97	
Vehicle Expenditure	49.04	
Meals & Accommodation	161.80	
Vehicle Hire	1,083.25	
Search Fee	36.36	
Sampling	501.77	
Costeaning	481.60	
Drafting	69.01	
		23,083.90
GENERAL		
Entertainment	2.17	
Freight	2.67	
Registration Fee	6.00	
Option Payment	7.52	
Legal Fees	290.00	
Exploration Licence	66.00	
		374.36
		30,081.37



LIST OF CONTENTS

FIGURES

0051

APPENDICES

ABSTRACT

The exploration and development program of Bridge Minerals Pty. Limited within E.L. 126 can be divided into two spheres of activity.

A) At Paltridge North, the Company has proven 750,000 tonnes of 1.22% near-surface secondary copper mineralisation. Attempts to increase reserves by investigating other copper prospects in the region and negotiating with companies holding known reserves have failed. As a result the possibility of developing a small scale operation aimed at recouping the Company's investment in the area was undertaken. The results of this study are encouraging and information on the technical operational aspects of similar projects overseas is being collected. When this information has been analysed a full scale pilot-plant study is planned.

B) Follow-up work on the primary copper sulphides intersected during the previous field program has centred around the development of exploration tools to isolate anomalous areas within the large geologically favourable environment within E.L. 126. Cobalt geochemistry appears to be the most successful method developed by the orientation program. This method with several geophysical techniques will be used to delineate drilling targets during the program to be carried out in 1975; after more orientation tests have been carried out.

138°30'

138°45'

30°30'

30°45'

MT. BURR

FEDERAL

LIBERATION

E.L. 116

MT. ROSE

COALFIELDS

BOOLOOROO

SUNDAY WELL

Leigh Creek

E. L. 126

Copley

MOUNTAIN OF LIGHT

E.L. 117

COPPER QUEEN

E.L. 118

ROAD

RAILWAY

SCALE 1:250,000

5 0 5 10 MILES

BRIDGE MINERALS PTY. LTD.

LOCATION MAP

EXPLORATION LICENCES

COPLEY AREA, SOUTH AUSTRALIA

Geology: J. Shirley	Drawn: G. Goodwin
Date: 20 - 8 - 74	Drwg. No.: S.A. 1

Fig. 1

INTRODUCTION

Exploration Licence 126, covering an area of 132 square kilometers and situated immediately to the east of Leigh Creek (Fig. 1), was granted by the Minister of Mines on 4 March, 1974 for a period of one year.

Bridge Minerals Pty. Limited has been involved in exploration in this region for approximately four years and currently has title to an additional three areas; E.L. 116 covering the Mt. Burr Diapir; E.L. 117 covering the Mucatoona Diapir; E.L. 118 covering part of the Beltana Diapir.

PREVIOUS INVESTIGATION

The only significant workings within E.L. 126 are at the Mountain of Light Prospect although shallow prospecting shafts have been noted at the Coalfields and Sunday Well prospects. The workings in the Mountain of Light area were exploited from the late 1890's until 1926 (Parkin, 1963) but were hampered by underground water and problems in concentrating the ore (Brown, 1908). In 1912-13, the South Australian Department of Mines drilled four diamond-drill holes to vertical depths of 90-120 metres (Duffield, 1912, 1913). No significant copper mineralisation was intersected.

In more recent years exploration and drilling has been carried out by Cyprus Mines Corp. (1969) and J. J. Korda & Co. Pty. Ltd. (1970).

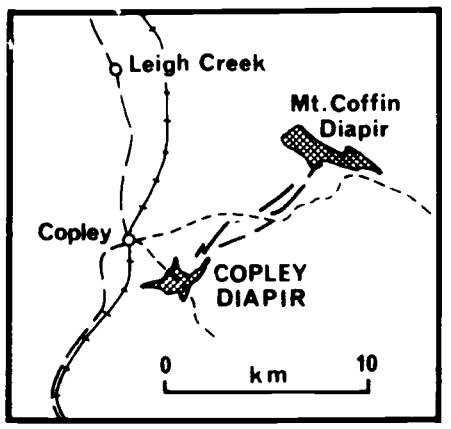
Since September, 1971, Bridge Minerals Pty. Limited has been investigating the Mountain of Light Copper Prospect and prospects in the surrounding region. Geological, geochemical and geophysical surveys have been carried out over selected areas and 5,295 metres of rotary percussion and diamond drilling completed. In a report to the Company, Minenco Pty. Ltd. calculated the reserves of secondary copper mineralisation proven by drilling to be 750,000 tonnes of 1.22% Cu, at Paltridge North. Two holes (DH38, 39) drilled on the contact of the diapir south of Paltridge North intersected a significant zone of primary copper mineralisation (Figs. 2, 3 and 4). The details of this work are recorded in previous reports submitted to the South Australian Department of Mines (Interim Report Mountain of Light, Copley, South Australia Parts 1 - 7).

In addition to the work carried out on E.L. 126, this Company has been actively involved in exploring E.L.'s 116, 117 and 118 in the Leigh Creek area. This work has been orientated towards locating similar geological settings as those existing in

1) The oxidised zone at Paltridge North.

2) The primary copper sulphide-bearing zones to the south of Paltridge North.

0 500 1000
metres



Location Map

Paltridge North

D.H. 38
D.H. 39
D.H. 36

M N

RECENT – PLEISTOCENE — Alluvium and Pleistocene gravels

TERTIARY — Silcrete – duricrust profiles

JURASSIC — Medium grained sandstone

PALAEOZOIC ? — Quartz hornblende dolerite

PROTEROZOIC

ADELAIDE SYSTEM

CALLANA BEDS — UMBERATANA GROUP

- Tapley Hill Formation with Tindelpina Shale
- Unnamed tillite
- Willouran age quartzites, sandstones, siltstones and dolomites in diapirs

Fault

Dip and Strike

× Cu. occurrence

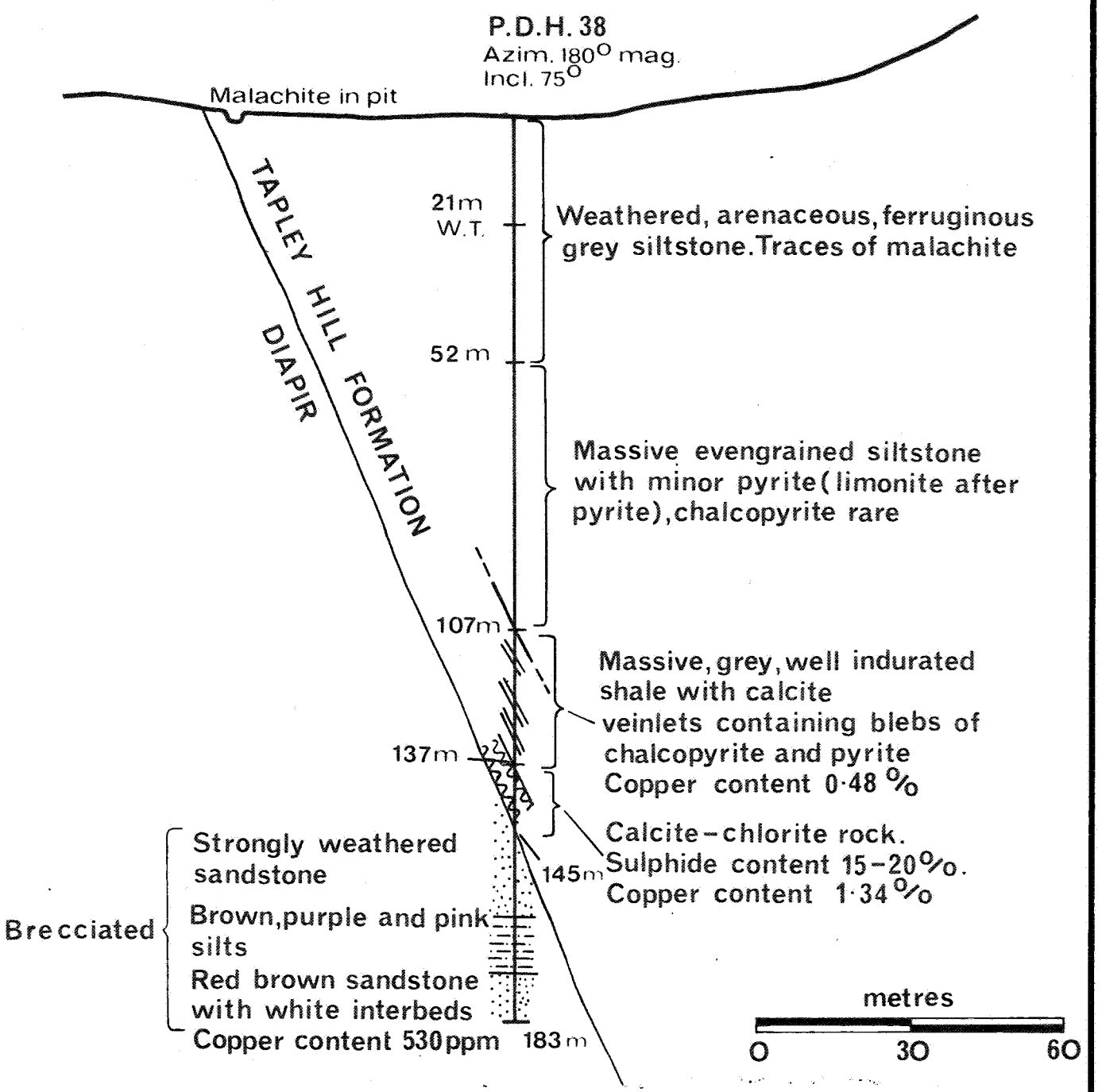
BRIDGE MINERALS PTY. LTD.

GEOLOGICAL PLAN
MOUNTAIN OF LIGHT AREA
E.L. 126. SOUTH AUSTRALIA

Date: 12-12-74	Geologist: M.I. Hatcher
Drawn: G.J. Goodwin	Drwg. No.:

Fig. 2.

0056



BRIDGE MINERALS PTY. LTD.	
SECTION THROUGH P.D.H. 38 LOOKING NORTH MOUNTAIN OF LIGHT AREA E.L. 126. SOUTH AUSTRALIA	
Date : 13-12-74	Geologist.: M.I.H.
Drawn: G.J.G.	Drwg. No. :

Fig 3

D.D.H. 39
Azim. 270° mag.
Incl. -70°

TAPLEY HILL FORMATION
DIAPIR

24m — Weathered dark grey shale.

29m WT
37m — Carbonaceous pyritic band with sandy interbeds.

46m — Weathered dark grey shale.

Dark grey arenaceous shale, pyritic with minor quartz veining.

120 m

Grey shale, well jointed and cleaved pyrite veinlets up to 1mm wide. Slickenslides common.

183m — Calcite veins from 183 m downwards.

metres
0 30 60

214m

Massive, grey, well indurated shale with calcite veinlets containing blebs of chalcopyrite and pyrite. Cu. content 0·23%

240m
243m

Strongly weathered mega-breccia consisting of heavy-mineral banded sandstone, dark grey and reddish brown siltstone set in quartzose clayey matrix. Av. Cu. content 0·003%

Calcite-chlorite rock, sulphide content 20%. Cu. content 0·73%

259m

BRIDGE MINERALS PTY. LTD	
SECTION THROUGH DD.H. 39 LOOKING NORTH MOUNTAIN OF LIGHT AREA E.L. 126. SOUTH AUSTRALIA	
Date: 13 - 12 - 74	Geologist.: M.I.H.
Drawn: G.J.G.	Drwg. No.:

Fig. 4

PRESENT PROGRAM

0058

1. Mountain of Light

a) General

This year has been unusually wet and this has hampered the proposed program for 1974. In addition to the data documented below, a considerable amount of time was spent re-packing samples from previous drill programs and re-establishing the grid. A total of 88 line kilometers was repegged.

b) Assaying

A number of samples from the Paltridge North oxidised zone were assayed for cobalt, vanadium, silver and gold. The more significant results are shown in Table I and the complete set of data is in Appendix I.

TABLE I

ASSAY DATA - PALTRIDGE NORTH

Drill Hole	Footage		Assay		
	From	to	Cu	Co	V
DH8	100	105	42,000	430	200
	105	110	60,000	2,500	300
	115	120	9,700	3,100	50
	120	125	36,000	2,600	50
	125	130	15,000	2,400	50
DH10	70	75	90,000	20	100
	75	80	46,000	15	300
	80	85	56,000	15	100
	85	90	58,000	170	300
	90	95	16,000	170	100

It can be concluded that no economic quantities of cobalt, vanadium, silver or gold were located as a result of this investigation. Vanadium has been noted associated with the Paulls Consolidated Copper Prospect (Nixon, 1963) and the Elsie Adair Copper Prospect (Fairburn, 1967).

Cobalt was found to be associated with the primary coppe sulphide mineralisation intersected in DH38 and 39 (Tab II).

TABLE II

COBALT ASSAYS DH38, 39

Hole No.	Interval	Cu, ppm	Co, ppm
DH38	380 - 400	6,000	860
	450 - 455	16,000	1,800
	460 - 465	6,000	2,500
	470 - 475	12,000	920
DH39	700 - 705	8,300	440
	730 - 735	970	210
	755 - 760	4,100	280
	785 - 790	7,300	780

The anomalous cobalt values within the Paltridge North secondary copper deposit indicates this mineralisation may be genetically related to the primary sulphide in DH38 and 39.

c) Auger Geochemistry

The geological setting for the primary copper mineralisation has been well defined (Figs. 3 and 4). Within the Exploration Licence there is an extremely large area with a similar setting. In an attempt to delineate drilling targets within this area, geochemistry was proposed as a method of investigation. Therefore an orientation program was carried out over several areas to investigate the usefulness of auger geochemistry as a method of locating areas with potential for primary copper sulphide.

Early attempts to mine and treat the ore from the mines at the Mountain of Light have left the area strewn with oxidised copper mineralisation. To reduce the influence of contamination a trailer mounted Gemco auger drill was used to obtain samples from approximately 2 meters below the surface. As mentioned in the previous section anomalous cobalt has been found in association with primary copper sulphide mineralisation in DH38 and DH39. Table II illustrates this point. As a consequence all samples were analysed for copper and cobalt.

The most significant area investigated was that in the vicinity of DH38 and 39 (Fig. 5). As there are not enough samples to statistically analyse the assay data, it is only possible to draw these conclusions -

195 E
200 E
205 E
210 E
215 E
90 N
85 N
80 N
75 N

DIAPIR

160 80 | 900 60 | 340 20
20 20 | 10 20 | 65 120 | 700 600
45 20
D.H. 38
290 20 | 660 240 | 1200 40 | 220 55 | 440 5 | 140 <5
D.H. 39
170 75 | 45 10 | 660 25 | 600 10 | 7800 <5 | 640 <5 | 65 <5 | 90 <5
710 500 | 65 <5 | 35 <5 | 70 <5 | 70 <5

130 <5 | 50 <5 | 2900 25 | 40 30 | 150 15 | 80 30 | 20 10 | 25 10 | 25 20
110 10 | 40 <5 | 170 20 | 430 10 | 20 10 | 25 10 | 25 10 | 20 10 | 30 15
55 <5 | 50 40 | 90 60 | 30 25 | 25 15 | 30 10 | 35 15 | 35 20
110 <5 | 90 10 | 25 20 | 30 15 | 30 <5 | 20 <5 | 30 <5 | 20 20
65 5 | 30 10 | 20 20 | 35 90
45 25 | 25 15 | 80 45

AUGER DRILL HOLE

45 ppm. Copper
25 ppm. Cobalt

COPPER VALUES

0 – 30 ppm.
30 – 100 ppm.
+ 100 ppm.

COBALT VALUES

0 – 20 ppm.
20 – 40 ppm.
+ 40 ppm.

BRIDGE MINERALS PTY. LTD.

AUGER GEOCHEMISTRY
PALTRIDGE SOUTH ZONE
MOUNTAIN OF LIGHT
E.L. 126. SOUTH AUSTRALIA

DATE: 21-1-75	GEOLOGIST: M.I.H.
SCALE: 1" = 200'	DRAWN: G. J. G.

Fig. 5

(i) Cobalt is anomalous on or near the mineralised diapir contact and drops off sharply to background going to the east away from the contact.

(ii) Copper is less regularly distributed. However, the diapir contact is anomalous for copper and the sediments to the east have lower copper values.

Both copper and cobalt auger geochemistry give a lead to the underlying primary sulphide suite intersected in DH38 and 39. However, cobalt is less mobile than copper in this environment and more precisely defines areas of significance for primary sulphide mineralisation.

The logs of all auger holes are included in Appendix III.

d) Re-evaluation Studies

After the exploration program on E.L.'s 116, 117 and 118 failed to locate any area of oxy-carbonate mineralisation with significant economical potential to help support the tonnage proven at the Mountain of Light, and negotiations with lease holders with proven reserves in the area broke down, this company investigated ways of treating the Mountain of Light deposit with the view of generating a cash flow. It was felt that a profit could be made because -

(i) The proven reserves, based on the independent study carried out by Minenco, have a gross value in the ground of $10 million at a copper price of 50¢ per pound.

(ii) The ore is ideally situated for open cutting with the maximum depth necessary to mine the above reserves 140 ft.

(iii) Benefication testwork carried out by AMDEL and Robertson Research indicated that the copper ore could be readily upgraded by flotation, gravity separation or ammonia or acid leaching.

(iv) The host rock is easily ripped and should be cheap to mine.

(v) The prospect is ideally situated close to established facilities. This saving in infrastructural cost has a substantial impact on the capital required to bring an operation of this type into production.

After considering in detail a number of treatment proposals ranging from an upgrading by heavy medium separation into a relatively low grade concentrate which could be sold to Samin Ltd. in Burra to a complex process involving flotation, leaching and precipitation, it was found that leaching with sulphuric acid and recovery of copper from solution by ion exchange (cementation) was the most efficient method of treatment. Both agitated vat leaching and dump leaching were considered, but whilst the former offers a greater recovery of copper this is to some extent offset by the additional plant cost and higher running costs. It was found that if a recovery of greater than 70% could be achieved from dump leaching then this method would be more profitable than a 90% recovery from an agitated vat leach.

A literature search has been carried out in Sydney and numerous contacts in the industry here in Australia and overseas investigated. Whilst in the U.S.A. over 5 billion tonnes of dump material are being subjected to acid leaching and cementation, in Australia this method is used to a very limited extent and only on a small scale.

At the moment replies are awaited from a number of overseas organisations involved in this type of operation in the U.S.A. with practical information on leaching of dumps, dump drainage, membrane strengths and a whole series of practical problems. It is this Company's intention to send a member of its staff to visit these operations in the U.S.A. on a fact finding mission when all the replies to the enquiries have been collected.

At this stage the Company is confident that a small-scale profitable mining venture can be established on the proven secondary copper reserves at the Mountain of Light.

2. Coalfields Prospect

The Coalfields Copper Prospect is located approximately 3 km. north-east of the Telford Railway Station (Fig. 1). Workings consist of several shallow prospecting pits sunk on exposures of malachite. This area was initially investigated by this Company in September, 1972, when several costeans were dozed over the visible exposures and followed up with percussion drilling. This work failed to locate any zones of economically significant copper mineralisation.

During 1974 the area was again investigated by staff geologist, J. Shirley. The work consisted of geological mapping, auger geochemistry and costeaning.

Note: Geological information mostly derived from auger-drill cuttings

S.S. GEOLOGY OF AUGER DRILL HOLE
T.H. TAPLEY HILL SHALE
s.s. SANDSTONE
S SILTSTONE
Di DIAPIRIC
Ti TILLITE
Dol. DOLOMITE
B. BRECCIATED
Crse. COARSE

TRACK
FENCE
OUTCROP
INTERPRETIVE CONTACT (SCREE CONTROLLED)
ROCK UNIT CONTACT

SCALE
0 200 400 600 Feet.

BRIDGE MINERALS PTY. LTD.

FACT AND INTERPRETIVE GEOLOGY USING SURFACE AND AUGER DRILL DATA

COALFIELDS PROSPECT E.L. 126

COPLEY AREA S.A.

Geology: J. Shirley	Drawn: D. Anderson
Date: 13·8·74	Drawing No: S.A. 34

Fig. 6A

a) Geology

Figs. 6A and 6B shows the distribution of Proterozoic sediments at the Coalfields Prospect. An unnamed Umberatana Group tillite and the overlying Tapley Hill Shale are folded into an anticlinal structure which has an east-west axial plane and plunges to the east. The grey-green tillite grades vertically and laterally into sandy and silty facies.

The Tapley Hill Formation conformably overlies the tillite. Near the contact dolomite interbeds are common, particularly on the southern limb of the fold.

Evidence of diapirism within the prospect and to the north of the gridded area has been noted, but due to lack of outcrop it is difficult to delineate the extent of the sedimentary intrusive. Malachite and azurite have been noted as coatings on the joints and fractures of the argillaceous units and interstitially in arenaceous facies. Several quartz veins exposed in shallow pits have vugs filled with malachite and to a lesser extent azurite.

b) Costeaning

The costeans previously dozed were re-opened to check for textural evidence of primary sulphide. Figs. 5 and 6 show the distribution of sediments as exposed in the costeans.

c) Geochemistry

Figs. 9, 10 and 11 show the results of an auger geochemical program carried out over the prospect. The area was drilled on a 200 x 100 ft. grid with samples collected from a depth of 2 meters. All samples were assayed for copper, cobalt and arsenic.

