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EL 1543

LEIGH CREEK

COMBINED FIRST PROGRESS AND FINAL REPORT TO LICENCE SURRENDER, FOR THE PERIOD 30/11/1988 TO 28/2/1989

Submitted by
BP Australia Gold Pty Ltd
1989

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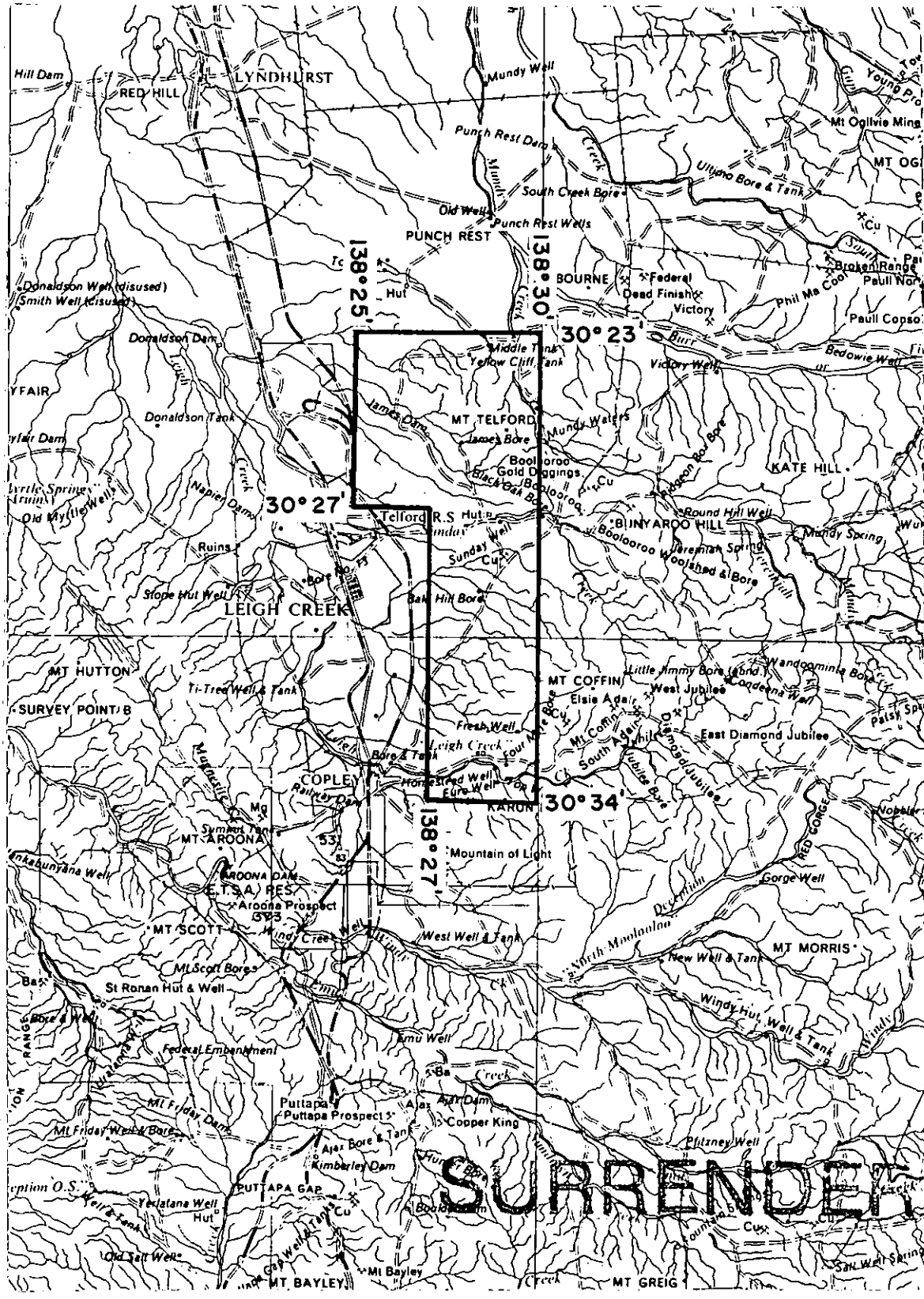
Government of South Australia
Department of State Development

SCHEDULE A



SCALE 1:250,000

KILOMETRES 5 0 5 10 15 20 25 KILOMETRES

APPLICANT: B.P. AUSTRALIA GOLD PROPRIETARY LIMITED

DME 237/88 AREA: 121 square kilometres (approx.)