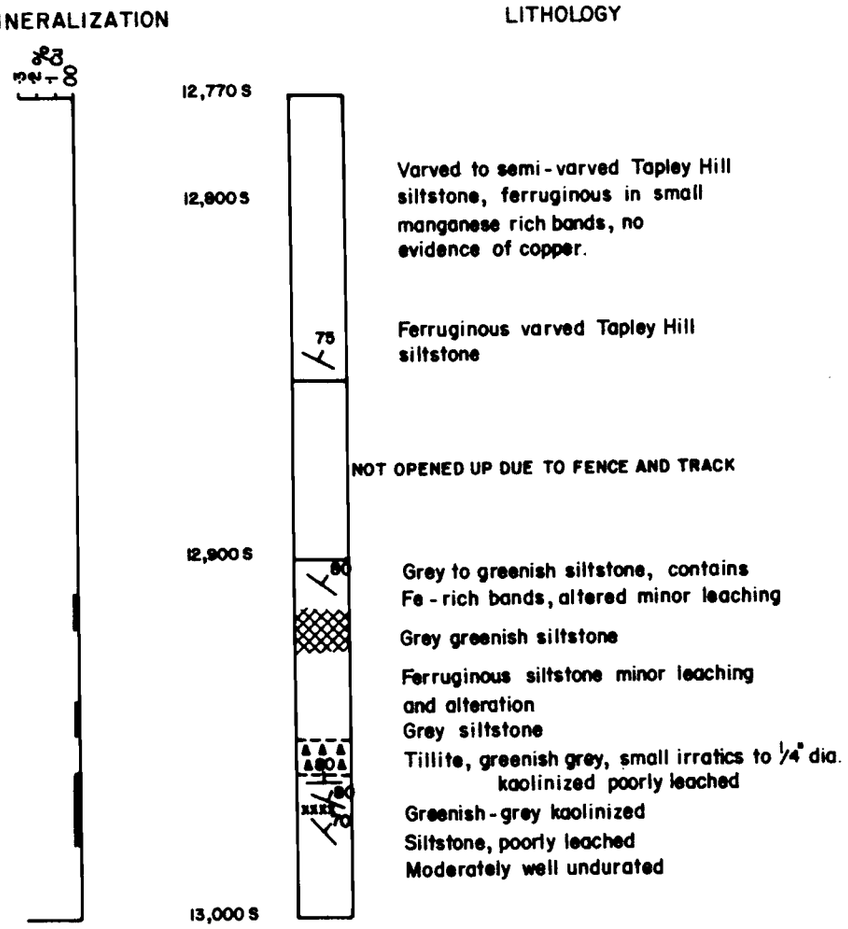
Anomalous copper values are broadly associated with the interpreted diapiric intrusion. Spot highs for cobalt and arsenic were detected, but the only significant coincidence of cobalt arsenic and copper anomalies was at 12,400S/36,400W.

Logs and assays for individual samples collected are included in Appendix III.

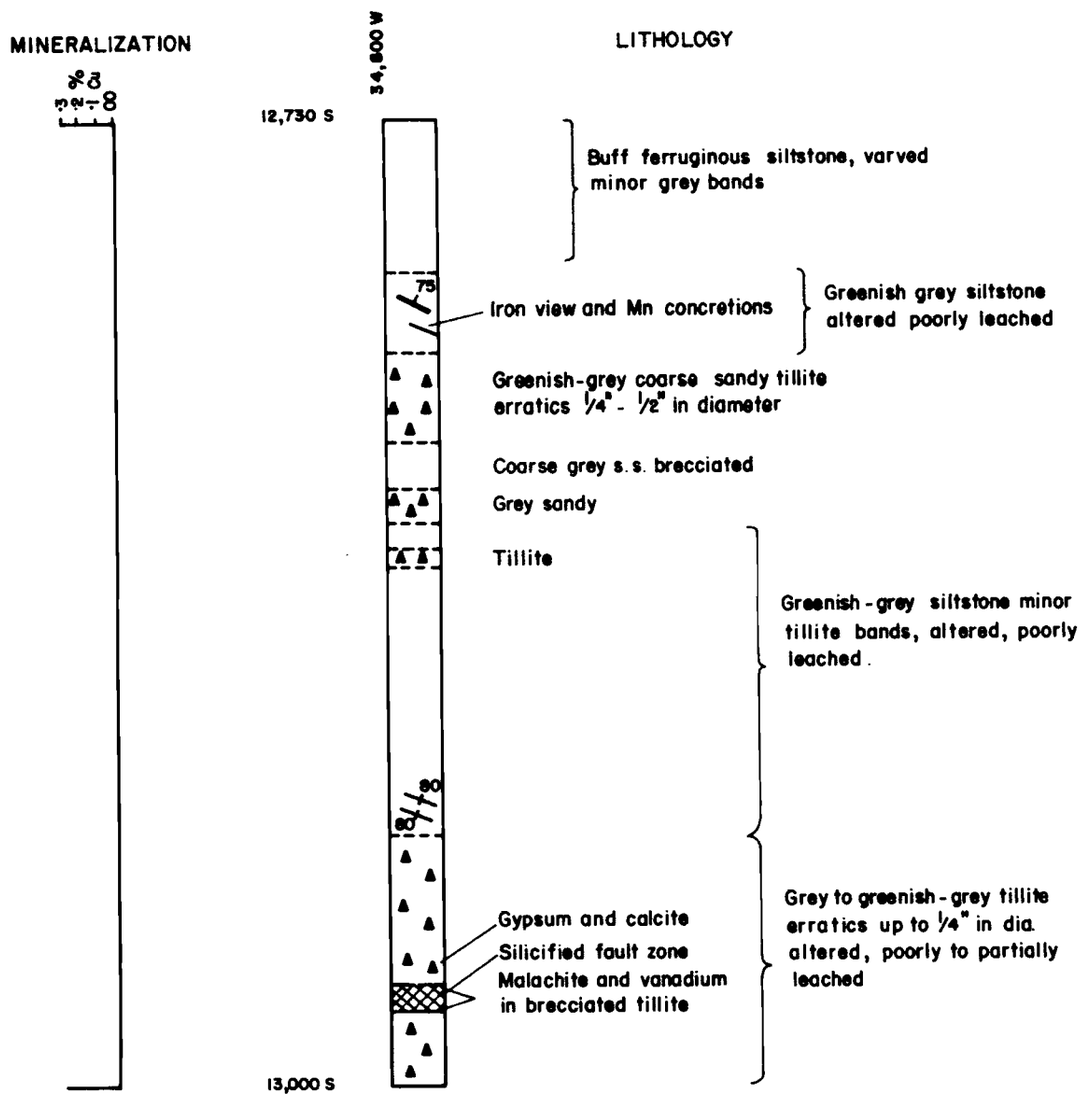
2. Sunday Well

The Sunday Well Prospect is located approximately 2 km. south of the Sunday Well Outstation, which is itself 7 km. east of the township of Leigh Creek. A few prospecting pits have exposed oxidized copper mineralisation

COSTEAN "E" EXTENDED



COSTEAN "L"



BRECCIA ZONE

TILLITE

SILTSTONE

M.N.
G.D.

BRIDGE MINERALS PTY. LTD.	
GEOLOGY OF COSTEANS COALFIELDS AREA E.L. 126 SOUTH AUSTRALIA	
Geology : J. Shirley	Drawn : G. Goodwin
Date : 12 - 8 - 74	Scale : 1 : 100

DRWG. No. S.A. 33

Fig. 7.

COSTEAN "D"

34000 W

13000 S — SCREE 80

Light grey, poorly banded siltstone with minor coarse tillite bands.
Highly altered poorly leached; rocks are generally quite massive.

13050 — 13050 - Tillite bands becoming more dominant southwards

13065 - Light grey-red iron rich tillite with irratics up to 0·5 in. dia. Highly altered, moderately leached.
13070 - Diffuse quartz veining, highly weathered with moderate introduced iron.

13100 — 13070 - 13165 - Moderately to highly silicified, massive, unleached, well altered tillite with numerous bands of medium grained sandstone. Disseminated copper 13070 - 13150.

13125 - 13165 - Veins of introduced iron increasing southwards. Rock is less silicified.

13150 — 13150 - Tillite coarser to south.
13162 - 1·5ft zone of minor brecciation concordant.
13166 - 13330 - Diapirically influenced tillite with iron and manganese content.
13074 - Zone 4ft wide of strong iron and manganese

13200 — 13204 - 13220 - Fault zone brecciation with slickensiding, alteration. Rock is hard to recognize.

13220 - 13260 - Tillite containing sandstone bands. Moderate to highly silicified, massive, with high iron content and some quartz veining.
Minor silicified bands rock chewed up tillite, strong diapiric influence.

13250 — 13260 - 13330 - Coarse tillite with large irratics in a medium grained matrix.
Moderately silicified. Considerable disruption and a high iron and manganese content.

13300 —

13330 - 13340 - Diapir, purple red, disturbed, highly altered, moderately leached siltstone with silified bands. Typical diapir.

13350 —

13400 S

COSTEAN "E"

12900 S — Gritty siltstone - tillite, sandstone bands
110 - 75° Foliation. Sandstone increases to the south.

29 - 34 - Sandstone - matrix tillite

12950 — 34 - 100 - Gritty siltstone; erratics, rare and becoming only occasional to the south

13000 — Tillite; silty to sandy with small and few erratics; minor iron banding.

1' band of highly silty silicified tillite, erratics up to 2" in. dia. at 120° near vertical.

Silty to sandy tillite

13050 — 1·5' band of coarse tillite; medium - size erratics, silicified.

Sandy massive tillite, medium to small erratics.

13100 — Strongly altered, poorly leached

Transition from typical tillite in the north to gritty siltstone - tillite in the south; erratics less plentiful in the south.

13150 —

Slight banding.

13200 — Cu — 0 - 50 - Gritty siltstone; sandstone bands; Cu occurs regularly

20 - 50 - Local erratics

13250 — 50 - 70 medium grained sandstone with silty bands, poor sorting and low porosity

70 - 75 - good sandy tillite, plentiful erratics.

Cu Cu — 75 - 307 - Silty sandstone

13300 —

07 - 77 - Sandy tillite with small erratics

13350 — 30 - 70 - Good Cu

77 - 100 - Tillitic siltstone with small erratics. Abundant iron and silica introduced from adjacent diapir.

13400 — 6" Quartzite band at 120°

0 - 34 - Silty to gritty tillite. Disarticulated and with abundant introduced iron.

13450 — 34 - 84 - Purple, distorted and disarticulated siltstone (diapir)

13500 S — Rubble

COSTEAN "E" EXTENDED

34500

00
20
12 800 — 40
60
80 — SCREE — 70
100

11 - 78 - Tapley's Hill shale, well - weathered red, iron - rich, with minor minor colour banding; poorly leached. Rock containing 1 - 2% mica has a gritty texture and is slightly disturbed.

22 - 26 - Iron - magnesium concetion, partially gossanous, with no obvious structure.

078 - 100 - Tillite, grey with few erratics. Gritty, silty matrix is quite massive with slight colour banding.

COSTEAN "F"

13050 S — Rubble

Light grey silty tillite with coarser sandy bands.
Erratics, rare and small; manganese concretions up to 1/8" diameter. Passes south to gritty siltstone locally banded and poorly leached with no visible erratics.

13100 — Iron - rich sandstone with siltstone interbands

Light grey, generally medium - grained tillite, containing small erratics and some silty and sandy bands.

13150 — Cu

20 - 90 - Grey silty tillite with plentiful sandstone interbands.
Rare erratics are up to 4 in. in diameter. Sporadic copper mineralization.

13200 — Cu

Primarily altered tillitic sandstone, poorly leached with silty bands.
Erratics small; number of erratics increases to the south to form up to 20% of rock.

13250 — 40 - 70 - Good tillite with erratics up to 2-3 in. diameter. 1 ft. zone of black tindelpina like shale. Erratics up to 3/4" in. diameter.

Zone of diapiric influence characterised by brecciation, high Fe content and excessive weathering, due possibly to hydrothermal alteration.
80 - 1 in. sandstone band with good copper.
2" brecciated quartz vein.

13300 — 87 - 302 - Irregular occurrences of copper, increase in iron veins

15 - 33 - Highly silicified tillite with sandy matrix

33 - Iron concentration increases sharply to the south.

13350 —

13400 — Diapir, dark red to purple colouration, highly sheared and distorted, moderately silicified rocks with high iron content.

13450 —

13500 S

COSTEAN "G"

13100 S — SCREE

15 - 32 - Sandy to silty tillite with few erratics which are small and highly siliceous with minor iron content.

13150 — Sandy tillite with 10% of small quartzitic erratics.
Minor silty bands in matrix only.

13200 — Cu — 200 - Matrix becoming silty and frequency of erratics decreasing to south

220 - Matrix, gritty siltstone or fine - grained sandstone.

13250 — Cu — 250 - 330 - Fine grained sandstone and siltstone interbanding. Highly kaolinized and poorly leached.
270 - 2 in. quartz - iron zone. Slightly gossanous. 125° - Vertical. Interbanding more obvious south of 280

13300 — Cu

30 - Silty interbands decrease southwards

13350 — 355 - 480 - Grainsize increasing. Erratics (some of shale and siltstone), form 20 - 40% of rock.

13400 — 405 - 2" quartz - iron vein, strike 120° near vertical.
Decrease in grain size, and less erratics.

400 - 450 - Grainsize and erratic content locally reduced

13450 —

13500 S — 480 - 500 - Diapirically influenced tillite, with high iron content. Moderate weathering.

Scree

COSTEAN "H"

13000 S — SCREE

16 - 109 - Tillite with sandy to silty matrix, containing variable amounts of small to moderate erratics.
Light grey, altered, poorly leached; fair to moderate iron, produces a general tan tinge.

13050 — 65

Tillite showing good slickenslides, and excessive evidence of movement.

13100 — Cu

9 - 85 - Strong colour banding in red and black, becomes stronger southwards.
Tillite is highly altered, partially leached and strongly influenced by diapirism.
Narrow bands of less affected tillite of unknown origin. Area is apparantly hydrothermally altered possibly because of diapirism.

13150 —

13200 S — SCREE

COSTEAN "I"

35050 W

12600 S — SCREE

10 - 80 - Gritty micaceous siltstone (member of the tillite unit) moderately iron - rich uniform structure minor banding; Highly kaolinized and poorly leached.

12650 —

80 - Band of dark, highly siliceous, poorly porous, quartzitic sandstone.

12700 — 705 - Quartzitic tillite band and coarse - grained, siliceous very hard and with rich iron content.

680 - 880 - Silty tillite with minor Fe banding, becoming slightly more gritty to the south.
Erratics are small - to medium - grained, well rounded and highly siliceous.

12750 — 1 ft. zone of medium - grained sandstone banding, interbedded with gritty siltstone

12800 —

10 - 2 ft. band of medium - grained sandstone

12850 —

SCREE

12900 S

TILLITE

DIAPIR - STRONGLY DISTORTED AND DISARTICULATED, DARK COLOURED ROCKS WITH HIGH IRON CONTENT.

TAPLEY HILL SHALE

DIAPIRICALLY INFLUENCED ZONE, WITH ABUNDANT INTRODUCED IRON AND MANGANESE.

ROCK AND/OR ZONAL CONTACT

70 DIP AND STRIKE

Cu OCCURRENCE OF COPPER

WEAK FAULT ZONE
STRONG FAULT ZONE

Note: Costean width scale is exaggerated by approx. 5 times.

2418(I) - 3

N

0 50 100 150 feet
SCALE

BRIDGE MINERALS PTY. LTD.

GEOLOGY OF COSTEANS

COALFIELDS PROSPECT E.L.126

COPLEY AREA S. A.

Geology J. Shirley	Drawn: D. Anderson
Date 20-8-74	Drawing No: S.A. 32

Fig 8

138°20'E

138°25'E

138°30'E

30°25'S

30°30'S

30°35'S

NORTH FIELD

Lobe 'D'

Lobe 'C'

Telford R.S.

Leigh Creek

TELFORD BASIN

Lobe 'B'

Copley

COPLEY BASIN

Lobe 'A'

AROONA DAM

MOUNTAIN OF LIGHT GRID AREA

LOCATION MAP
COPLEY AREA

1" = 1 mile

Road

Track

Railway

2418(I)-4

Fig. 1

16,600E 16,800E 17,000E 17,200E 17,400E 17,600E 17,800E 18,000E 18,200E 18,400E 18,600E 18,800E 19,000E 19,200E 19,400E 19,600E 19,800E 20,000E 20,200E 20,400E 20,600E 20,800E 21,000E

10,000 N 9,800 N 9,600 N 9,400 N 9,200 N 9,000 N 8,800 N 8,600 N 8,400 N 8,200 N 8,000 N 7,800 N 7,600 N 7,400 N 7,200 N

R.L. 600'

Proposed pit

Proposed leach dump

Proposed overburden dump

Road

Fence

Telephone line

SCALE

0 200 400 600 FEET

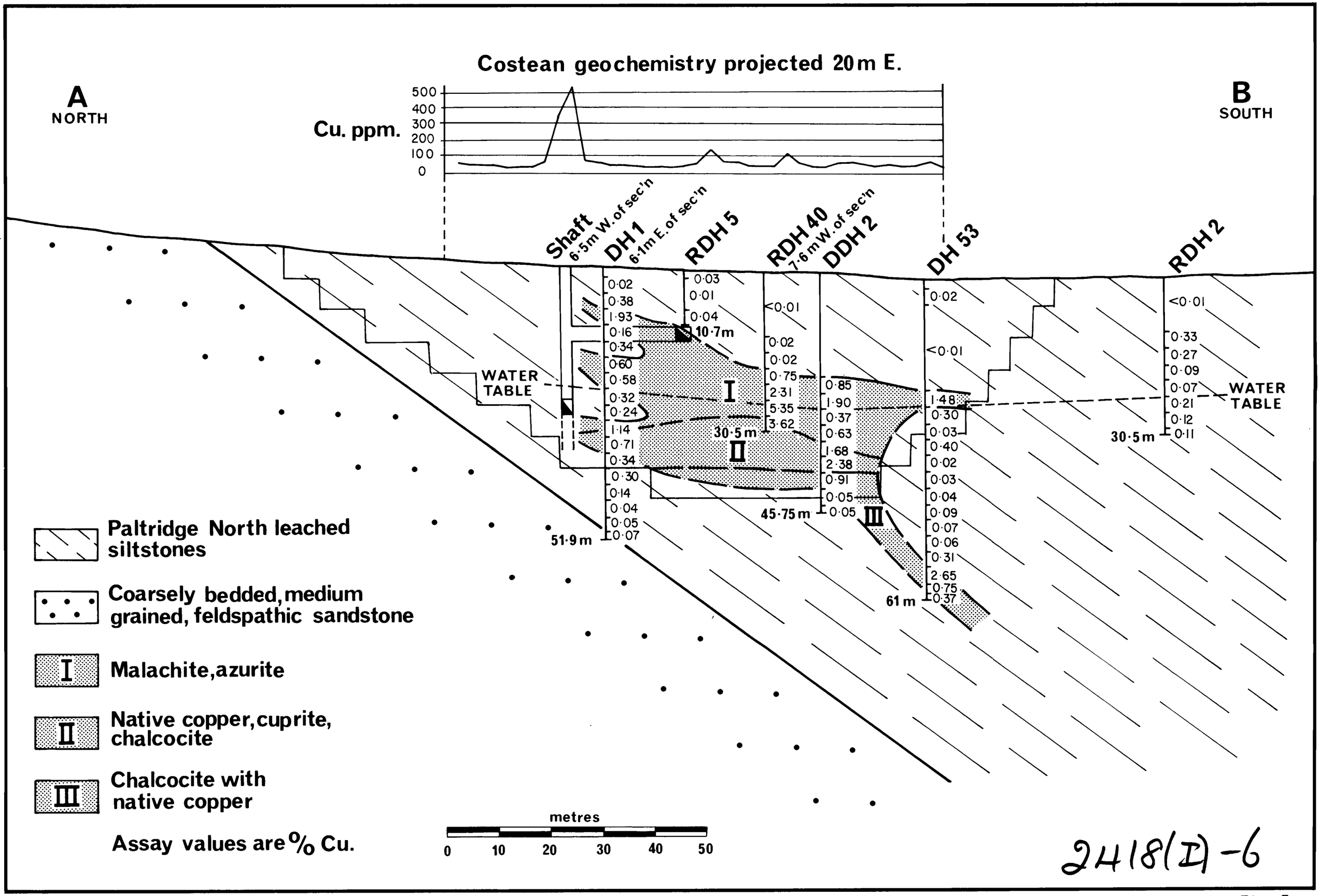
2418(I)-5

BRIDGE MINERALS PTY. LTD.

PROPOSED PIT PLAN
MOUNTAIN OF LIGHT
COPLEY AREA

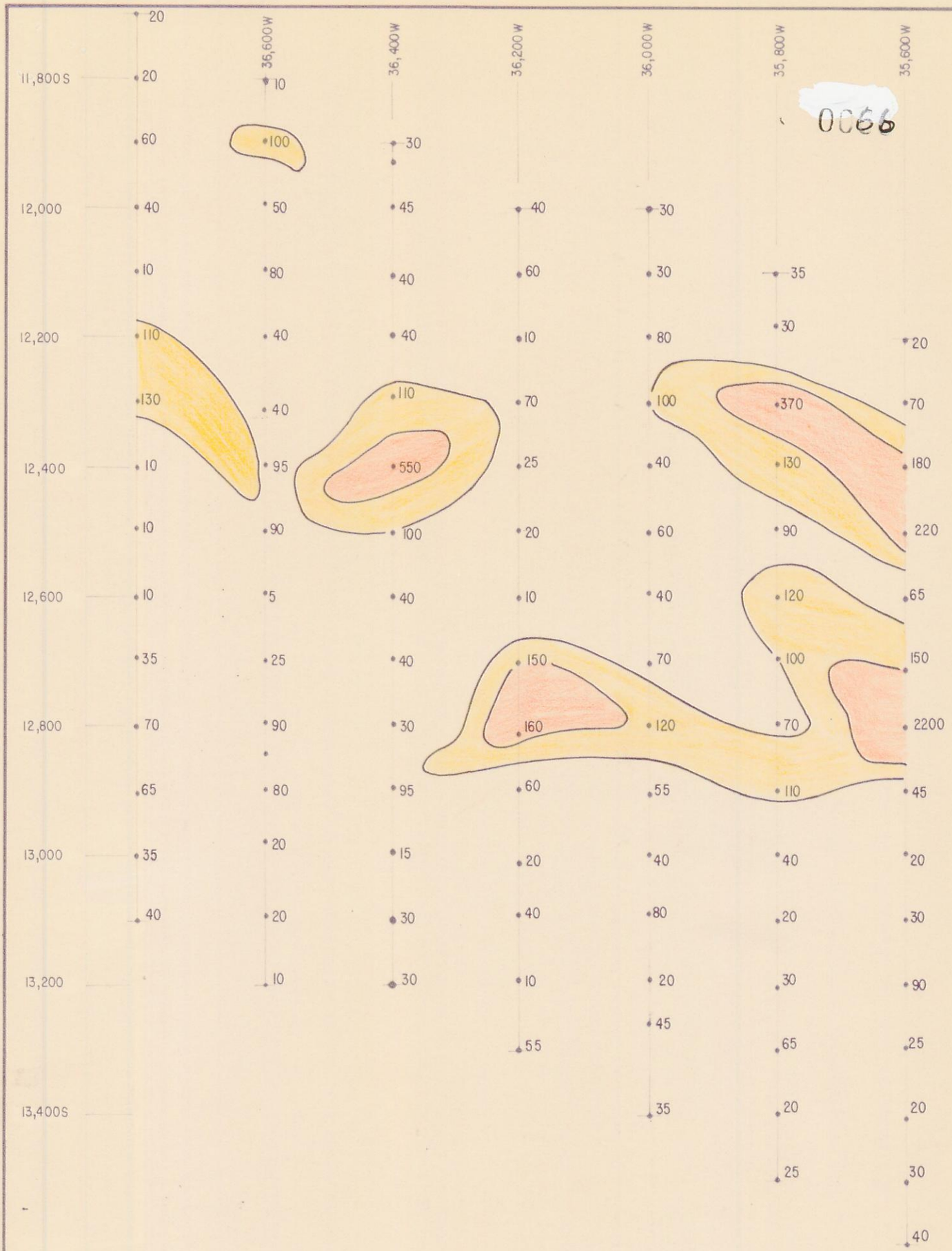
GEOLOGIST: M. HATCHER	DRAWN: G. GOODWIN
DATE: 4:6:75	DRWG. No.:

Fig. 4


Costean geochemistry projected 20m E.
A
NORTH
B
SOUTH
Cu. ppm.
500
400
300
200
100
0
Shaft
6·5m W. of sec'n
DH 1
6·1m E. of sec'n
RDH 5
RDH 40
7·6m W. of sec'n
DDH 2
DH 53
RDH 2
WATER TABLE
10·7m
30·5m
45·75m
51·9m
61m
0·02
0·38
1·93
0·16
0·34
0·60
0·58
0·32
0·24
1·14
0·71
0·34
0·30
0·14
0·04
0·05
0·07
0·03
0·01
0·04
<0·01
0·02
0·02
0·75
2·31
5·35
3·62
0·85
1·90
0·37
0·63
1·68
2·38
0·91
0·05
0·05
0·02
<0·01
1·48
0·30
0·03
0·40
0·02
0·03
0·04
0·09
0·07
0·06
0·31
2·65
0·75
0·37
<0·01
0·33
0·27
0·09
0·07
0·21
0·12
0·11
I
II
III
Paltridge North leached siltstones
Coarsely bedded, medium grained, feldspathic sandstone
Malachite, azurite
Native copper, cuprite, chalcocite
Chalcocite with native copper
Assay values are % Cu.
metres
0
10
20
30
40
50

2418(D)-6

Fig. 5



100 – 149 ppm.

>150 ppm. (anomalous)

30 Auger hole & Cu. value in ppm.

SCALE

0 200 400 600 Feet

BRIDGE MINERALS PTY. LTD.

AUGER DRILL GEOCHEMISTRY

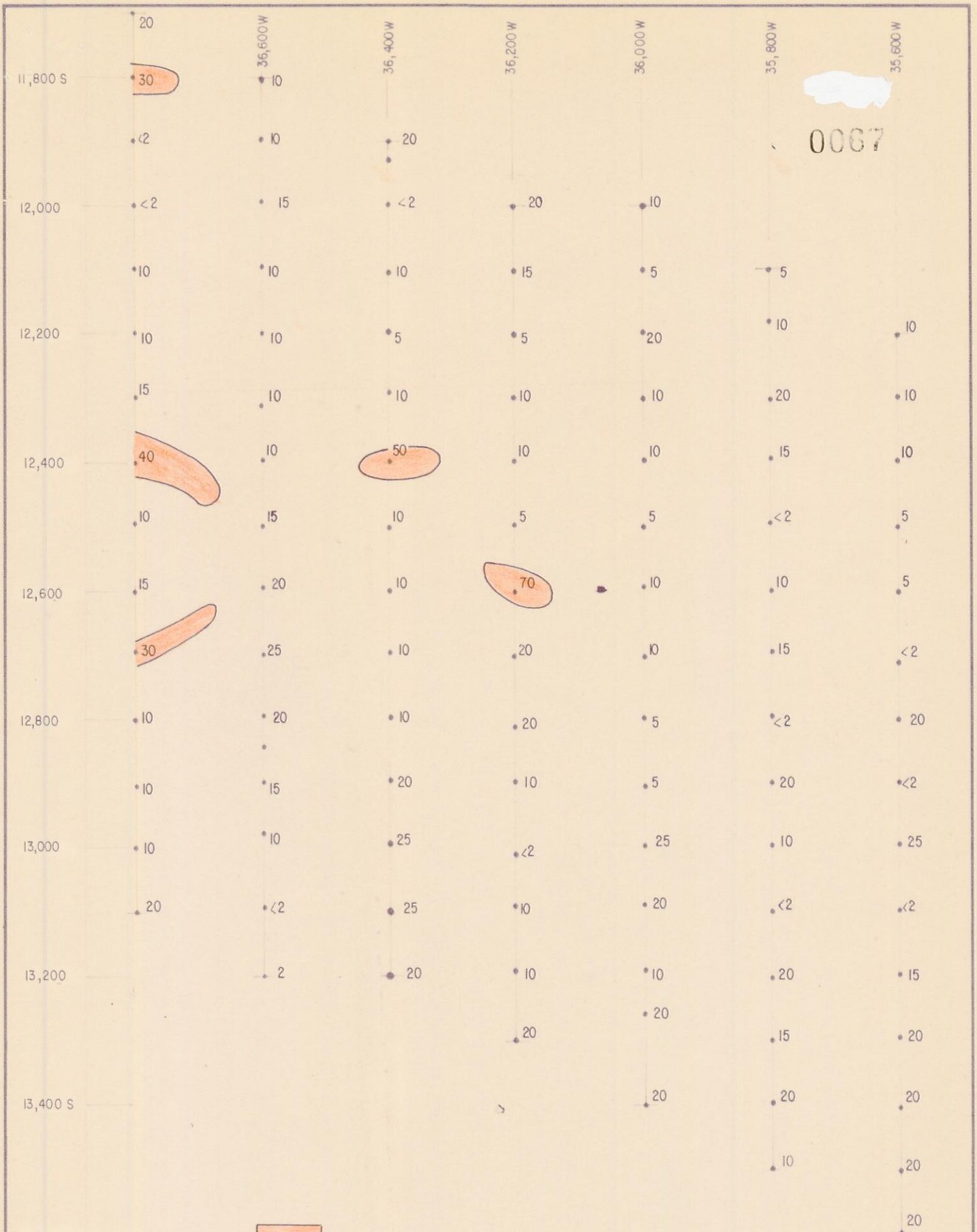
COPPER VALUES

COALFIELDS PROSPECT. E.L. 126

COPLEY, SOUTH AUSTRALIA

Geology J Shirley	Drawn G Goodwin
Date 19 8 74	Drawing No S.A. 35

Fig. 9



0067

SCALE

0 200 400 600 Feet

BRIDGE MINERALS PTY. LTD.

AUGER DRILL GEOCHEMISTRY

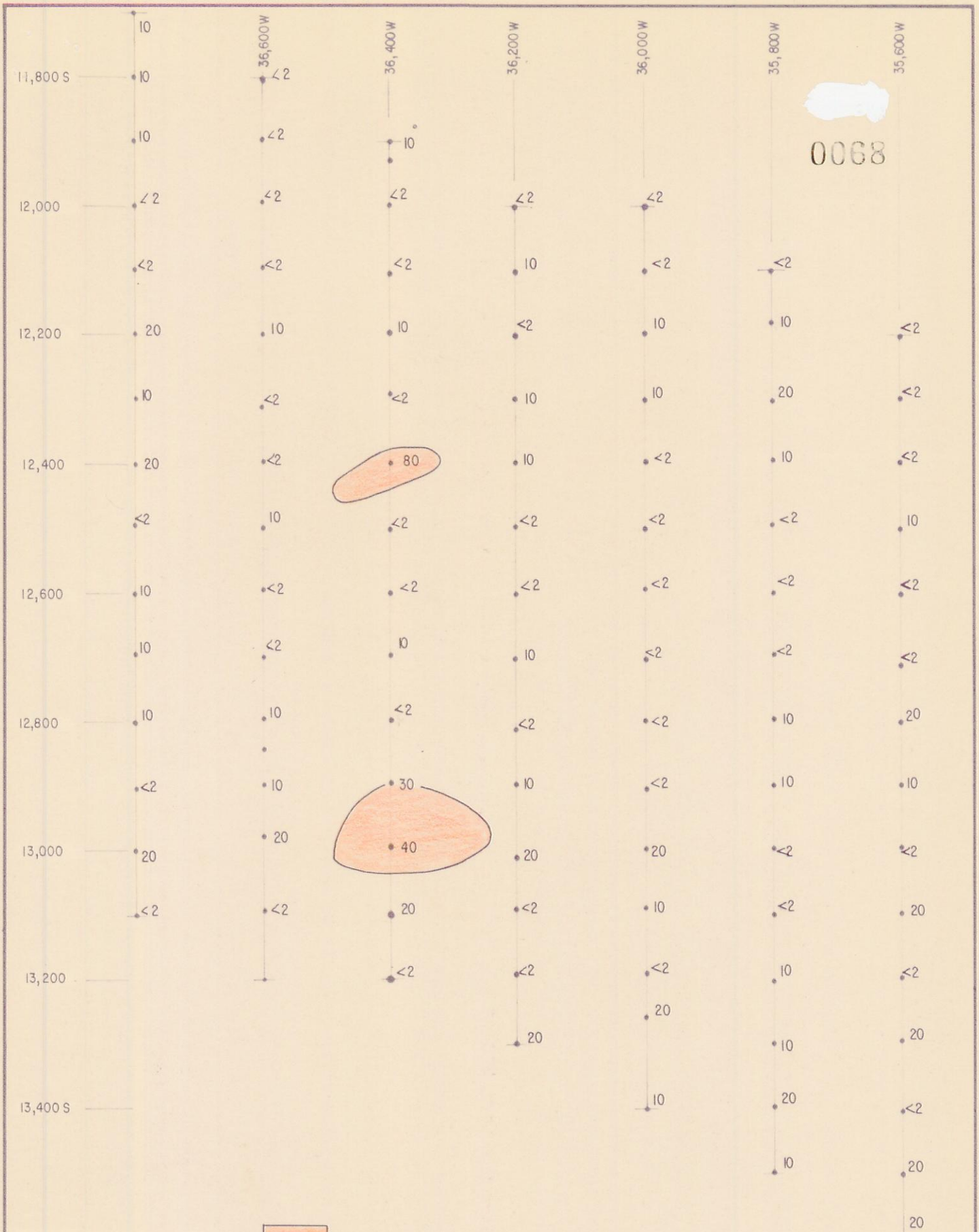
COBALT VALUES

COALFIELDS PROSPECT. E.L.126

COPLEY, SOUTH AUSTRALIA

Geology: J Shirley	Drawn: G Goodwin
Date: 19 8 74	Drawing No: S.A. 37

Fig. 10



SCALE

0 200 400 600 Feet

BRIDGE MINERALS PTY. LTD.

AUGER DRILL GEOCHEMISTRY

ARSENIC VALUE

COALFIELDS PROSPECT. E.L.126

COPLEY, SOUTH AUSTRALIA

Geology: J Shirley	Drawn: G Goodwin
Date: 19 8 74	Drawing No: S.A. 36

Fig. 11

21,500 W | 20,500 W | 19,500 W | 18,500 W | 17,500 W | 16,500 W

25,000 S

26,000 S

27,000 S

Shale & Dol. bands

Dol

Diapir

Dol. breccia

breccia

bracciated ?

Dol. intrusive Shear edges

Silicified Fe. rich

S.S.

S.S. well 65 bedded

purple Slt.

Cu

Diapir - white evaporitic surface (Calcite ?)

purple Slt Fe. bands

AIR PHOTO MEB 4022

TAPLEY HILL — Brown Shale, interbedded Dolomite

DOLOMITE — Ferruginous, buff colour, med. grained, shows evidence of intrusive origin & brecciation as a result of diapiric action

DIAPIR — Sandstone, well bedded, ripple marks, medium to coarse grained

Purple brecciated Siltstone, very highly contorted

F — F Fault

60 Foliation

Outcrop

Dol Dolomite

S.S. Sandstone

Slt Siltstone

Cu Copper

Small cliff

Pit

Inferred contact

SCALE 1:2400

0 200 400 600 800 FEET

BRIDGE MINERALS PTY. LTD.

GRID OUTCROP AND INTERPRETED GEOLOGY

SUNDAY WELL GRID

E.L. 126

COPLEY AREA, SOUTH AUSTRALIA

Geology by : J. Shirley	Drawn by : G. Goodwin
Date : 11 - 1 - 74	Drwg. No. : S.A. 30

2418(I) - 1

FIG. 12.

TAPLEY HILL
- Brown shale and ferruginous laminated siltstone
- Bands of dolomite, limonite—geothite gossan in a brown shale with minor sandstone and quartzite (Top of tillite unit)

TILLITE
- Light green colour, kaolinized and moderately leached, irratics up to several inches in diameter. Shows facies changes to siltstone and sandstone which are also highly kaolinised and moderately leached

SANDSTONE
- Massive, coarse grained, ferruginous, well sorted minor kaolinization, facies of tillite unit

PIERCEMENT ROCKS
- Dolomite, usually massive, brown to light red, highly ferruginous
- Sandstone, well bedded, shows crossbedding and manganese banding
- Light grey shale

sh	Shale
ss	Sandstone
s	Siltstone
d	Dolomite
qtzite	Quartzite
t	Tillite
k	Kaolinised
b	Breccia
g	Gossan
Cu	Copper occurence
unalt.	Unaltered

(symbol)	Outcrop
— —	Interpreted contact
- - - -	Interpreted contact, inferred
F —— F	Fault
F - - - F	Fault, inferred
60	Foliation
60	Shear
60	Joint
CRH9	Rotary drill hole & number
1·52	Costean with copper value in %

N

BRIDGE MINERALS PTY. LTD.

COALFIELDS PROSPECT
SOUTH AUSTRALIA

GRID OUTCROP AND INTERPRETED GEOLOGY

Geology: J. Shirley
Drawn: G.Goodwin
Date: 27-8-73
Drwg. No.: 2418(I)-2

SCALE IN FEET
0 200 400 600

Fig. 6 B DRWG. No. S A 31

over a very limited area. In 1972, this Company carried out a soil geochemistry and I.P. geophysical program on a 400 x 100 ft. grid over the property. As a result of this work the property was considered to have little potential and no further work was carried out.

During 1974 the Sunday Well prospect was geologically mapped (Fig. 12) with a view to comparing the geology and form of mineralisation with other prospects in the area, in particular the Mountain of Light. Due to the lack of exposure and the complex nature of the diapir, it was difficult to interpret the geology. However, it would seem that the prospect lies within a brecciated, leached and ferruginous band of siltstone, sandstone and dolomite. Malachite is restricted to narrow veinlets within diapir siltstone.

FUTURE EXPLORATION

Further work planned for E.L. 126 can be divided into two categories:-

1. Development and Exploitation of Secondary Copper Reserves

The research into the technology of heap leaching oxidized copper ore will be concluded during the first half of the 1975 calendar year. The main emphasis of this study is the practical aspects of dump construction to allow maximum permeation of acid and consequent maximum recovery of copper. The study is centred on operating large scale dump leaching operations in the U.S.A.

2. Exploration for Primary Copper Sulphides

It is felt that the holes intersecting copper sulphides require follow up work. An exploration program involving auger geochemistry for cobalt and copper and geophysical surveys is planned to commence in February. This program will be followed up with a percussion program involving at least eight 600 ft. percussion holes. The minimum expenditure for both facets of the program will be $60,000.

0070

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APPENDIX I

ASSAY DATA FROM PALTRIDGE NORTH

BATCH A

0072

MOUNTAIN OF LIGHT ORE BODY

GEOCHEMICAL ASSAYS OF SELECTED SAMPLES

FOR COBALT, VANADIUM AND PRECIOUS METALS

Drill Hole	Footage From	Footage To	Length Ft.	Sample Number	Assays PPM Co	Assays PPM V
DH-8	100	105	5	8-1	430	200
	105	110	5	8-2	2500	300
	110	115	5	8-3	Not received	
	115	120	5	8-4	3100	50
	120	125	5	8-5	2600	50
	125	130	5	8-6	2400	50
DH-10	70	75	5	10-1	20	100
	75	80	5	10-2	15	300
	80	85	5	10-3	15	100
	85	90	5	10-4	170	300
	90	95	5	10-5	170	100
DH-19	140	145	5	19-1	5	20
	145	150	5	19-2	15	100
	150	155	5	19-3	10	100
	155	160	5	19-4	10	50
	160	165	5	19-5	10	100
	165	170	5	19-6	20	100
DH-23	65	70	5	23-1	35	200
	70	75	5	23-2	20	100
	75	80	5	23-3	25	100
	80	85	5	23-4	10	100
RE-3	160	165	5	B0-100	45	50
	165	170	5	B0-101	50	100
	170	175	5	B0-102	60	50
RE-4	100	105	5	B0-128	50	50
	105	110	5	B0-129	25	100
	110	115	5	B0-130	30	50
	115	120	5	B0-131	30	50
	120	125	5	B0-132	65	100

The above samples were composited into Sample C-1 which on fire assay was found to contain less than 01. ppm Au and less than 0.1 ppm Ag.