1:250000 PLANS: COPLEY

LOCALITY: LEIGH CREEK AREA

DATE GRANTED: 30.11.88 DATE EXPIRED: 29.11.89 EL No: 1543

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BP MINERALS AUSTRALIA
EL 1543 "LEIGH"
COMBINED FIRST QUARTERLY AND FINAL REPORT
30 NOVEMBER 1988 TO 28 FEBRUARY 1989

M D WALKER
JANUARY 1989

C O N T E N T S

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SUMMARY

EL 1543, Leigh, was granted to BP Australia Gold Proprietary Limited on the 30th November 1988 for a period of 12 months. This report is a combined first quarterly and final report. Target was a sediment hosted gold deposit. Work carried out comprised; literature research, collection of 5kg stream sediment samples for gold analyses and stream silt sampling for As. Thirty three samples were collected from 32 sites.

The maximum Au and As values obtained were 0.45ppb and 17ppm respectively. These values are not interpreted as anomalous.

It is concluded that no significant gold deposit occurs within the tenement and surrender of the tenement is recommended.

1 INTRODUCTION

EL 1543 is one of several ELs located in the Flinders Ranges that were granted to BP Australia Gold Proprietary Ltd (BP Gold) in late 1988 as part of a regional search for gold deposits. This report details the work carried out in the first quarterly period and presents the data as a final report.

2 LOCATIONS AND ACCESS

EL 1543 is situated approx. 10km NE of the important regional centre of Leigh Creek South. Adelaide lies approx. 550km to the south along the tar sealed Highway 47, Fig. 1. The tenement lies entirely within the Leigh Creek Pastoral lease. The modest topographic relief and numerous station tracks combined to make access relatively easy. Good co-operation was received from the pastoral lease holder. The Leigh Creek open-cut coal mine lies close to the western boundary of the tenement. 1:50,000 scale published (Copley and Telford) topographic maps are available for the area.

3 TARGET

The exploration target was a gold deposit associated with a major structure and hosted by calcareous rocks.

4 TENEMENT

EL 1543, Leigh, comprising 121km^2 was granted to BP Australia Gold Proprietary Ltd on the 30th November 1988 for a period of 1 year. No pre-existing mining titles encumber the tenement.