BATCH B

0073

MOUNTAIN OF LIGHT OREBODY

GEOCHEMICAL ASSAYS OF SELECTED SAMPLES

FOR COBALT, VANADIUM AND PRECIOUS METALS

Drill Hole	Footage From	Footage To	Length Feet	Sample Number	Assays PPM Co	Assays PPM V
DH-8	60	65	5	8- 1	15	
DH-19	95	100	5	19-13	5	
	105	110	5	19-15	25	
DH-23	100	105	5	1		
	105	110	5	23- 1	15	
	110	115	5	23- 3	10	
	115	120	5	4		
	120	125	5	23- 5	10	
DH-47	100	105	5	47- 1	10	
	105	110	5	47- 2	20	
	110	115	5	47- 3	5	
	115	120	5	47- 4	10	
	120	125	5	47- 5	30	
DH-53	175	180	5	53- 1	320	
	180	185	5	53- 2	120	
	185	190	5	53- 3	65	
	190	195	5	53- 4	170	
	195	200	5	53- 5	110	
RDH-3	60	65	5	3- 1	55	
	65	70	5	3- 2	5	
	70	75	5	3- 3	10	
	75	80	5	3- 4	10	
	80	85	5	3- 5	20	
	85	90	5	3- 6	15	
	90	95	5	3- 7	10	
	95	100	5	3- 8	10	
	100	105	5	3- 9	10	
	105	110	5	3-10	15	
RDH-16	35	40	5	16- 1	50	
	40	45	5	16- 2	120	
	45	50	5	16- 3	140	
	50	55	5	16- 4	200	
	55	60	5	16- 5	310	
	65	70	5	16- 7	55	
	70	75	5	16- 8	65	
	75	80	5	16- 9	160	
	80	85	5	16-10	60	
	85	90	5	16-11	85	
RDH-19	35	40	5	19- 1	5	
	40	45	5	19- 2	5	
	45	50	5	19- 3	5	
	50	55	5	19- 4	10	
	55	60	5	19- 5	5	
	60	65	5	19- 6	10	
	65	70	5	19- 7	10	
	70	75	5	19- 8	5	
	75	80	5	19- 9	10	
	85	90	5	19-11	5	

Drill Hole	Footage From	Footage To	Length Feet	Sample Number	Assays PPM Co	Assays PPM V
PE-2	5	10	5	AO-27	15	
	10	15	5	AO-28	10	
	15	20	5	AO-29	15	
	20	25	5	AO-30	10	
RS-2	5	10	5	CO-26	5	
	10	15	5	CO-27	10	
	15	20	5	CO-28	10	
	20	25	5	CO-29	10	
	25	30	5	CO-30	35	
	30	35	5	CO-31	20	

BATCH C 0075

MOUNTAIN OF LIGHT OREBODY

GEOCHEMICAL ASSAYS OF SELECTED SAMPLES

FOR COBALT, VANADIUM AND PRECIOUS METALS

Drill Hole	Footage From	Footage To	Length Foot	Sample Number	Assays PPM Co	Assays PPM V
DH-4	70	75	5	4 - 1	10	
	75	80	5	4 - 2	35	
	80	85	5	4 - 3	10	
	85	90	5	4 - 4	20	
	100	105	5	4 - 7	10	
	105	110	5	4 - 8	10	
	110	115	5	4 - 9	10	
	115	120		4 -10	10	
DH-6	75	*80	5	6 - 1	5	
	80	85	5	6 - 2	<5	
	85	90	5	6 - 3	<5	
	90	95	5	6 - 4	5	
	95	100	5	6 - 5	10	
	100	105	5	6 - 6	5	
	105	110	5	6 - 7	5	
	110	115	5	6 - 8	5	
	115	120	5	6 - 9	10	
	120	125	5	6 -10	10	
	125	130	5	6 -11	15	
	130	135	5	6 -12	5	
	135	140	5	6 -13	<5	
DH-7	65	*70	5	7 - 1	5	
	70	75	5	7 - 2	5	
	80	85	5	7 - 4	5	
	85	90	5	7 - 5	65	
	90	95	5	7 - 6	110	
	95	100	5	7 - 7	20	
	100	105	5	7 - 8	60	
	110	120	5	7 -10	35	
DH-11	40	45	5	11 - 1	10	
	45	50	5	11 - 2	5	
	50	55	5	11 - 3	<5	
	55	60	5	11 - 4	<5	
	60	65	5	11 - 5	5	
	65	70	5	11 - 6	5	
	70	75	5	11 - 7	5	
	75	80	5	11 - 8	5	
	80	85	5	11 - 9	5	
	85	90	5	11 -10	5	
	90	95	5	11 -11	5	
DH-17	65	*70	5	17 - 1	5	
	70	75	5	17 - 2	5	
	75	80	5	17 - 3	10	
	80	85	5	17 - 4	15	
	85	90	5	17 - 5	10	
	90	95	5	17 - 6	10	
	100	105	5	17 - 8	10	

Drill Hole	Footage From	Footage To	Length Feet	Sample Number	Assays PPM Co	Assays PPM V
DH-18	115	120	5	D18- 1	5	
	120	125	5	D18- 2	5	
	125	130	5	D18- 3	<5	
	135	140	5	D18- 5	<5	
	140	145	5	D18- 6	5	
	145	150	5	D18- 7	5	
DH-20	50	55	5	20- 1	5	
	55	60	5	20- 2	5	
	60	65	5	20- 3	5	
	65	70	5	20- 4	10	
	70	75	5	20- 5	10	
	75	80	5	20- 6	5	
	80	85	5	20- 7	5	
	85	90	5	20- 8	5	
	90	95	5	20- 9	5	
	95	100	5	20-10	5	
	100	105	5	20-11	5	
	105	110	5	20-12	20	
	110	115	5	20-13	10	
	115	120	5	20-14	5	
	120	125	5	20-15	5	
	125	130	5	20-16	5	
	130	135	5	20-17	5	
	135	140	5	20-18	5	
	140	145	5	20-19	10	
	145	150	5	20-20	10	
DH-21	35	40	5	21- 1	5	
	45	50	5	21- 3	5	
	50	55	5	21- 4	5	
	55	60	5	21- 5	5	
	60	65	5	21- 6	5	
	65	70	5	21- 7	5	
	70	75	5	21- 8	10	
	75	80	5	21- 9	5	
	80	85	5	21-10	5	
	85	90	5	21-11	5	
	90	95	5	21-12	80	
	100	105	5	21-14	5	
	115	120	5	21-17		
	120	125	5	21-18	10	
	125	130	5	21-19	10	
	130	135	5	21-20	10	
	135	140	5	21-21	5	
	140	145	5	21-22	5	
DH-24	65	70	5	24- 1	10	
	70	75	5	24- 2	15	
	75	80	5	24- 3	10	
	80	85	5	24- 4	10	
	85	90	5	24- 5	10	
	90	95	5	24- 6	5	
	95	100	5	24- 7	10	
	120	125	5	24-12	15	
RDH-8	65	70	5	R8- 1	30	
	70	75	5	R8- 2	10	
	75	80	5	R8- 3	20	
	85	90	5	R8- 5	30	

Drill Hole	Footage From	Footage To	Length Feet	Sample Number	Assays PPM Co	Assays PPM V
RDH-14	45	50	5	14 - 1	10	
	50	55	5	14 - 2	10	
	55	60	5	14 - 3	10	
	60	65	5	14 - 4	10	
	70	75	5	14 - 6	70	
	85	90	5	14 - 9	15	
	90	95	5	14 -10	20	
	95	100	5	14 -11	85	
	100	105	5	14 -12	60	
RDH-18	65	70	5	H18 - 1	5	
	70	75	5	H18 - 2	10	
	75	80	5	H18 - 3	10	
	80	85	5	H18 - 4	10	
	85	90	5	H18 - 5	25	
	90	95	5	H18 - 6	10	
	95	100	5	H18 - 7	15	
RDH-23	10	15	5	23 - 1	90	
	15	20	5	23 - 2	55	
RDH-29	30	35	5	29 - 1	10	
	35	40	5	29 - 2	10	
	55	60	5	29 - 6	20	
RDH-31	55	60	5	31 - 1	20	
	60	65	5	31 - 2	20	
RDH-32	90	95	5	32 -5A	10	
	90	95	5	32 -5B	<5	
RDH-33	55	60	5	33 - 1	10	
	80	85	5	33 - 3	5	
	95	100	5	33 - 6	5	
	100	105	5	33 - 7	<5	
	105	110	5	33 - 8	5	
	110	115	5	33 - 9	10	
	115	120	5	33 -10	10	
	120	125	5	33 -11	5	
	135	140	5	33 -14	10	
RDH-35	55	60	5	35 - 4	10	
	60	65	5	35 - 5	5	
	65	70	5	35 - 6	5	
	70	75	5	35 - 7	5	
	85	90	5	35 -10	5	
	90	95	5	35 -11	5	
	95	100	5	35 -12	10	
RDH-36	55	60	5	36 - 1	5	
	60	65	5	36 - 2	5	
	65	70	5	36 - 3	5	
	70	75	5	36 - 4	10	
	75	80	5	36 - 5	5	
	80	85	5	36 - 6	5	
	85	90	5	36 - 7	10	
	90	95	5	36 - 8	5	
	95	100	5	36 - 9	5	
RDH-40	65	70	5	40 - 1	5	
	75	80	5	40 - 3	5	
	80	85	5	40 - 4	35	
	85	90	5	40 - 5	10	
	90	95	5	40 - 6	5	
	95	100	5	40 - 7	10	

APPENDIX II

AUGER GEOCHEMISTRY RESULTS - MOUNTAIN OF LIGHT

BRIDGE MINERALS PTY. LIMITED

AUGER GEOCHEMICAL LOG

0079

State : South Australia
Area : Copley
Prospect : Mountain of Light (Fox Areas)
Drilled By : Bridge Minerals
Drillers : J. Shirley, P. Jones
Logged By : J. Shirley

Co-ordinates: As Noted
Depth : As Noted
Date : November 1973
Auger Size : 3.5 in.
Machine : Fox' Auger
Water Table : -

Lines are Recorded in Progressive Order from South to North

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	Co	As
72N - 205E	Light brown ferruginous siltstone altered, partially leached.	10'	A4828	50	*	*
72N - 204E	White to light brown siltstone altered, partially leached.	10'	A4829	60	*	10
72N - 203E	Red Ferruginous gritty siltstone, coarse grained, greyer coloured with depth.	7'	A4830	75	*	*
72N - 202E	Grey to light coloured siltstone, gritty, leached & altered.	7'	A4831	25	*	40
72N - 201E	Light grey siltstone brownish tinge S.A.A.	8'	A4832	55	35	*
72N - 200E	Light brown siltstone S.A.A.	9'	A4833	45	20	*
72N - 199E	Grey siltstone, gritty, altered, moderately leached.	9'	A4834	390	30	10
72N - 198E	S.A.A.	7'	A4835	150	25	*
72N - 192E	S.A.A.	7'	A4836	180	20	10
74N - 208E	Grey to brown siltstone, fe rich bands, fissile, altered partially leached.	15'	A4801	50	5	*
74N - 207E	Brown to red ferruginous siltstone, altered, partially leached.	15'	A4802	10	15	*
74N - 206E	Brown Fe siltstone, S.A.A.	10'	A4803	85	25	*

* Less than 5 ppm

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0080

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	Co	As
74N - 205E	Light greenish brown siltstone, altered, partially leached & at bottom of hole.	20'	A4804	50	20	*
74N - 204E	Light brown siltstone altered partially leached.	15'	A4805	160	*	10
74N - 203E	Red & grey banded siltstone, altered, leached, highly gypsiferous.	15'	A4806	60	20	10
74N - 202E	Grey to light brown siltstone, altered, moderately leached.	22'	A4807	20	*	*
74N - 201E	Light grey siltstone, S.A.A.	8'	A4808	100	10	20
74N - 200E	Grey siltstone, ferruginous for first 15', altered, moderately leached.	25'	A4809	240	20	30
74N - 199E	Siltstone grey to light brown, red coloured altered, moderately leached.	20'	A4810	150	40	10
74N - 198E	Grey gritty quartzose siltstone, altered, partially leached.	12'	A4811	100	30	20
74N - 197E	Greenish-grey gritty siltstone, coarse grained, altered, partially leached.	15'	A4812	5	80	10
76N - 19720E	Light grey to white leached gritty siltstone, altered.	12'	A4813	50	10	*
76N - 198E	S.A.A.	10'	A4814	170	60	*
76N - 199E	Light brown siltstone to grey, gritty, altered.	11'	A4815	550	45	40
76N - 200E	S.A.A.	10'	A4816	180	*	30
76N - 210E	S.A.A. highly altered and leached.	8'	A4817	55	*	*
76N - 202E	S.A.A. light grey (greenish) fine grained, not gritty.	9'	A4818	55	*	*
76N - 203E	White to light green S.A.A.	10'	A4819	75	*	*

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0081

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	Co	As
76N - 204E	S.A.A.	10'	A4820	45	*	*
76N - 205E	S.A.A. has a darker coloured, altered, well leached.	7'	A4821	45	*	*
76N - 206E	Brown ferruginous siltstone, altered, partially leached.	7'	A4822	40	5	10
76N - 207E	Brown ferruginous siltstone.	10'	A4823	20	10	10
76N - 210E	Purple to reddish brown siltstone, highly altered, moderately leached, micaceous.	0-14.5	A4709	80	45	20
76N - 209E	Brown ferruginous siltstone, altered, partially leached.	0-13'	A4710	25	15	*
76N - 208E	Purplish grey to reddish siltstone, highly altered, moderately leached.	0-10'	A4711	45	25	5
78N - 207E	Brown ferruginous siltstone, altered poorly leached, grit hard.	0-10'	A4705	65	*	10
78N - 208E	Typical brown ferruginous siltstone.	0-12'	A4706	30	10	*
78N - 209E	Typical brown ferruginous siltstone.	0-11'	A4707	20	20	*
78N - 210E	Purplish brown siltstone, well altered, partially leached.	0-13'	A4708	35	90	20
79N - 203E	Grey to greenish siltstone, strongly kaolinized and leached.	10'				
79N - 202E	" " " "	8'	A2901	100	*	*
79N - 201E	Grey-greenish siltstone, kaolinized and leached ferruginous bands, minor silicification.	10'	A2902	70	*	*
79N - 200E	Intensive alteration and leaching, quartzose, grey-greenish siltstone.	7'	A2903	70	*	10

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0082

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	Co	As
79N - 199E	Quartzose grey-greenish siltstone, well leached and altered, silicified bands.	10'	A2904	35	*	10
79N - 198E	S.A.A.	7'	A2905	65	*	20
80N - 213E	Brown ferruginous siltstone, poorly altered unleached.	0-10'	A4697	20	20	*
80N - 212E	Brown to tan ferruginous siltstone, altered, poorly leached.	0-11'	A4698	30	*	10
80N - 211E	Brown to red siltstone, highly altered & well leached, some lesser leached bands.	0-12'	A4699	20	*	*
80N - 210E	Grey brown to light red siltstone, gritty altered, well leached bands.	0-12'	A4700	30	*	10
80N - 209E	Brown siltstone, altered, poorly leached gritty iron veins.	0-11'	A4701	30	15	*
80N - 208E	Brown to red ferruginous gritty siltstone altered poorly leached.	0-11'	A4702	25	20	*
80N - 207E	Grey siltstone, red iron rich bands highly altered moderate to well leached.	0-15'	A4703	90	10	10
80N - 20625E	Grey siltstone, highly altered, well leached iron veins.	0-13'	A4704	110	*	*
82N - 206E	Greenish-grey siltstone, highly altered partially leached.	0-14.5'	A4689	55	*	20
82N - 207E	Brown ferruginous siltstone altered poorly leached, gritty.	0-12'	A4690	50	40	70
82N - 208E	Brown siltstone, gritty & quartzose strongly iron veined altered, poorly leached.	0-13'	A4691	90	60	10

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0083

Co-Ords	Description	Depth	Sample No.	Analyses PPM.		
				Cu	Co	As
82N - 209E	Brown ferruginous, coarse gritty siltstone, altered poorly leached.	0-12'	A4692	30	25	10
82N - 210E	Brown ferruginous siltstone, iron veins	0-11'	A4693	25	15	*
82N - 211E	Brown ferruginous siltstone, altered partially leached.	0-13'	A4694	30	10	10
82N - 212E	Brown siltstone, altered poorly leached.	0-10'	A4695	35	15	10
82N - 213E	Brown siltstone, dark colour, poorly altered unleached.	0-9'	A4696	35	20	*
83N - 198E	Light brown ferruginous siltstone, quartzose leached, altered, close to diapir?	10'	A2906	710	500	Over 100
83N - 199E	Light brown ferruginous siltstone, quartzose leached, altered, close to diapir?	10'	A2907	170	25	Over 100
83N - 200E	Greenish-grey siltstone, well leached and altered.	10'	A2908	45	10	20
83N - 201E	Greenish-grey siltstone, well leached, altered quartzose.	10'	A2909	660	25	Over 100
83N - 202E	Grey-greenish siltstone, light brown Fe-rich bands, well leached & altered.	10'	A2910	600	10	20
83N - 20230E	Grey to slightly ferruginous banded siltstone well leached & altered.	10'	A2911	7800	*	70
83N - 203E	Grey to slightly ferruginous banded siltstone well altered and leached.	10'	A2912	640	*	*
83N - 20350E	S.A.A.	10'	A2913	65	*	20
84N - 20490E	Grey siltstone, highly altered, partially leached.	0-10'	A4712	110	10	10

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0084

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	Co	As
84N - 206E	Greenish-grey siltstone highly altered, partially leached.	0-13'	A4713	40	*	*
84N - 207E	Grey to light siltstone, highly altered, moderately leached.	0-23'	A4714	170	20	20
84N - 208E	Grey to light brown siltstone, altered poorly leached, gritty	0-14'	A4715	430	10	10
84N - 209E	Brown ferruginous gritty siltstone, typical.	0-12.5'	A4716	20	10	10
84N - 210E	Brown ferruginous siltstone typical.	0-20'	A4717	25	10	20
85N - 204E	7' of Scree.	7'	No Sample			
85N - 203E	Brown Scree Material	10'	A2914	90	*	20
85N - 202E	Grey siltstone, highly altered & leached.	10'	A2915	140	*	20
85N - 201E	Light greenish-grey siltstone, highly altered & leached.	10'	A2916	440	5	60
85N - 200E	Light greenish-grey siltstone, highly altered & leached.	10'	A2917	220	55	20
85N - 199E	Light greenish-grey siltstone, highly altered & leached.	10'	A2918	1200	40	50
85N - 198E	Light brown to grey siltstone, quartzose and highly leached & altered.	9'	A2919	660	240	80
85N - 197E	Dark grey siltstone, well leached, iron banding, well altered.	9'	A2920	65	290	20
86N - 213E	Brown ferruginous siltstone, typical.	0-12'	A4720	30	15	10
86N - 213E	Purplish-brown siltstone, altered, poorly leached, hard.	0-10'	A4721	25	20	20
86N - 212E	Brown ferruginous siltstone, altered, poorly leached, lighter grey bands.	0-20'	A4719	20	10	*
86N - 212E	Reddish-brown siltstone, typical.	0-19'	A4722	25	10	*

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0085

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	Co	As
86N - 211E	Ferruginous siltstone, typical.	0-6'	A4718	25	10	10
86N - 211E	Reddish-brown siltstone, typical.	0-7'	A4723	20	10	10
86N - 210E	Brown siltstone, slightly colour banding, altered, partially leached.	0-20'	A4724	80	30	20
86N - 209E	Purple to grey siltstone, altered, poorly leached, iron veins, hard.	0-5'	A4725	150	15	50
86N - 208E	Brown to red ferruginous siltstone, altered, poorly leached, gritty typical.	0-14.5'	A4726	40	30	20
86N - 207E	0-10 Scree, 10-32 grey siltstone, altered, partially leached, has good malachite around 20'-25' mark, brown bands at bottom, gritty.	0-32'	A4727	2900	25	*
86N - 206E	0-10' Scree, 10-15' grey siltstone, altered, poorly leached, hard.	0-15'	A4728	50	*	10
86N - 205E	0-13' Scree, 13-20' grey siltstone, gritty, altered, partially leached.	0-20'	A4729	130	*	10
86N - 204E	Scree	0-8'	A4730	20	*	20
96N - 200E	0-8' Scree, 8-15' brown ferruginous fine grained S.S., and grey siltstone, chewed up, iron veins altered, poorly leached.	0-15'	A4688	20	20	*
97N - 200E	0-5' Scree, 5-11' brown ferruginous siltstone, diapiric locking, gritty chewed up, altered, partially leached.	0-11'	A4687	480	110	10
98N - 200E	0-12' Scree, 12-24' fine grained red S.S., grey siltstone bands, highly altered, partially leached.	0-24'	A4686	60	*	*

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0086

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	Co	As
99N - 200E	0-12' Scree, 12-25' grey gritty quartzose siltstone, highly altered, moderately leached.	0-25'	A4684	35	*	*
	Grey siltstone, quartzose & micaceous highly altered moderately leached.	25-40'	A4685	30	*	*
99N - 202E	0-8' Scree, 8'-15' brown to white fine grained S.S., even-grained, highly altered.	0-15'	A4675	20	15	10
	Brown to purplish fine grained S.S. chewed up.	15-30'	A4676	15	30	20
	Red to brown S.S., sugary texture, chewed up, purple bands.	30-45'	A4677	55	10	10
100N - 202E	0-8' Scree, 8-15' fine to medium grained S.S., light colour, non-rich diapiric bands.	0-15'	A4673	110	15	*
	Fine grained S.S., reddish to purple siltstone bands, 20-25', chewed up, grey siltstone bands.	15-35'	A4674	65	40	10
100N - 200E	0-10' Scree, 10-20' light brown micaceous quartzose, fine grained S.S. altered, leached (gritty siltstone).	0-20'	A4678	35	*	*
	Gritty siltstone, light brown, micaceous highly leached & altered.	20-40'	A4679	60	*	*
	Micaceous siltstone, altered, highly leached, light brown.	40-55'	A4680	390	*	*
101N - 200E	0-10' Scree, 10-20' brown to grey siltstone, altered, well leached, gritty bands chewed up, iron rich at bottom of hole.	0-20'	A4681	25	*	*
	S.A.A.	20-23'	A4862	25	*	*