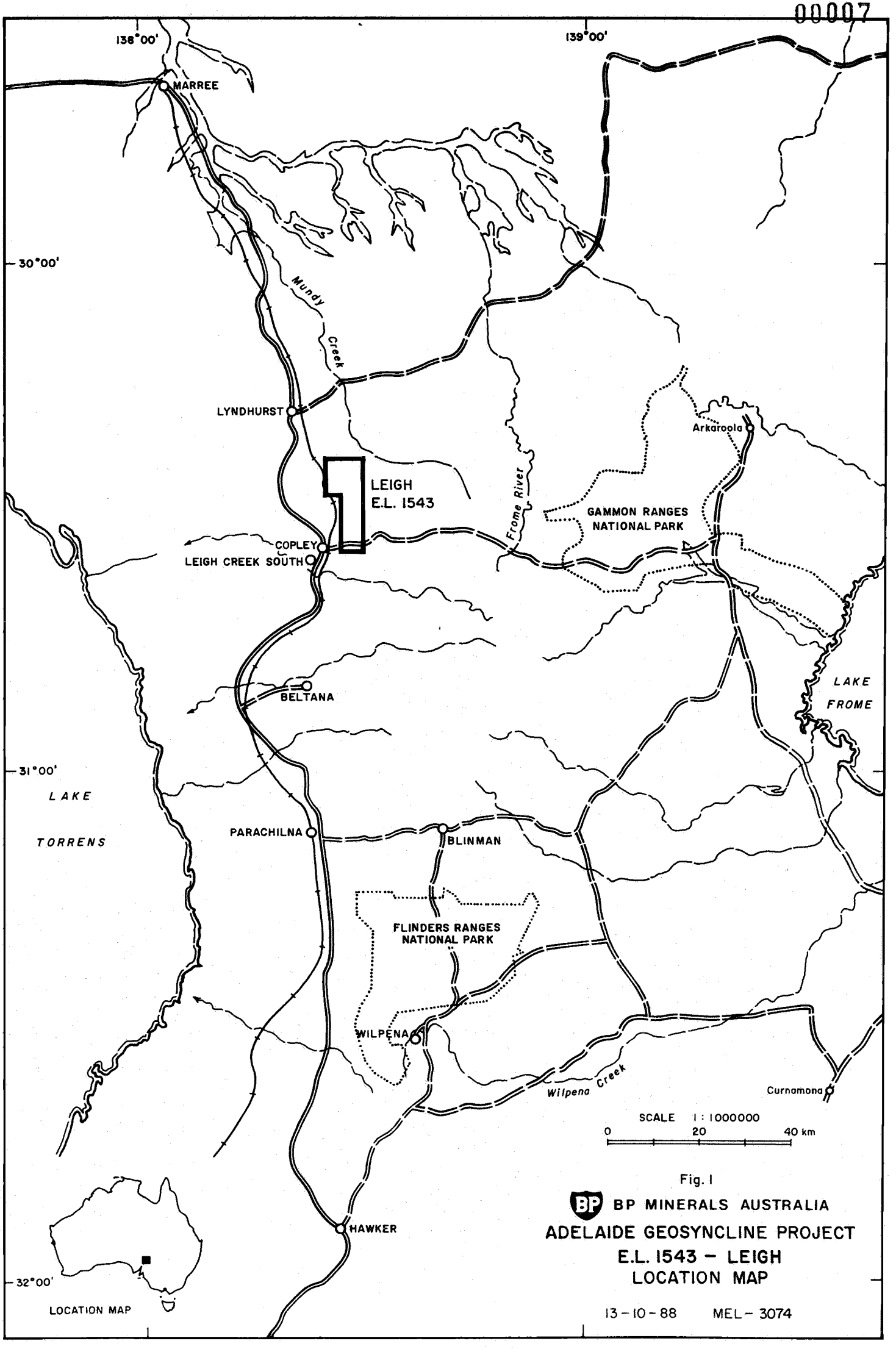

Fig. 1

BP MINERALS AUSTRALIA

ADELAIDE GEOSYNCLINE PROJECT

E.L. 1543 – LEIGH

LOCATION MAP

13 – 10 – 88 MEL – 3074

5 REGIONAL AND TENEMENT GEOLOGY

The tenement is located in the North Flinders Ranges where a dominantly Adelaidean age sedimentary package has been disrupted by multi-pulse sedimentary diapirs composed dominantly of Willouran age sedimentary rocks. Broad scale open folding around approx. E-W axes affected the whole region during the early Palaeozoic Delamerian Orogeny. The Northwest Fault, a major regional structure interpreted to have been a syn-depositional feature as early as the Willouran, lies 12km to the SE of the tenement. The tenement lies within the bounds of O'Driscoll's Leigh Creek Lineament.

Fig. 2 shows the tenement geology slightly simplified from the 1:63,360 Myrtle and Copley geological maps. The NE sector and some areas to the west of the tenement are underlaid by Triassic Coal Measures, Tertiary Conglomerates or Quaternary deposits. These zones, plus the area of synclinally folded Cambrian Pound Quartzite in the NE are not considered to be potential hosts to gold mineralisation and no geochemical sampling was conducted in these areas.

A large majority of the tenement is underlaid by Adelaidean sediments represented by the Sturtian Tapley Hill Formation or the Marinoan Myrtle Springs Formation. Small diapirs occur south of Sunday Creek and immediately west of the tenement and north of Sunday Creek.

The Tapley Hill Formation comprises laminated slates, calcareous flags and dolomite and limestone bands. Although the Myrtle Springs Formation at Copley is described as comprising purple and green slates, elsewhere it has a calcareous character and therefore is regarded here as a possible host to mineralisation.

NW-SE trending faults traverse the northern third of the licence while NE-SW faults transect the southern boundary of the licence.

The Mountain of Light copper prospect is located approx. 1km south of the tenement while the Boolooroo alluvial gold occurrence lies immediately east of Mundy Creek. Both these mineral occurrences appear to be related to diapiric structures.

6 PREVIOUS EXPLORATION

Although there has been extensive exploration over the last 100 years in this area for base and non-metals, no records have been found of gold exploration within the licence area. It is probable (although no records have been found) that early prospectors have tested most creek beds for gold by panning or dry blowing. This conclusion can be drawn because of the close proximity of the licence to the Boolooroo alluvial gold diggings.

Small scale mining of alluvial gold has occurred at the Bunyaroo Spring area, also known as the Boolooroo gold diggings. This area is 1 to 2 km east of the EL. Records indicate that in excess of 50 oz of gold were recovered.

Small scale mining of copper carbonate and hydroxide ores and ? barytes berets has occurred within the EL since the 1880s. Total production is estimated to be of the order of 4000 tonnes of ores.

7 WORK COMPLETED THIS REPORT PERIOD

The principal elements of the exploration programme completed this period are:

- literature research
- land owner liaison
- bulk cyanide leach drainage sediment survey (BLEG survey)
- stream silt sampling and analysis
- interpretation and assessment of results
- report writing

This work completes the majority of the phase 1 exploration programme proposed when lodging an ELA.

BLEG samples were collected in the following manner:

- 5kg of -1mm sediment was collected by on site sieving
- material was collected from several different places in the creek within a 20-30m distance
- trap sites were avoided and unsorted material sampled.

Samples were analysed by Comlabs in Adelaide in the following way:

- sample dried and a measured amount of dilute sodium cyanide added
- sample tumbled for approximately 24 hours
- gold extracted from cyanide solution and determined by AAS
- detection limit is 0.05ppb Au

A minus 80 micron stream silt sample was collected at each BLEG site and analysed for As, Fe and Mn by AAS in BP's Welshpool (WA) Laboratory using a perchloric-nitric-hydrofluoric acid digestion. Detection limits were As(1ppm), Fe(5ppm), Mn(5ppm).

The drainage survey sample sites were selected to cover the target structures and lithologies at a sample density of approximately 1 sample per $2km^2$. However, actual catchments sampled varied from less than $1km^2$ to as much as $4km^2$ depending on logistical or technical factors at specific sites.

8 RESULTS

The results of the literature survey are reported in the sections on geology and past exploration. Land owner liaison proceeded smoothly with good co-operation being obtained from Leigh Creek Station, e.g. keys to locked gates were provided.

8.1 BLEG Survey

Analytical results are presented in Appendix 1 and plotted on Fig.3. The highest Au value is 0.45ppb. A value of 0.45ppb is not anomalous in this region and therefore no samples warrant follow-up work. A duplicate sample was taken at site H 77514/77516; these samples returned identical values of 0.2ppb.

8.2 Stream Silt Survey

Analytical results are presented in Appendix 1 and As results are plotted on Fig. 3. The highest As value is 17ppm, and this is not regarded as anomalous. No samples warrant follow-up. A duplicate sample was taken at site H 77515/77517. The samples returned values of 3ppm and 17ppm As. This variation is equivalent to the total variation within the licence.

8.3 Geology and Prospecting

No indications of mineralisation were observed during the sampling programme and no rocks warranted rock grab or chip sampling.

9 CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the tenement does not contain any significant gold mineralisation hosted by calcareous rocks. No additional work is warranted and the tenement should be relinquished.