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0087

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	Co	As
101N - 202E	0-2' Scree, purple siltstone, gypsum, chewed up, minor S.S. diapiric looking, altered well leached,	2-15'	A4670	45	*	*
	medium grained purple to red S.S. quartzose sugary texture, well undurated.	15-30'	A4671	55	15	*
	Fine grained brown to purple S.S. sugary texture, hard.	30-40'	A4672	120	10	*
102N - 200E	0-8' Scree, 8-22' brown to tan siltstone, quartzose, coarse grained, micaceous, chewed up altered, partially leached.	0-22'	A4683	45	*	*
103N - 202E	0-10' Scree, 10-15' S.S. & siltstone 15-25' good siltstone, brown to white, highly altered & leached, bands of	0-25'	A4667	70	30	*
	greenish siltstone altered & leached, quartzose & micaceous highly altered, mod-	25-40'	A4668	70	50	10
	erately leached red sugary S.S., medium grained well silicified bottomed in black & red diapiric silt- stone altered and leached.	40-50'	A4669	1200	210	*
10370N - 202E	10' of Scree, red fine grained S.S. & bands of brown siltstone, highly leached & altered, chewed up.	0-33'	A4666	25	20	*
104N - 204E	Scree, hig hard bottom.	10'	A4665	30	15	10
104N - 202E	Light green pebble sandstone.	5.5'	A4655	25	*	*
105N - 202E	" " "	8'	A4656	60	*	10
105N - 204E	0-15' Scree, 15-28' dolomite, purple S.S. (fine grained) well chewed up, dolomite in bands.	0-28'	A4664	20	20	*

Area : Copley

Prospect: Mountain of Light (Fox' Area)

0088

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	Co	As
106N - 202E	Brown diapiric siltstone grey to brown ferruginous siltstone bands quartzose and chewed up.	0-35'	A4657	800	15	*
106N - 204E	Brown dolomite & grey siltstone, altered partially leached.	15-40'	A4663	80	15	*
107N - 202E	Brown fine to medium grained S.S. altered, unleached.	0-40'	A4658	40	20	*
107N - 204E	Brown siltstone & dolomite, minor S.S. altered partially leached.	0-15'	A4660	20	20	10
107N - 204E	S.A.A., with red sugary dolomite.	15-40'	A4661	55	15	10
107N - 204E	Grey siltstone, altered, partially leached, dolomite bands.	0-15'	A4662	30	20	*
108N - 202E	Scree, unable to penetrate rock.	0-4'	A4659	120	*	30

APPENDIX III

AUGER GEOCHEMISTRY RESULTS - COALFIELDS PROSPECT

BRIDGE MINERALS PTY. LIMITED

AUGER GEOCHEMICAL LOG

0090

State : S.A.
Area : Copley
Prospect : Coalfields
Drilled By : Bridge Minerals
Drillers : J. Shirley, P. Jones
Logged By : J. Shirley

Co-ordinates: As noted
Depth : As noted
Date : February, 1974
Auger Size : 3.5 in.
Machine : Fox' auger
Water Table : -

LINES ARE RECORDED IN PROGRESSIVE ORDER FROM WEST TO EAST

Co-Ords	Description	Depth	Sample No.	Analyses PP		
				Cu	As	Co
356W-124S	Light and Ferruginous Tapley Hill formation.	5'	A5081	20	*	10
356W-125S	Sandstone; medium grained, porous, highly altered, partially leached, sugary texture.	5'	A5030	70	*	10
356W-126S	Siltstone; part of tillite, light colour, iron rich bands.	5'	A5079	180	*	10
356W-127S	Silty tillite, light coloured, highly altered, partially leached, iron rich bands.	5'	A5078	220	10	5
356W-128S	Sandstone, medium grained, highly altered, well leached porous, light coloured.	5'	A5072	65	*	2
356W-129S	Siltstone, tillite band, strongly altered partially leached.	5'	A5076	150	*	*
356W-130S	Tillite, well altered light coloured, mine erratics. Malacite	5'	A4929	2200	20	20
356W-131S	Tillite Sandstone, gypsum veins, light colour, brecciated.	5'	A4930	45	10	*
356W-132S	Diapir, ferruginous semi-gossanous veins, brecciated and iron rich.	5'	A4931	20	*	2
356W-133S	Quartzite sandstone, diapiric, iron rich, fine grained, brown colour, siliceous	5'	A4932	30	20	

* less than 2 ppm

Logged By : Coalfields

0091

Co-Ords	Description	Depth	Sample No.	Analyses Cu	As	Pb
356W-134S	Sandstone, iron rich, partially kaolinised, siliceous, non-porous, fine grained.	5'	A4933	90	*	15
356W-135S	S.A.A., tillite fragments, erratics up to ¼" in diameter, highly ferruginous.	5'	A4934	25	20	20
356W-136S	Shale, red ferruginous Tapley Hill Shale.	5'	A4935	20	*	20
356W-137S	S.A.A.	5'	A4936	30	20	20
356W-138S	S.A.A. dark colour, silicified, and kaolinised.	5'	A4937	40	20	20
358W-123S	S.A.A. light red, iron rich.	5'	A5069	35	*	5
358W-124S	Tillite; silty fine grained, light reddish iron rich, partially chewed up.	5'	A5070	30	10	10
358W-125S	Tillite; iron rich, gypsiferous, altered, unleached, iron rich, chewed up.	5'	A5071	370	20	20
358W-126S	Silty tillite; cream coloured, partially leached, small erratics.	5'	A5072	130	10	15
358W-127S	Sandstone, altered, fine grained, porous, light coloured, moderately leached.	5'	A5073	90	*	*
358W-128S	Silty tillite, light coloured, fine grained iron rich bands, highly altered, partially leached.	5'	A5074	120	*	10
358W-129S	Sandstone, medium grained, altered, well sorted, slightly ferruginous, possible malacite, porous.	5'	A5075	20	*	10
358W-130S	Tillite; 30% pebbles, kaolinised, partially leached.	5'	A4945	70	10	*
358W-131S	Tillite, red, highly ferruginous, partially leached, diapirically influenced.	5'	A4944	110	10	2
358W-132S	Tillite, ferruginous, sheared up, calcite and gypsum, fine grained, diapirically influenced.	5'	A4943	40	*	1

Co-Ords	Description	Depth	Sample No.	Analyses Cu	As	
358W-133S	Tillite, fine grained, matrix, altered, partially leached, light grey colour, qtz. fragments.	5'	A4942	20	*	*
358W-134S	Ferruginous sandstone, fine grained, hard iron rich, fractured, part of tillite unit.	5'	A4941	30	10	20
358W-135S	Tapley Hill Shale, dark colour, silicified iron veins, hard, highly fractured.	5'	A4940	65	10	15
358W-136S	S.A.A. silicified bands, highly kaolinised locally.	5'	A4939	20	20	20
358W-137S	S.A.A. dark coloured.	5'	A4938	25	10	10
360W-122S	S.A.A. light brown ferruginous, fine grained.	5'	A5068	30	*	10
360W-123S	S.A.A.	5'	A5067	30	*	5
360W-124S	S.A.A. light brown ferruginous.	5'	A5066	80	10	20
360W-125S	Altered, partially leached, light coloured.	5'	A5065	100	10	10
360W-126S	Tillite, slightly ferruginous, light red colour, highly altered & undisturbed.	5'	A5064	40	*	10
360W-127S	Tillite, silty, highly altered erratics up to 3/8" in diameter, partially leached, undisturbed.	5'	A5063	60	*	5
360W-128S	Silty tillite, fine grained, partially leached, undisturbed, small erratics, highly altered.	5'	A5062	40	*	10
360W-129S	Siltstone, diapiric black manganesum rich, partially leached, gypsiferous.	5'	A5061	70	*	10
360W-130S	Sandstone, part of tillite, siliceous.	5'	A5060	120	*	5
360W-131S	Pebbly, fine grained, altered, moderately leached, light brown colour.	5'	A4946	55	*	5

Prospect : Coalfields

0093

Co-Ords	Description	Depth	Sample No.	Analyses PPM		
				Cu	As	Co
360W-132S	Shale (part of tillite?) hard, non fissile, red ferruginous	5'	A4947	40	20	25
360W-133S	Sandstone, fine grained, part of tillite unit, brown ferruginous.	5'	A4948	80	10	20
360W-134S	Tillite, small erratics light coloured.	5'	A4949	20	*	10
360W-135S	Siltstone-sandstone (part of tillite) iron rich, chewed up, diapiric?	5'	A4950	45	20	20
360W-136S	Black shale, part of Tapley Hill Shale	5'	A4951	35	10	20
362W-122S	Tapley Hill Shale, brown ferruginous siltstone.	5'	A5051	40	*	20
362W-123S	Light siltstone, part of T.H.S.	5'	A5052	60	10	15
362W-124S	Pebbly siltstone, fine grained, altered, moderately leached, gypsum rich.	5'	A5059	10	*	5
362W-125S	Pebbly tillitic sandstone, kaolinised, poorly leached erratics up to ¼" in diameter.	5'	A5058	70	10	10
362W-126S	Tillitic sandstone, coarse grained, quartzose, kaolinised, partially leached, locally iron rich.	5'	A5057	25	10	10
362W-127S	Siltstone, strongly kaolinised, light grey bands of quartz and gypsum, partially leached.	5'	A5056	20	*	5
362W-128S	Sandstone-siltstone, diapiric, chewed up, red ferruginous.	5'	A5055	10	*	70
362W-129S	Siltstone, Ferruginous, altered partially leached, gypsiferous.	5'	A5054	150	10	20
362W-130S	Sandstone, fine grained ferruginous, chewed up, possibly diapiric.	5'	A5053	160	*	20
362W-131S	Tillite, fine grained red ferruginous, altered, partially leached, small erratics.	5'	A4956	60	10	10

Prospect : Coalfields

0094

Co-Ords	Description	Depth	Sample No.	Analyses Pt		
				Cu	As	Co
362W-132S	Sandstone & tillite, very hard & silicified.	5'	A4955	20	20	*
362W-133S	Tillite sandstone, light brown.	5'	A4954	40	*	10
362W-134S	Pebbly sandstone, altered, partially leached, white coloured, quartzose.	5'	A4953	10	*	10
362W-135S	Siltstone, dark colour, very hard, massive.	5'	A4952	55	20	20
364W-121S	Tapley Hill Shale, brown siltstone	5'	A5000	30	10	20
364W-122S	S.A.A., highly altered & moderately leached.	5'	A4999	45	*	*
364W-123S	Siltstone (tillite) light grey, highly altered, pebbly bands, brecciated & gypsum veins.	5'	A4998	40	*	10
364W-124S	Sandstone, fine to medium grained, kaolinised, brecciated, gypsum veins.	5'	A4997	40	10	5
364W-125S	Sandstone (possibly scree) silicified & brecciated.	5'	A4996	110	*	10
364W-126S	Siltstone, highly altered moderately leached, gypsiferous.	5'	A4995	550	80	50
364W-127S	Pebbly sandstone, light brown, fine grained, highly altered, poorly leached, chewed up.	5'	A4994	100	*	10
364W-128S	Siltstone, ferruginous, diapiric, part of tillite unit, highly altered, moderately leached.	5'	A4993	40	*	10
364W-129S	Tillite, diapiric, ferruginous, chewed up, gypsiferous, quartz veins.	5'	A4992	40	10	10
364W-130S	Tillitic siltstone, moderately leached, kaolinised, partially chewed up.	5'	A4991	30	*	10
364W-131S	Sandstone, red ferruginous, chewed up, diapiric, part of tillite unit.	5'	A4957	95	30	20

Co-Ords	Description	Depth	Sample No.	Analyses Pb		
				Cu	As	Ag
364W-132S	Siltstone, silicified, red ferruginous, part of tillite unit, poorly altered, unleached.	5'	A4958	15	40	25
364W-133S	Tillitic sandstone.	5'	A4959	30	20	25
364W-134S	Siltstone, top of tillite, red ferruginous coarse grained, altered poorly leached.	5'	A4960	30	*	20
366W-120S	Tapley Hill Shale, red ferruginous silt-stone.	5'	A4980	10	*	10
366W-121S	Tillitic siltstone, chewed up, moderately leached, altered.	5'	A4981	100	*	10
366W-122S	Tillite, fine grained, small erratics, highly altered, partially leached, iron locally.	5'	A4982	50	*	15
366W-123S	Fine grained kaolinised tillite, highly altered not leached, small erratics.	5'	A4983	80	*	10
366W-124S	Tillitic siltstone, fine grained, highly altered, partially leached, quartzose, small erratics.	5'	A4984	40	10	10
366W-125S	Tillite, chewed up, quartz veins & brecciated local iron enrichment.	5'	A4985	40	*	10
366W-126S	Tillite, chewed up, highly altered, poorly leached, minor gossanous material.	5'	A4986	95	*	10
366W-127S	Sandstone, pebbly brown medium grained, altered, poorly leached, chewed up.	5'	A4987	90	10	15
366W-128S	Diapir, dark to purple colour, chewed up, siliceous, gypsiferous.	5'	A4988	5	*	20
366W-129S	Diapir, purple coloured, S.A.A.	5'	A4989	25	*	15
366W-130S	Tillite, brown ferruginous, chewed up gypsiferous, diapiric.	5'	A4990	90	10	20

Co-Ords	Description	Depth	Sample No.	Analyses P.P.M. Cu	As	Co
366W-131S	Ferruginous, chewed up siliceous breccia zone in tillite & S.S., high in iron and manganese.	5'	A4963	80	10	15
366W-132S	Tillitic sandstone, brown ferruginous bands, medium grained.	5'	A4962	20	20	10
366W-133S	Sandstone, coarse grained, kaolinised, light coloured.	5'	A4961	10	*	*
366W-134S	Siltstone, top of tillite, ferruginous, hard, dolomitic bands.	5'	A4967	Not received At Laboratory		
368W-119S	Tapley Hill Shale, red ferruginous siltstone, altered, poorly leached.	5'	A4979	20	10	20
368W-120S	S.A.A.	5'	A4978	20	10	30
368W-121S	Tillite, fine grained, light brown, altered, poorly leached, gypsiferous.	5'	A4977	60	10	*
368W-122S	Silty tillite, strongly kaolinised, quartzose moderately leached.	5'	A4976	40	*	*
368W-123S	Silty tillite, kaolinised, moderately leached, few erratics.	5'	A4975	10	*	10
368W-124S	Pebbly tillite, chewed up, partially leached, locally iron rich, gypsiferous.	5'	A4974	110	20	10
368W-125S	Siltstone-sandstone, part of tillite, light coloured, chewed up, altered, partially leached, gypsiferous.	5'	A4973	130	10	15
368W-126S	Siltstone, dark purplish banded, altered, partially leached, good diapir.	5'	A4972	10	20	40
368W-127S	Diapir, silicified, chewed up sandstone.	5'	A4971	10	*	10
368W-128S	Tillitic sandstone, red ferruginous, chewed up, diapiric, gypsiferous, altered.	5'	A4970	10	10	15

Prospect : Coalfields

0097

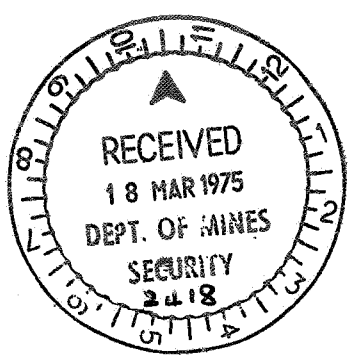
Co-Ords	Description	Depth	Sample No.	Analyses PP		
				Cu	As	Co
368W-129S	Diapiric sandstone, red ferruginous, fine grained, chewed up, iron rich, brecciated.	5'	A4969	35	10	30
368W-130S	Tillitic sandstone, brown ferruginous, medium to coarse grained, quartzose, silicified.	5'	A4968	70	10	10
368W-131S	Tillitic sandstone, brown ferruginous.	5'	A4964	65	*	10
368W-132S	Brown ferruginous tillite, medium grained.	5'	A4965	35	20	10
368W-133S	Black to dark purple ferruginous siltstone (part of tillite unit?)	5'	A4966	40	*	20

0098

EXPLORATION LICENCE NO. 126

QUARTERLY REPORT FOR THE PERIOD

ENDED 4 MARCH, 1975



Bridge Minerals Pty. Limited
M. I. Hatcher
Geologist

11 March, 1975

INTRODUCTION

During this period, Bridge Minerals Pty. Limited have been involved in planning exploration for the 1975 field season and investigating techniques of heap leaching for the oxidized mineralisation. The investigations of heap leaching techniques have involved literature searches at the Mitchell Library in Sydney and communication with a number of companies in the United States of America, South Africa, Rhodesia, Canada, Chile and Israel. Mr. Ben McLernon's Mount Hope (New South Wales) heap leaching operation was also visited.

EXPLORATION PROGRAM

An exploration program and budget for the 1975 field season has been drawn up and submitted to the Company's Directors for approval. This program is aimed at following up the primary sulphide intersected in DH.38 and DH.39

i.e.	DH.38	380'-470'	90'	0.7%	Cu
		incl.450'-475'	25'	1.3%	Cu
	DH.39	695'-790'	95'	0.25%	Cu

The work planned will consist of geochemical and geophysical investigation of the entire Copley Diapir Contact and percussion drilling.

HEAP LEACHING

A study of the various metallurgical techniques available indicated that heap leaching of the 750,000 tons of 1.22% copper proven at the Mountain of Light is the most efficient method available. Initial studies indicate that a viable operation can be established.

A search for technical information was then undertaken. It was found that with the exception of Mr. McLernon at Mount Hope, there was a lack of experienced technologists in this field in Australia. The Mount Hope operation was visited and discussions were held with Mr. McLernon. In the search for technical information thirty companies throughout the world were contacted for details of their operational techniques. At this time we have replies from -

The Inspiration Consolidated Copper Company, Arizona, U.S.A.

American Smelting and Refining Company, San Xavier Mine, U.S.A.

Kennecott Copper Corporation, Ox Hide Mine, U.S.A.

Nuclear Fuels Corporation, South Africa

Duval Corporation, Arizona Oxide Mines, U.S.A.

Timna Copper Mines Ltd., Timna, Israel

M.T.D. (Mangula) Ltd., Mangula Mine, Rhodesia

Texasgulf Inc., U.S.A.

Colorado School of Mines, U.S.A.

The Mining Association of Canada

The Chamber of Mines Rhodesia

The International Copper Development Council, Great Britain.

In all cases the companies were co-operative and offered further assistance if required.

The visit to the Mount Hope operation yielded a considerable amount of practical information. The project is well capitalised and efficiently run. Mr. Ben McLernon the owner and a man with more than thirty-years experience in copper leaching in the Cobar District was able to give some hints and warnings about this type of operation. A comparison of the Mount Hope operation and that proposed for the Mountain of Light supports the conclusion that a viable heap leaching operation can be established at the Mountain of Light.

FUTURE WORK

The primary sulphide exploration program for 1975 is planned to commence in April. Investigation of heap leaching techniques will continue and a study tour of the U.S.A. to inspect operating mines is expected to take place in August of this year. Pilot plant testing is planned to commence in October. It is with some concern that we look at the copper price and market predictions for the immediate future. Development of this area may well determine the rate at which exploration and development take place at the Mountain of Light.

QUARTERLY EXPENDITURE REPORT TO 31/3/75

0101

EXPLORATION LICENCE E.L.126

PARTICULARS			$. ¢
FOX AREA			
Administration & Overhead			441.61
Geological -			
Salaries	1,324.84		
Meals & Accomodation	7.53		
Travel	18.87		
Sampling	18.90		1,370.14
General-			
Legal	45.00		
Entertainment	13.21		
Communications	6.73		64.94
		TOTAL	$1,876.69
OTHER E.L.126 AREAS			
Administration & Overhead			2,608.36
Geological-			
Salaries	7,825.07		
Drafting	131.20		
Travel	239.71		
Maps & Publications	52.02		
Meals & Accomodation	29.37		
Vehicle Expenses	10.20		
Sampling	75.60		8,363.17
General-			
Registration Fees	2.20		
Communications	15.69		
Entertainment	52.84		
Reports	8.34		79.07
		TOTAL	$11,050.60
TOTAL E.L. 126 FOR QUARTER			$12,927.29

ENVELOPE 2418

QUARTERLY EXPENDITURE REPORT TO 30/6/75

EXPLORATION LICENCE E.L. 126

0102

PARTICULARS			$. ¢
FOX AREA			
Administration & Overhead			299.03
Geological -			
Salaries	897.10		
Meals & Accomodation	28.38		
Travel	43.91		
Auger Drilling	36.00		1,005.39
General -			
Legal	21.00		
Entertainment	2.80		23.80
		TOTAL	$1,328.22
OTHER E.L. 126 AREAS			
Administration & Overhead			1,129.18
Geological -			
Salaries	3,387.57		
Drafting	130.75		
Travel	242.94		
Maps & Publications	53.42		
Meals & Accomodation	126.92		
Auger Drilling	144.00		4,085.60
General -			
Legal	84.00		
Communications	41.87		
Entertainment	10.20		
Freight	2.80		138.87
		TOTAL	$5,353.65
TOTAL E.L. 126 FOR QUARTER			$6,681.87

BRIDGE MINERALS PTY. LIMITED

11th LEVEL, 37 YORK STREET, SYDNEY, N.S.W. 2000.
TELEPHONE: 29-1115. CABLES: "BRIDGEOIL", SYDNEY.

0103

2nd October, 1975.

Director of Mines,
P.O. Box 38,
ADELAIDE. S.A. 5001

Dear Sir,

Re: Quarterly Report EL126
Period to 4th Sep., 1975.

This Company has continued to investigate the proposed trial heap leaching testwork at the Mountain of Light Copper deposit during this quarter. Details of the proposed open cut were sent to a number of earthmoving contractors in South Australia and several quotes are already in hand. Following discussions with Mr. B. Robinson of the S.A. Dept. of Mines on the environmental aspects of the project; it was decided that a mineral lease would be pegged and a mining lease applied for as soon as possible.

A summary of expenditure for the quarter will be forwarded as soon as the accounts are finalized.

Yours faithfully,
Bridge Minerals Pty Ltd

M. Hatcher
Geologist

QUARTERLY EXPENDITURE REPORT TO 30/9/75

EXPLORATION LICENCE E.L. 126

0104

PARTICULARS			$ - ¢
FOX AREA			
Administration & Overhead			106.95
Geological -			
Salaries	320.87		
Travel	2.72		323.59
General			
Entertainment	3.90		3.90
		TOTAL	$434.44
OTHER E.L. 126 AREAS			
Administration & Overhead			650.64
Geological			
Salaries	1,951.90		
Travel	66.98		
Drafting	113.91		2,132.79
General			
Copying	1.90		
Freight	3.45		
Entertainment	15.60		
Legal	55.00		75.95
		TOTAL	$2,859.38
TOTAL E.L. 126 FOR QUARTER			$3,293.82

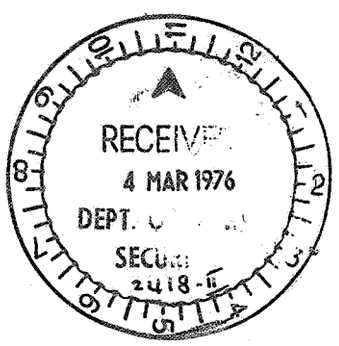
Amended Copy

QUARTERLY EXPENDITURE REPORT TO 30/9/75

EXPLORATION LICENCE E.L. 126

0105

Particulars			$ - ¢
FOX AREA			
Administration & Overhead			142.70
Geological -			
Salaries	428.12		
Travel	2.72		
			430.84
General			
Entertainment	3.90		3.90
		TOTAL	$ 577.44
OTHER E.L. 126 AREAS			
Administration & Overhead			790.98
Geological -			
Salaries	2,372.93		
Travel	71.38		
Drafting	113.91		
			2,558.22
General -			
Copying	1.90		
Freight	3.45		
Entertainment	15.60		
Legal	55.00		
			75.95
		TOTAL	$3,425.15
TOTAL E.L. 126 FOR QUARTER			$4,002.59



BRIDGE MINERALS PTY. LIMITED

11th LEVEL, 37 YORK STREET, SYDNEY, N.S.W. 2000.
TELEPHONE: 29-1115. CABLES: "BRIDGEOIL", SYDNEY.

0106

December 5th, 1975.
MIH/ba/E.L.126-3/001.4

The South Australian
Department of Mines,
Box 151,
Eastwood,
S.A. 5063

Dear Sir,

SUBJECT: QUARTERLY REPORT E.L.126/1
FOR PERIOD ENDING 4TH
DECEMBER 1975.

During this period the company has continued its investigation into the feasibility of treating the Mountain of Light Copper Deposit. To enable a pilot plant study to be undertaken a mineral claim was pegged over the proposed test area on the 27th October and application for registration of the claim made on the 14th November. The claim was registered on the 24th November 1975. On the 4th December Bridge Minerals Pty. Ltd. submitted an application to the South Australian Department of Mines to transfer this Mineral Claim to a mining lease so that excavation and treatment of the ore can be undertaken. This company is continuing its negotiation with lease holders in the area to enable them to follow up the primary sulphide intersections already made at the Mountain of Light.

A statement of expenses for this quarter will be forwarded as soon as the account for this period have been finalized.

RECEIVED
22 DEC 1975
DEPT. OF
2418-II

Yours faithfully,
BRIDGE MINERALS PTY. LIMITED

M.I. HATCHER
Director

QUARTERLY EXPENDITURE REPORT TO 30/12/75

EXPLORATION LICENCE E.L. 126

0107

Particulars			$ - ¢
FOX AREA			
Administration & Overhead			300-00
Geological -			
Salaries	900-00		900-00
General			
Nil	-		-
		TOTAL	$1,200-00
OTHER E.L. 126 AREAS			
Administration & Overhead			906-71
Geological -			
Salaries	2,720-16		
Drafting	69-13		
Travel	253-99		
Meals & Accomodation	149-12		
Pegging	30-00		3,222-40
General			
Legal	50-00		
Communications	5-40		
Lease	29-40		84-80
		TOTAL	$ 4,213-91
TOTAL E.L. 126 FOR QUARTER			$ 5,413-91

ANNUAL EXPENDITURE REPORT E.L. 126 COPLEY

FOR YEAR ENDED 31/12/75

0108

Particulars			$ - ¢
FOX AREA			
Administration & Overhead			1,183.34
Geological -			
Salaries	3,550.06		
Travel	65.50		
Meals & Accomodation	35.91		
Auger Drilling	36.00		
Sampling	18.90		3,706.37
General -			
Entertainment	19.91		
Legal	66.00		
Communications	6.73		92.64
		TOTAL	$4,982.35
OTHER E.L. 126 AREAS			
Administration & Overhead			5,435.23
Geological -			
Salaries	16,305.73		
Travel	808.02		
Drafting	444.99		
Maps & Publications	105.44		
Meals & Accomodation	305.41		
Auger Drilling	144.00		
Pegging	30.00		
Vehicles Expenses	10.20		
Sampling	75.60		18,229.39
General -			
Reports	8.34		
Copying	1.90		
Freight	6.25		
Entertainment	78.64		
Legal	189.00		
Registration Fees	2.20		
Communications	62.96		
Lease	29.40		378.69
		TOTAL	$24,043.31
TOTAL E.L. 126 FOR THE YEAR ENDED 31/12/75			$29,025.66

BRIDGE MINERALS PTY. LIMITED

11th LEVEL, 37 YORK STREET, SYDNEY, N.S.W. 2000.
TELEPHONE: 29-1115. CABLES: "BRIDGEOIL", SYDNEY.

26th March 1976
MIH/ba/3/001.4

0109

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

Dear Sir,

RE: E.L. 126 QUARTERLY REPORT TO 3.3.76

During this period the company has continued to investigate the heap leaching of the Mountain of Light Copper deposit. On 17th February company representatives met with officers of the S.A. Dept. of Mines and AMDEL to plan co-ordinated bulk sampling of the deposit and laboratory scale heap leaching. Various bulk sampling methods have been investigated and it was decided to use a Caldweld 200B rig to drill a 3 ft. diameter hole. Bridge Minerals Pty. Ltd. have called tenders and received quotes for the drilling of the large diameter hole. At the present time AMDEL is detailing a proposal and budget for this testwork.

Yours faithfully,
BRIDGE MINERALS PTY. LIMITED

M.I. HATCHER

RECEIVED
7 APR 1976
DEPT. OF MINES
SEC...
2418-II

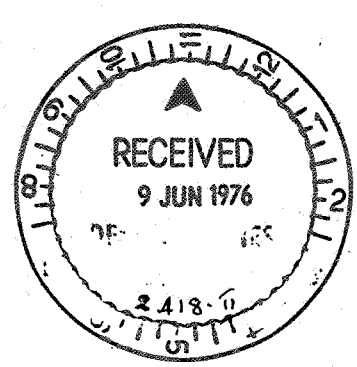
Enc: Corresponding Statement of Expenditure for above.

QUARTERLY EXPENDITURE REPORT TO 31/3/76

EXPLORATION LICENCE E.L. 126

0110

Particulars			$ - ¢
FOX AREA			
Administration & Overhead			121.88
Geological			
Salaries	365.62		365.62
		Total	$487.50
OTHER E.L. 126 AREAS			
Administration & Overhead			1,475.71
Geological			
Travel	761.75		
Salaries	4,427.16		
Drafting	29.48		
Meals & Accomodation	133.50		
Pegging	35.50		
Maps & Publications	8.94		
Drilling	226.96		5,623.29
General			
Entertainment	70.75		
Communications	12.84		
Lease	54.90		
Publications	1.60		140.09
		Total	$7,239.09
TOTAL E.L. 126 FOR QUARTER			$7,726.59



EL 126.

EXPENDITURE REPORT TO 3.3.76

EXPLORATION LICENCE E.L. 126

ADMINISTRATION & OVERHEAD	:	*593.18*
GEOLOGICAL		
SALARIES	:	*1,779.57*
GENERAL	:	*26.60*
TOTAL		*$ 2,399.35*

0112

ANNUAL REPORT

MARCH 1975 - MARCH 1976

EXPLORATION LICENCE 126

BRIDGE MINERALS P/L

FEBRUARY 1976

CONTENTS

LIST OF FIGURES

APPENDICES

Appendix I *Preliminary Environmental Impact Statement.*

REFERENCE

Harris & Allman 1969 - Mining Congress Journ. July '69 pps. 28-31.

INTRODUCTION

Exploration Licence 126, covering an area of 132 Sq. Kms. and situated immediately east of Leigh Creek (Fig. 1) was granted by the Minister of Mines on 4th March 1974 for a period of 1 year, then extended for an additional 12 months.

Within the licence there are three areas which have been investigated by Bridge Minerals P/L. At the Mountain of Light in the south of the licence, the company has carried out geological, geochemical and geophysical surveys and 5,295 metres of percussion and diamond drilling. At the Coalfields prospect in the north of the licence, the company has carried out geological, geochemical and geophysical surveys and a limited percussion drilling programme. At the Sunday Well prospect, the company has undertaken geochemical, geophysical and costeaning programmes.

The main emphasis of the work carried out on E.L. 126 this year has been the investigation of alternate methods of mining and treating the 750,000 tons of 1.22% copper proven at the Mountain of Light. The primary sulphide programme involving initially a magnetic survey and auger geochemistry for copper and cobalt had to be delayed because of leasing problems in the area. The data collected from the Coalfields and Sunday Well prospects was reassessed. As a result of this work the northern sector of the Exploration Licence covering these prospects will be relinquished.

0117

HISTORY

The only significant workings within Exploration Licence 126 are those at the Mountain of Light. This area was the scene of a considerable amount of mining activity from the 1880's to 1912. From 1965-1972 saw a return of activity to the area this time by exploration companies. Cyprus Mines Corp. drilled six deep rotary holes in 1969, J.J. Korda & Co. Pty. Ltd., 27 short percussion holes in 1970, and RMC Minerals Pty. Ltd. 131 short percussion holes. At the Sunday Well and Coalfields prospects several pits, no more than 1 metre deep, were sunk on surface shows of oxidized copper mineralization.

PRESENT PROGRAMME

0118

A. *MOUNTAIN OF LIGHT*

1. *Oxide Supergene Deposit*

The main emphasis of the programme in 1975 was to investigate possible methods of treating the 750,000 tons of 1.22% Cu proven at the Mountain of Light. This copper deposit has the following characteristics:

(a) Approximately 60% occurs as oxidized copper minerals and 40% supergene sulphides.

(b) The deposit is tabular, occurring from 12-45m from the surface over a strike length of 500 metres and widths from 30 - 60 metres.

(c) Examination of core by mining engineers indicated that the overburden and ore are soft and should be easily ripped and cheaply mined.

(d) Beneficiation testwork carried out by the AMDEL and Robertson Research Laboratories indicates that the copper ore can be leached using ammonia or sulphuric acid, with good recoveries and acceptable acid consumption rates.

(e) The prospect is only 2 Kms. from the township of Copley and 12 Kms. from Leigh Creek, the coal mining centre. Power lines and a water pipeline already pass through the proposed mine area. Copley is linked to

Adelaide and the St. Vincent Gulf ports to the south by road and rail. Leigh Creek has an all weather air strip.

With a copper price of 50c per lb. the ore proven at the Mountain of Light deposit has an in-the-ground value of $10 million. After considering the attitude of the deposit, the predicted low stripping and mining costs, the predicted leachability of the ore and the minimal infrastructural costs, it was decided that further investigation of the development of the deposit was warranted. After carrying out economic evaluations of various methods of treatment available, it was concluded that heap leaching had the advantage of:

(a) A relatively low Capital Cost. This is very important in a small scale operation of this type

(b) A very small labour force. In an isolated and remote area like this, maintaining an efficient and effective labour force is very difficult

However, this method also had:

(a) A relatively low rate of recovery of copper

(b) A considerable lag period between the mining of the ore and the production of concentrates.

Initially the heap leaching projects in Australia were investigated. Only two deposits of any size were found to have been treated in this way,

the Rum Jungle and Mount Hope operations:

Rum Jungle

Conzinc Riotinto of Australia Ltd. started heap leaching the copper ore from the Rum Jungle Uranium Deposit in June 1965. The oxide ore heap contained 80,000 tons of 2% copper, in the form of malachite with minor cuprite azurite and native copper. The sulphide ore heap contained 300,000 tons of 1.7% copper, predomately chalcopyrite with minor chalcocite and bornite in graphitic schists. The oxide and sulphide dumps were separated and the ore was dumped to a height of 30 ft. Acid solutions were distributed to the heaps initially using ponds, then P.V.C. pipes and drill holes. Laboratory scale leaching experiments indicated that 45-50% of the total copper contained in the heaps could be extracted in five years. In the period September 1965 to January 1968 (28 months) it was calculated that 6.5% of the copper had been extracted from the sulphide heap and 31% of the copper from the oxide heap. From this data Harris and Allman (1969) concluded it would take twenty years to achieve the recoveries predicted in the laboratory testwork. From the recoveries achieved it would appear that the main problems in heap leaching are associated with the primary sulphide material. The recovery from the oxide dump over the period of leaching appears to be quite acceptable. In their paper on the practical aspects of the Rum Jungle operation Allman and Harris came to the following conclusions:-

(i) Heap voids should not become filled with water or any material (hydrated iron oxide or fine gangue).

(ii) Provided the heap is wet, an increased rate of liquor circulation will not increase the rate of leaching.

(iii) Possibly the best manner of operation is an alternate wetting to flush copper from the heap followed by drainage to provide maximum influx of air.

(iv) Ph control is important since the formation of iron hydroxides in the heap may cause irreparable damage.

(v) Surface area per unit volume of the heap should be maximized.

(vi) The results of laboratory tests must be treated with great care, particularly if they are done under conditions of unrestricted oxygen.

Many of the problems of the Rum Jungle operation appear to be associated with the leachability of chalcopyrite which is not present in the Mountain of Light deposit.

Mount Hope

Mr Ben McLernon has been involved in copper leaching operations in the Cobar District of N.S.W. since 1947. He commenced a mining and heap leaching operation at Mount Hope in 1970. During this year members of the company's technical staff visited the Mount Hope operation and held discussions with Mr. McLernon. In addition to

his experience at Cobar, he has visited Southern and Western U.S.A. to acquaint himself with new techniques in leaching copper ores. At the time of the visit approximately 100,000 tons of 0.5% copper (malachite and azurite) was being leached and mining was proceeding and would ultimately produce 250,000 tons of leachable material. Initially the ore was crushed to minus 4" but it was found that the fines produced filled the voids in the dump and the pregnant liquor dam. The ore is now dumped in blocks up to 3 ft. in diameter. The ore is stacked to a height of 25 ft. on a carefully prepared base. A sulphuric acid leach solution is distributed to the heap through a series of P.V.C. delivery hoses. Half the heap is being leached at any time while the other half is rested.

The copper is recovered from the pregnant solution in false bottom launders which are agitated using compressed air. Scrap iron comes from Sydney and sulphuric acid from Port Pirie. In addition to Mr. McLernon who manages the operation, there is one man who works the copper recovery section of the operation and two miners who mine and cart the ore. When the copper price is good the operation is run on a three shift per day basis.

These two projects represent the major heap leaching operation in Australia in the last fifteen years. That is less than 500,000 tons of copper ore has been treated in this way. In the U.S.A. today it has been estimated that 5 billion tons of copper ore is being treated by acid leaching, representing more than 10% of the copper produced. In

addition to researching the subject at Sydney's Mitchell library, letters were written to over thirty companies with heap leaching operations in the U.S.A., Mexico, Chile, Israel, Canada, South Africa, Rhodesia and Zambia, seeking up-to-date technical information. With few exceptions the companies were only too willing to supply information.

After discussions with senior members of S.A. Department of Mines, the company made a preliminary environmental statement on the proposed operation at the Mountain of Light. A copy of this statement is included in Appendix I.

To enable Bridge Minerals Pty. Ltd. to carry out bulk sampling for further testwork on the Mountain of Light ore, a mineral claim was pegged over the southern part of the deposit on 27th September 1975. After the granting of the mineral claim, application was made for a mining lease on 4th December 1975.

The next step in the investigation of this deposit will be to test a bulk sample of representative ore from the Mountain of Light Deposit in the laboratories of AMDEL in Adelaide. The South Australian Department of Mines and Bridge Minerals Pty. Ltd. will jointly carry out this testwork.

If the results of the laboratory work are encouraging, then a full scale on-site pilot plant study will be undertaken.

2. <u>Primary Copper Sulphide Programme</u>

Drilling in the Mountain of Light area has located several occurrances of primary copper

sulphides, often in association with cobalt mineralization and always close to the Copley diapir. (See Table I).

The results of this work has given the company sufficient encouragement to plan a more detailed exploration programme for the area. However, during the last 18 months the economic recession and the long term copper price projections have caused the company to reassess its sulphide exploration programme and timetable. Bridge Minerals Pty. Ltd. intend to concentrate on resolving the question of the viability of the small copper oxide - supergene deposit while reviewing the primary sulphide programme.

TABLE I

Drill Hole No.	Co-ordinates	INTERVAL (Ft.)				INTERVAL (Ft.)			
		From	To	Cu	Co	From	To	Cu	Co
RE 3	16100E 10640N	160	175	0.87%	-	145	200	0.46%	-
RE 4	16075E 10500N	140	175	0.40%					
DH 38	198 E 8600N	350	475	0.60%	0.1% (Est.)	445	475	1.17	-
DH 39	20200E 8400N	695	790	0.24%	0.35% (Est.)				

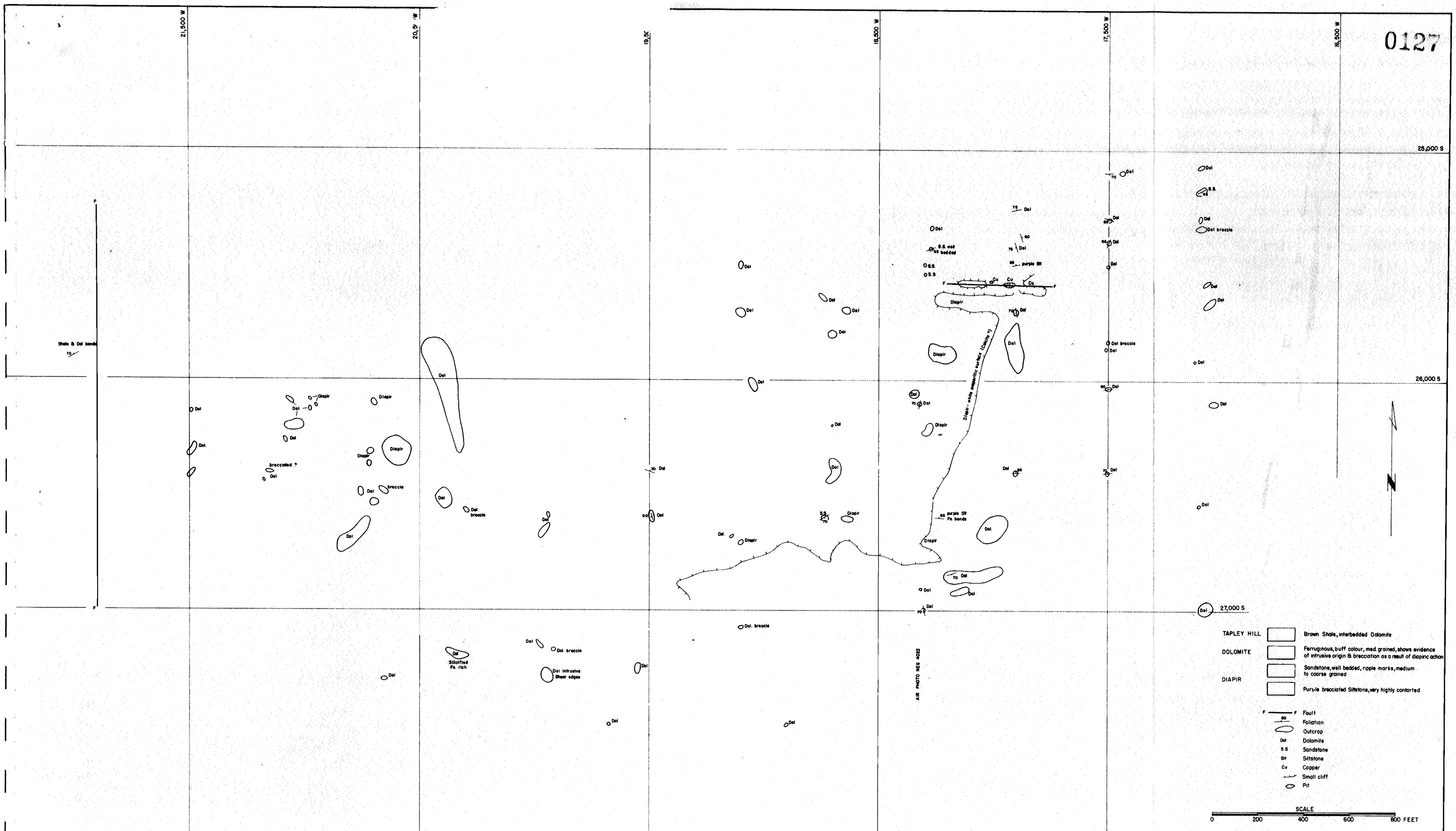
0126

B. SUNDAY WELL PROSPECT

The Sunday Well Prospect is located approximately 7 Kms. east of the township of Leigh Creek. An evaluation of the geochemical, geological and geophysical data has been made. The mineralization was found to be localized within joints and minor faults within a tillite formation, adjacent to the contact with the Tapley Hill Formation. Fig. 2 shows the distribution of outcrop in this area.

The Sunday Well Prospect does not appear to have sufficient potential to warrant further investigation.

0127


21,500 W
20,5 W
19,5
18,500 W
17,500 W
16,500 W
25,000 S
26,000 S
27,000 S
25,000 S
Shale & Dol bands
Diapir - white evaporitic surface (Caliche ?)
AIR PHOTO NEG 4022
TAPLEY HILL
Brown Shale, interbedded Dolomite
DOLOMITE
Ferruginous, buff colour, med. grained, shows evidence of intrusive origin & brecciation as a result of diapiric action
Sandstone, well bedded, ripple marks, medium to coarse grained
DIAPIR
Purple brecciated Siltstone, very highly contorted
Fault
Foliation
Outcrop
Dol Dolomite
S.S Sandstone
Slt Siltstone
Cu Copper
Small cliff
Pit
SCALE
0 200 400 600 800 FEET

BRIDGE MINERALS PTY. LTD.

GEOLOGY (FACT)

SUNDAY WELL GRID

S.M.L. 712

COPLEY AREA, SOUTH AUSTRALIA

Geology by J. Shirley	Drawn by G. Goodwin
Date 11 1 74	Drwg No.

FIG. 2

C. COALFIELDS PROSPECT

The Coalfields Prospect is located 3 Kms. north-east of the Telford Railway Station in the north-east of Exploration Licence 126. The Tapley Hill formation and the underlying 'un-named tillite' are folded into an anticlinal structure which has an east-west axis and a gentle plunge to the west. There is a possibility of diapiric intrusion in the core of the anticline as several small exposures of "Willouran-like siltstones' have been noted. Workings consist of several shallow pits and these show malachite and azurite occurring as smears along joint and cleavage planes in the tillite and as open space filling associated with authigenic quartz.

Figs. 3, 4 and 5 show the frequency distribution of the copper, cobalt and arsenic auger geochemistry results. Figs. 6, 7 and 8 are plans of the geochemical data and Fig. 9 shows the geology. There appears to be some degree of correspondence between copper and arsenic geochemical data although the relationship between copper and cobalt appears to be poor. The Coalfields Prospect appears to be a prospect like many others in the Flinders Ranges of South Australia. Malachite and azurite are detected in the tillite on the contact between the Tapley Hill shale and the tillite or in Tapley Hill shale close to the contact. In the Copley Region examples of each of these types of copper deposits are:

Tillite - Coalfields Prospect, Sunday Well Prospect, Paull North, White Lead, Lynda

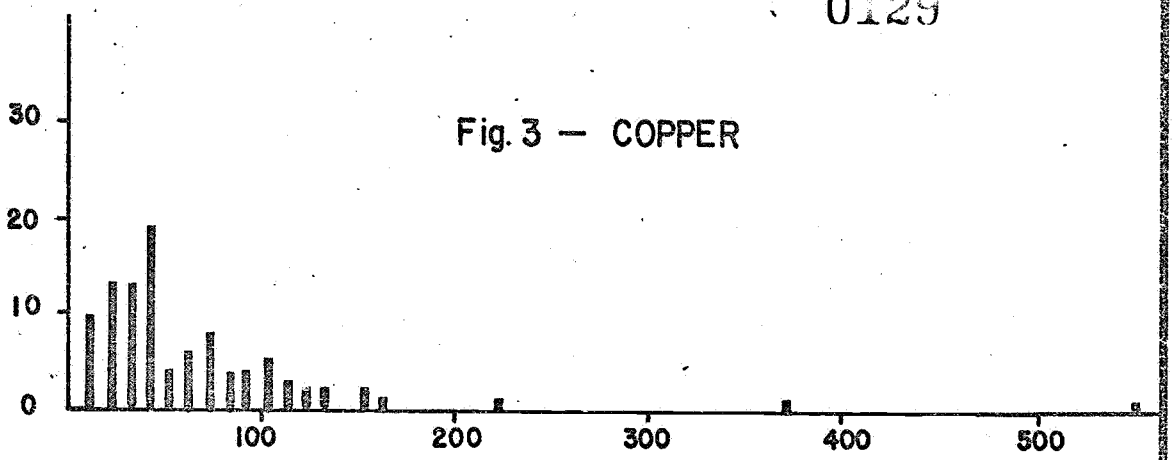


Fig. 3 — COPPER

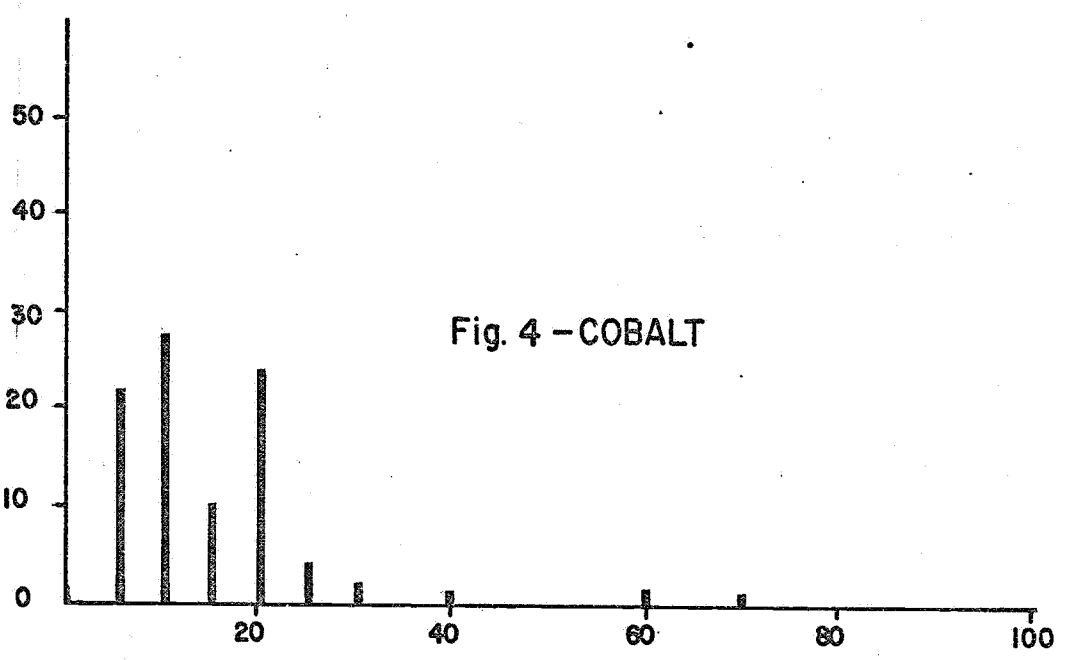


Fig. 4 – COBALT

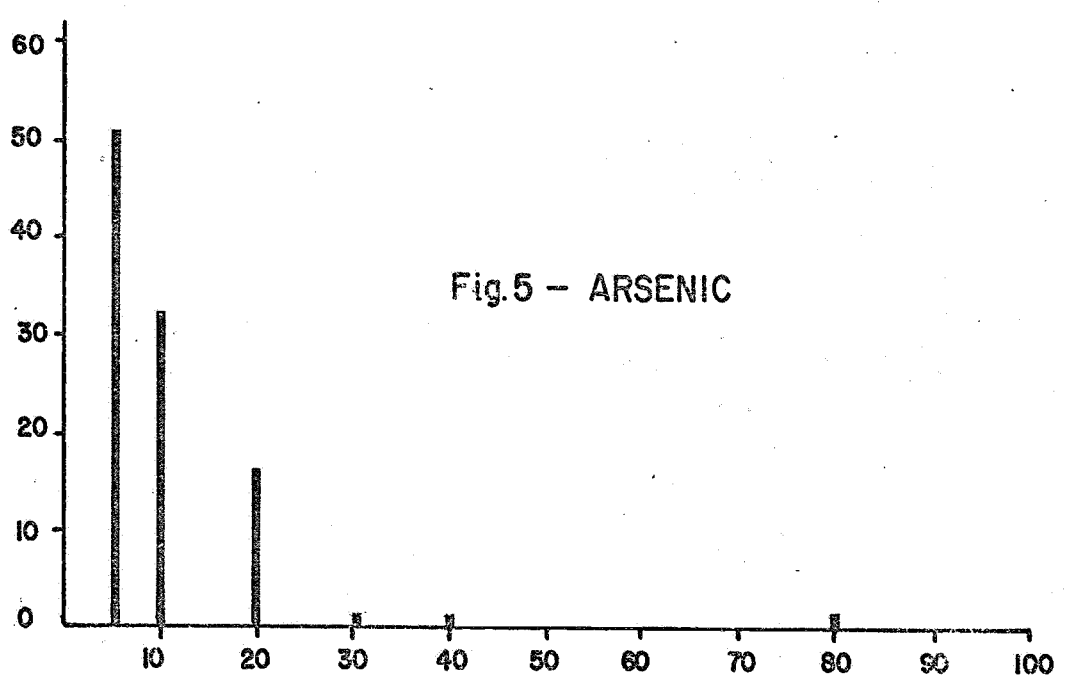


Fig. 5 – ARSENIC

COALFIELDS PROSPECT– AUGER GEOCHEMISTRY FREQUENCY DISTRIBUTION

FIGS 3, 4 & 5

Tapley Hill Shale - (Tindelpina Shale)	*Paull Consolidated, Elsie Adair, Mt. Coffin, South Adair*

The Coalfields prospect does not warrant further exploration.

CONCLUSIONS

The investigations of the methods of heap leaching both overseas and locally indicate that the oxidized and supergene Mountain of Light Copper deposit can be mined and treated profitably. Further testwork is required to determine:

1. The acid consumption per lb. of copper

2. The effect of compaction on the permeability of the dump and the ultimate copper recovery

3. The optimum, Ph conditions dump height etc. to obtain the most economic copper recovery

Initially, the company will test a bulk sample of the Mountain of Light ore at the AMDEL Laboratories Adelaide. If this proves successful the company will then do a pilot scale heap leach test on site at Copley.

A considerable amount of information has been collected on the excavation: sulphuric acid, equipment etc. costs. However, a suitable source of scrap iron has yet to be found and there are several marketing avenues to be followed up.

The current economic recession and the long term projections of the copper price have caused the company to reassess its primary copper sulphide exploration programme and timetable.

The Coalfields and Sunday Well Prospects appear to offer little exploration potential and it is recommended that the part of the exploration licence covering these areas be relinquished.

APPENDIX I

MOUNTAIN OF LIGHT PROJECT

PRELIMINARY ENVIRONMENTAL IMPACT STATEMENT

BRIDGE MINERALS PTY. LTD.

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BRIDGE MINERALS PTY. LTD.

CONTENTS

INTRODUCTION

Bridge Minerals Pty.Ltd., has proven 750,000 tonnes of 1.22% near surface oxidized and supergene sulphide copper mineralization at the Mountain of Light. After carrying out a preliminary feasibility study, it would appear that this ore can be mined and heap leached economically. However, a number of factors in the proposed operation have to be checked and a scaled-down leach heap is proposed for this purpose. Therefore, the immediate objective of the company is to carry out this pilot plant study. If the operation can be shown to be viable, the ultimate objective is to mine and treat the proven deposit.

The aim of this report is to outline the effects the pilot plant study and the proposed operation will have on the environment as it exists in this area today.

LOCAL AND REGIONAL ENVIRONMENT

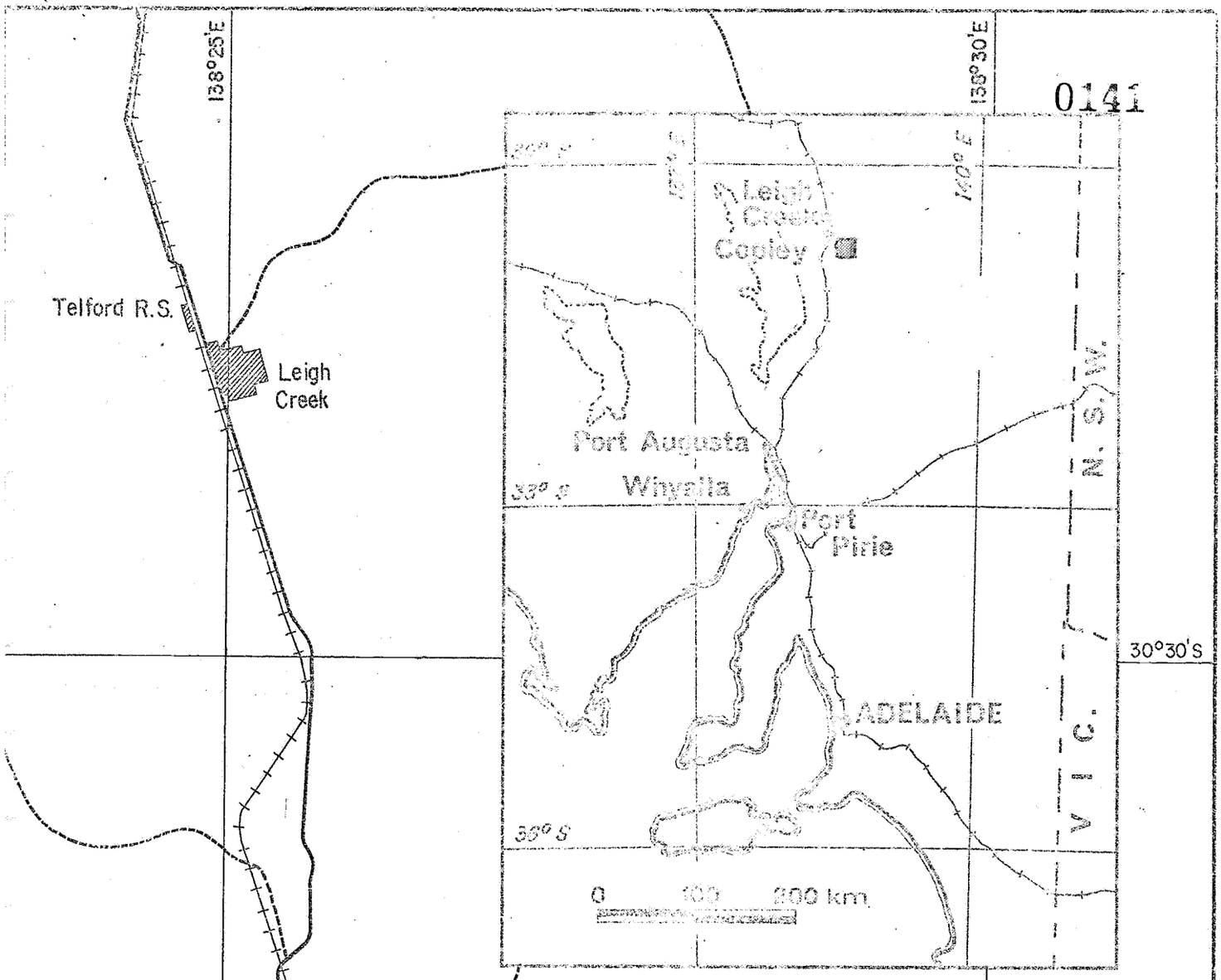
Locality

The Mountain of Light Copper Deposit is situated approximately 3 kms south-east of the township of Copley on the North Mooloolo Road. Copley is approximately 540 kms north of Adelaide on the western margin of the Flinders Ranges (Fig.1). The copper deposit is in Class C of the South Australian State Planning Authority's Development Plan for the Flinders Ranges which was gazetted on 8th February, 1973.

History

Mining and mineral exploration has played a major role in the development of the Northern Flinders Ranges since the 1860's. The earliest records of the mines in the Mountain of Light area date back to the 1890's. The mines were worked intermittently until 1926, but problems in concentrating the ore and the flooding of the mine at lower levels stopped the mine from making any significant profits. Serious exploration in the area resumed in 1968, when Cyprus Mines Corporation worked on the area and then J.J. Korda and Co. Bridge Minerals Pty.Ltd. gained control of the area in September, 1971.

The Leigh Creek Coalfield which lies to the west and north-west of the Mountain of Light was discovered in 1888, during the sinking of the Copley railway dam. However, it was not until 1944 that regular coal shipments were sent south. The coal is now mined at the rate of 1.5 million tonnes per year and railed 255 kms to the Thomas Playford Power Station at



LOCATION MAP
COPLEY AREA

1" = 1 mile

Road

Track

Railway

Fig 1

Port Augusta. Leigh Creek is now the commercial and social centre of this region.

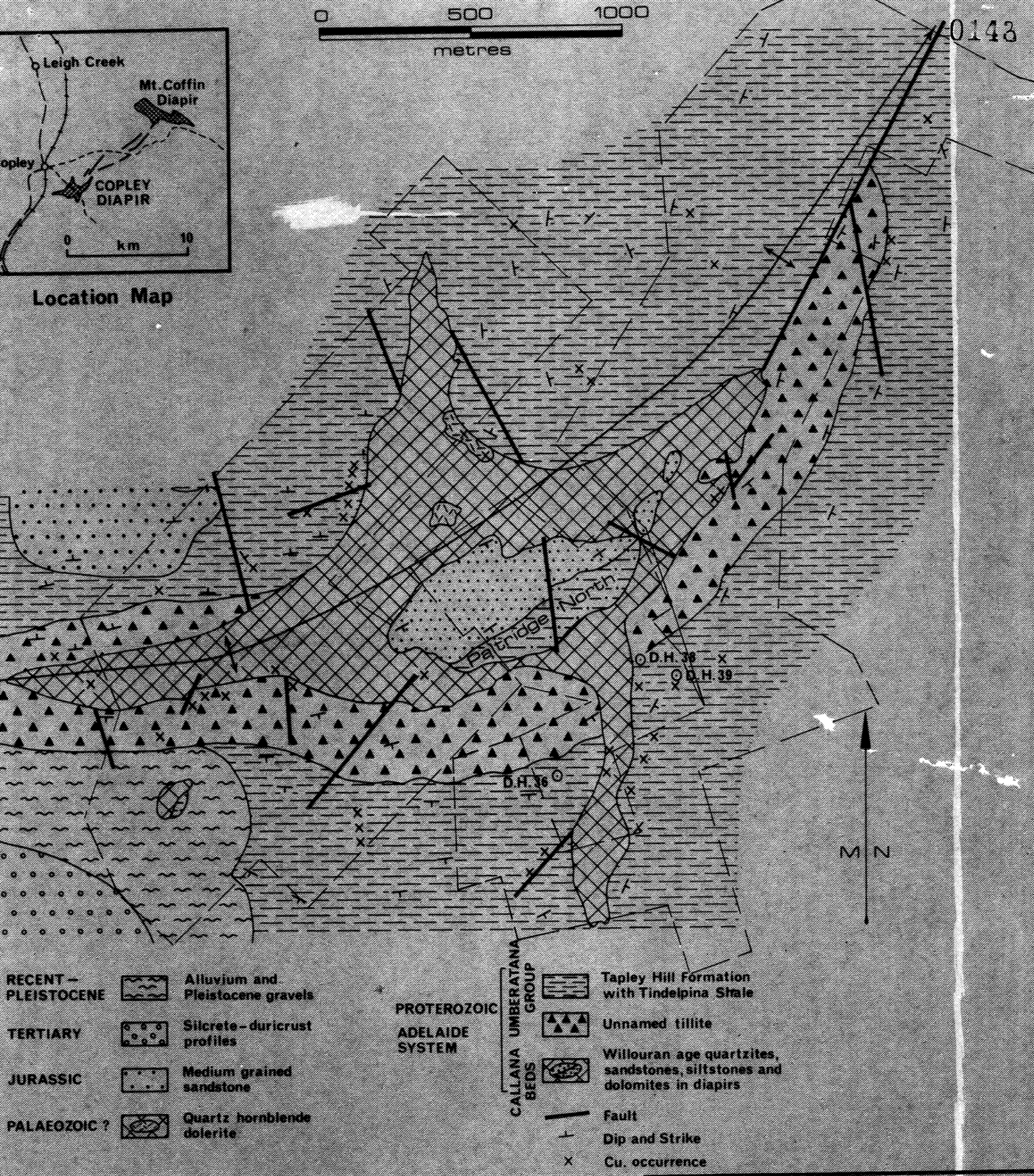
Copley is the old mining settlement in the region. At the turn of this century, over 3,000 men, mostly miners working in the region, were collecting their mail from the Copley Post Office. The town is now overshadowed by Leigh Creek situated six miles to the north. Like so many northern towns, Copley is treeless; galvanized iron shacks, deserted houses, old car bodies and rubbish heaps surround the town. The aboriginal and white population in the town would be approximately 50. The town is a poor reminder of the bustling, thriving centre of seventy-five years ago.

Geology

The Proterozoic sediments in the Mountain of Light area are gently folded into a broad anticline, which has been pierced by older sediments which form the Copley Diapir. The diapir rim rocks consist of Umberatana Group tillite, the Tapleys Hill Formation shales and the grey and green siltstones and shales of the Amberoona Formation. The sediments in the Copley diapir consist of brecciated siltstones, shales sandstones, carbonate and minor tyffacious lithologies. This strata is often brecciated and shows no obvious stratagraphic relationships. Fig.2 is a geological map of the Mountain of Light area.

Physiography

The Mountain of Light deposit occurs in an area of undulating country with ridges formed by the Proterozoic Umberatana Group tillite and mesas of gently dipping Jurassic sandstone.



Paltridge claims

Rosmann claims

Fox claims

BRIDGE MINERALS PTY. LTD.

GEOLOGICAL PLAN
MOUNTAIN OF LIGHT AREA
E.L. 126, SOUTH AUSTRALIA

Date: 12-12-74	Geologist: M.I. Hatcher
Drawn: G.J. Goodwin	Drwg. No.: ML 91

To the west is a depressed area, covered by Quaternary gravels and clays which overlie the Triassic Leigh Creek Coal Measures. To the east the country is steeper and more rugged as the Flinders Ranges proper is entered. The Mountain of Light area is approximately 300 metres above sea level.

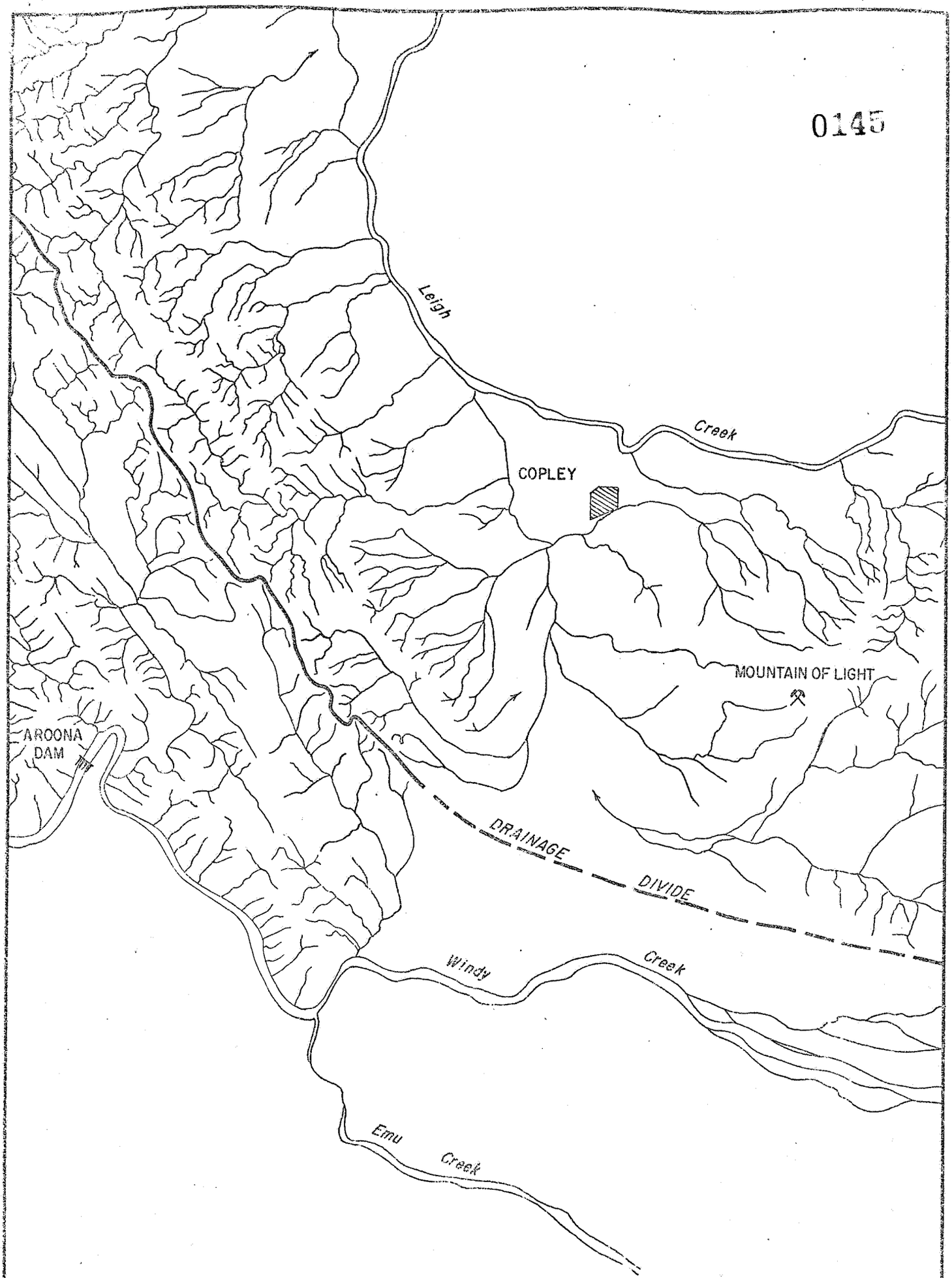
The watercourses in the vicinity of the Mountain of Light drain into the Leigh Creek and thence to the Lake Eyre drainage system. The copper deposit is approximately 3 kms. from the drainage divide between the Leigh Creek and Windy and Emu Creeks, which feed the Aroona Dam (Fig. 3).

Climate

The average annual rainfall is 150mm. However, the annual rainfall is irregular and can vary from a few millimeters up to 610mm. The rainfall is fairly regularly distributed throughout the year. When it does rain heavily, flash floods and sheet flooding are common. The floods are short lived and surplus water is quickly absorbed into the soil.

The main airstreams are from the south to southwest and the northeast. However, it is the strong, northerly winds from the centre of the continent which generally bring rain and are often accompanied by dust storms.

January and February are the hottest months of the year with day temperatures being constantly in the 34°-40° C. range. During this period after prolonged hot spells the night temperature does not fall substantially. However, during the rest of the year the night temperature



DRAINAGE PLAN
COPLEY AREA
1" = 1 mile.

are generally significantly lower. In July, the coldest month, night temperatures below freezing point are commonly experienced. Humidity is invariably low and the evaporation rate is approximately 220 m.m.p.a.

Vegetation

The vegetation in this area would be classified as arid grasslands. In the vicinity of the Mountain of Light, there are no trees or shrubs. The timber was probably removed for mining and subsequent sheep grazing has inhibited regeneration. The natural vegetation in this area consists of salt bush, blue bush and porcupine grass. Following heavy rains, native flowering plants, e.g. "hops", "salvation Jane" burst into life for a short time.

not native !

Soils

In the mine area there is little topsoil. The trees were removed during past mining operations and over-grazing removed the ground cover. As a result, erosion has now removed what soil had been present. Adjacent to the mine area in the depressions between ridges and in the flat area bordering the Coalfields in the west, reddish-brown predominantly sandy soil with inter-stratified gravels have accumulated. These soil horizons vary from a few cms to up to 2 metres in the west.

Hydrogeology

The water table in the mine area is at about 80ft. from the surface and in the lower country to the west it is

slightly shallower. Analysis of the water is shown below.

Underground Water Sample (Mine Area - 85')

Conductivity (E.C.) U.S./cm	6,250
Ca Cation	
milligrams g/l	219
milli equivalents g/l	11.0
Mg Cation	
milligrams g/l	111
milli equivalents g/l	9.1

In adjacent areas at depths of 250ft. water flows of approximately 5,000 galls. per hour have been estimated and at 500ft. flows of 20,000 galls. per hour were estimated. All estimates on water flows were made by drillers experienced in water boring. Samples of the water were handed to the pastoral lease holder, Mr. Jack Dunne. The water flows appear to be controlled by fault shears and joints associated with the diapiric intrusion.

Land Use

The area surrounding the copper deposit is pastoral lease held by Mr. Jack Dunne of Copley. To the east, the country is held by Mr. Jock Hirsh of Leigh Creek Station. It is essentially sheep grazing country with a few cattle and horses. To the west is the Copley Coal basin, the most southern of the coal deposits in the Leigh Creek coalfield. No mining activity has been planned for this basin in the near future.

Local Facilities and Industries

Copley

In Copley, there is a roadhouse, post office, hotel, a petrol station with mechanic, and an earthmoving business. The town also has a railway station.

Leigh Creek

Leigh Creek is a State Government town with a population of approximately 1,000 people. All houses and community facilities were built by the government and are controlled and run by them. There are a number of privately owned businesses in the town. These include a garage, two stores, a butcher shop, a newsagency and hairdresser. The Electricity Trust of South Australia has built a swimming pool, extensive sports facilities, a large community hall, and has planted and maintained a large number of trees throughout the town.

The Telford railway station is located at Leigh Creek and the town is the centre for the State Police, the Bank of Adelaide, and telephone communications in the area.

Wildlife

Red Kangaroos, Euros and Emus are common in the area especially in drought periods when waterholes in the Ranges dry up. A variety of birds are common in the area. Crows, Golden Eagles and Wedgetail Eagles, have

adapted to the intrusion of man by scavenging scraps of food around the towns and preying on the bodies of animals killed by cars on the roads. White cockatoos are common around waterholes and bores. The rabbit population fluctuates considerably but they are an everpresent menace in the region.

Historical and Aboriginal Relics

All the old mining and concentrating equipment from the Mountain of Light mines has been removed for the value of its brass and cast iron. Unlike more isolated mines, it is completely devoid of artifacts which have significance to the early history of mining in the area. The last relic of past mining, the smokestack of the smelter at the Mountain of Light, which had served as a landmark in the area for over half a century, was destroyed by vandals in 1968.

No aboriginal relics have been discovered or are recorded in the mine area at the Mountain of Light.

PROPOSED OPERATION

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i) Objective

At the Mountain of Light, Bridge Minerals Pty. Ltd. has proven 750,000 tonnes of 1.22% Copper, within 45 metres of the surface. The ultimate objective of the company is to mine and treat this copper mineralization. However, before a mining operation can be planned, it will be necessary to carry out a pilot plant study. Therefore, the immediate objective of this company is to test the viability of the proposed operation using a pilot plant.

ii) Description of Proposed Operation

Open Cut mining, heap leaching with sulphuric acid, and precipitation of copper by scrap iron, will be used in the proposed operation at the Mountain of Light. The concentrates will be trucked to Copley which is 3 kms to the north-west and despatched to southern ports by rail.

Fig. 4 shows the proposed open cut which will be used to mine the oxide-supergene suphide copper deposit. The deposit dips at approximately 10^{o} to the south. Approximately 10 to 25 metres of friable siltstone overburden will have to be stripped off to expose the deposit, which is approximately 25 metres thick (Fig. 5). The deposit has a projected surficial area of 2.5 ha. The surface area of the proposed pit will be approximately 4.8 ha.

Overburden excavated initially to expose the ore will be placed on the surface as a permanent mound. This mound will be so designed to conform with the local undulating topography. Top soil will be removed separately and placed on the mound and other bare surfaces produced by mining. After the initial excavation, the overburden and waste will be placed in mined-out sections of the pit.

The ore will be placed in heaps indicated in Fig.4, where it will be leached with sulphuric acid. Ultimately, the heaps will contain 750,000 tonnes of ore. The ore will be stacked to a maximum height of 7 metres. After leaching of the heaps has been completed, they will be contoured and covered with topsoil, so that they do not contrast with the surrounding topography.

The ore will be placed on compacted impermiable pads and leached with sulphuric acid at a pH of from 2-2.4. After passing through the ore heap the liquor containing dissolved copper and other salts will have a pH of 3.0-3.2. The liquor will be stored in impermiable tanks and then passed through 'cementation' cells, in which copper will be precipitated on scrap iron. The effluent from the precipitation cells will have a pH of 3.8-4.2 and will be passed into impermiable reservoirs where excess iron in solution will be precipitated before recyling the liquor back to the ore heaps.

The proposed open cut and heap leaching dumps lie between two parellel east-west ridges, in a shallow 120 metre wide gully. On the northern side of the gully is a 20 metre high sandstone ridge and to the south is a 10 metre high ridge (Fig.4). The surface contours show that the mining and treatment area will not be visible from the north and south. The high country to the east protects this flank from view. However, it may be possible to see the western end of the leach heap from the Copley-Adelaide road, which is 4 kms to the west.

The only power requirement in the operation will be for pumps to distribute the liquors. Therefore, whilst a diesel powered generator may be required there will be no significant atmospheric emission. As the ore will not be crushed, the only source of dust will be from the mining. By keeping the haul roads damp, the dust problem can be minimized.

All company employees will be accommodated in existing housing at Leigh Creek, Copley, or Leigh Creek Station. Water supply for the operation will come from:-

1. The Leigh Creek-Sliding Rock pipeline.
2. Bores in the mine area.
3. Dewatering of the open pit.

It is expected that mining operations will take 2 years to complete, and that leaching will continue for a minimum of 5 years.

QUARTERLY EXPENDITURE REPORT TO 30/6/76 0155

EXPLORATION LICENCE E.L. 126

Particulars

FOX AREA		
Administration and Overhead		116.88
Geological		
Salaries		350.62
		$467.50
OTHER E.L. 126 AREAS		
Administration and Overheads		1,512.09
Geological		
Travel	761.75	
Salaries	4,536.28	
Drafting	29.48	
Meals and Accomodation	212.86	
Pegging	35.50	
Maps and Publications	8.94	
Drilling	1,949.55	
		7,534.36
General		
Entertainment	70.75	
Communications	12.84	
Lease	24.24	
		138.49
		9,184.94
TOTAL E.L. 126 FOR QUARTER		$9,184.94

ENVIRONMENTAL PLANNING

Planning of this operation has been aimed at a development which will cause minimal disturbance to the present environment and on the cessation of the operation, leave some beneficial features.

The cementation plant, dams and sheds will be transportable. The overburden removed initially will be piled into mounds which will be contoured to fit in with the undulating topography of the region.

Previous mining operations in this area and overstocking by pastoralists have had a drastic effect on the local vegetation. Natural vegetation will be encouraged to grow over overburden mounds and an attempt to grow trees in selected areas will be made. Water from bores and from the dewatering of the open cut will be used to promote the growth of natural vegetation.

Obviously, problems will arise during the operation which even the most careful planning cannot forecast. However, Bridge Minerals Pty.Ltd., as manager of the project, will undertake to monitor the operation to ensure that its impact on the existing environment is minimal, and that on completion of the project some continuing beneficial features will be established in the area.

iii) Description of Pilot Plant Study

The immediate intention of this company is to construct a scaled-down ore heap and carry out a pilot plant study of the leaching process. The aim of the study will be to test the viability of the proposed operation and to refine techniques which will be used in the proposed operation.

Approximately 4,000 tonnes of ore will be required for this study. This will involve the stripping of approximately 50,000 tonnes of overburden. The location of the excavation, ore heap and overburden dump is shown in Fig.6. The top soil will be removed separately and placed on the overburden dumps which will be contoured to fit in with the local topography.

In addition to supplying economic information to the company, the pilot plant study will help in supplying information about the environmental problems likely to be experienced in the development of this deposit. The technical information that is collected will be available to the S.A. Department of Mines and the Australian Mineral Development Laboratories.

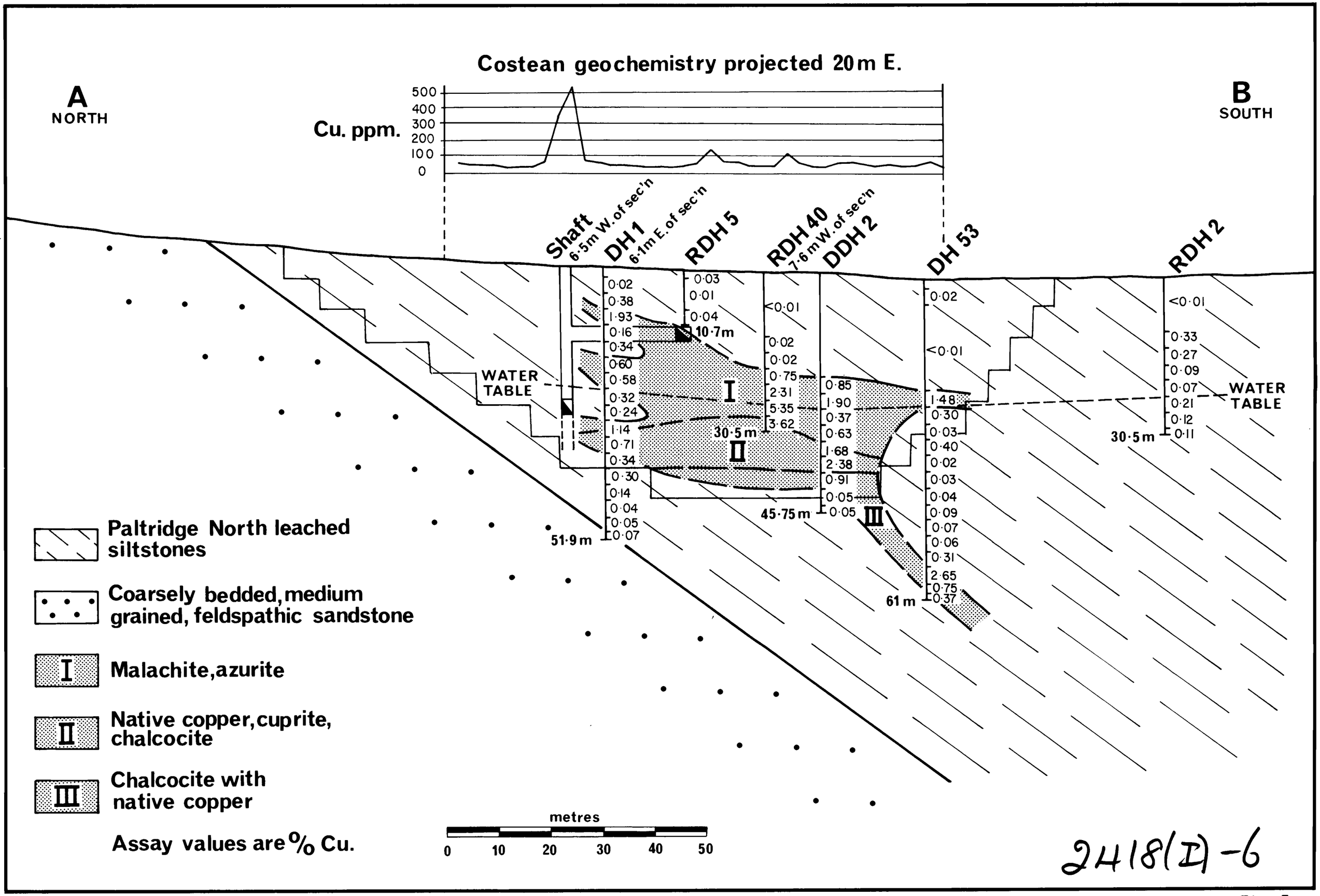
Costean geochemistry projected 20m E.
A
NORTH
B
SOUTH
Cu. ppm.
500
400
300
200
100
0
Shaft
6·5m W. of sec'n
DH 1
6·1m E. of sec'n
RDH 5
RDH 40
7·6m W. of sec'n
DDH 2
DH 53
RDH 2
WATER TABLE
10·7m
30·5m
45·75m
51·9m
61m
0·02
0·38
1·93
0·16
0·34
0·60
0·58
0·32
0·24
1·14
0·71
0·34
0·30
0·14
0·04
0·05
0·07
0·03
0·01
0·04
<0·01
0·02
0·02
0·75
2·31
5·35
3·62
0·85
1·90
0·37
0·63
1·68
2·38
0·91
0·05
0·05
0·02
<0·01
1·48
0·30
0·03
0·40
0·02
0·03
0·04
0·09
0·07
0·06
0·31
2·65
0·75
0·37
<0·01
0·33
0·27
0·09
0·07
0·21
0·12
0·11
I
II
III
Paltridge North leached siltstones
Coarsely bedded, medium grained, feldspathic sandstone
Malachite, azurite
Native copper, cuprite, chalcocite
Chalcocite with native copper
Assay values are % Cu.
metres
0
10
20
30
40
50

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Fig. 5