10 EXPENDITURE

The exploration undertaken and work carried out resulted in an expenditure of $10,898 subdivided as follows:

Salaries	$ 5,138
Logistics	$ 2,678
Services	$ 1,590
Tenement	$ 210
Drilling	$ 0
Administration and Depreciation	$ 1,282
	$10,898

APPENDIX 1

Tob: 8AD3400
O/N: 65277

ANALYTICAL REPORT

SAMPLE	Au
H 77484	0.25
H 77486	0.20
H 77488	0.20
H 77490	<0.05
H 77492	<0.05
H 77494	0.15
H 77496	0.20
H 77498	0.45
H 77500	0.20
H 77502	0.10
H 77504	0.10
H 77506	0.20
H 77508	0.20
H 77510	0.35
H 77512	0.30
H 77514	0.20
H 77516	0.20
H 77518	0.20
H 77520	0.30
H 77522	0.30
H 77524	0.35
H 77526	0.10
H 77528	0.20
H 77530	0.45
UNITS	ppb
SCHEME	BLEG2

Job: 8AD3400
O/N: 65277

ANALYTICAL REPORT

SAMPLE	Au
H 77602	0.10
H 77604	0.25
H 77606	0.45
H 77608	0.15
H 77610	0.10
H 77612	0.45
H 77614	0.35
H 77616	0.35
H 77618	0.10
UNITS	ppb
SCHEME	BLEG2

BP MINERALS AUSTRALIA

GEOCHEMICAL ANALYSIS SHEET

PROJECT: STATE SA | PROJECT CODE E P [redacted]52·1 | PROJECT ADELAIDEAN | PROSPECT LEIGH CREEK | COST CODE 424

SAMPLE LOCATION: NATMAP 1 : 250 000 SHEET NO. SH-54-9 | PHOTOGRAPHY/TRAVERSE | GRID | SAMPLE TYPE SSS | REPLICATE CODE | SAMPLED BY MDW | DATE 02 10 88

DRILLHOLE DATA: HOLE I.D. | COLLAR N | COLLAR E | AZIMUTH | DIP | COLLAR R.L.

ANALYSIS: DETAILS OF ANALYSIS REQUIRED — AA2 As Fe Mn P5

	SAMPLE NO.	DEPTH FROM OR NORTHING	DEPTH TO OR EASTING	GEOCODE
1	H 77485	66 31700	2 51950	
2	H 77487	66 32400	2 51650	
3	H 77489	66 33300	2 51450	
4	491	31850	55150	
5	493	30650	55450	
6	495	30150	56800	
7	497	29850	56300	
8	499	29550	56700	
9	501	28950	57050	
10	503	28100	59150	
11	505	27950	57050	
12	507	27050	55050	
13	509	26600	58800	
14	511	24500	57350	
15	513	24550	58300	
16	515	24500	58850	
17	517	24500	58850	
18	519	24750	55950	
19	77521	66221100	257950	
20	77523	66 22000	256700	

ELEMENT

	TUBE No.	As	%10 Fe	Mn		
1	1/ 1	9	30	378		
2	2	7	4·0	429		
3	3	7	3·6	250		
4	4	9	2·5	285		
5	5	7	4·0	504		
6	6	9	3·0	242		
7	7	5	3·9	390		
8	8	10	2·7	263		
9	9	12	2·8	458		
10	10	10	2·6	313		
11	11	9	3·6	444		
12	12	9	1·8	423		
13	13	7	3·0	352		
14	14	8	2·9	312		
15	15	9	7·0	416		
16	16	3	3·5	435		
17	17	17	3·2	377		
18	18	3	3·0	335		
19	19	3	3·2	355		
20	20	4	2·9	324		
	21	<1	<0·5	<5		
	22	7	3·0	372		
	23	88	10·0	445		
	METHOD	AA2	AA2	AA2		
	ANALYST	SN	SN	SN		
	DATE	3/11	2/11	2/11		

BOX NO. 56179

DATE TO SAMPLE PREP.

DATE TO LAB.

DATE COMPLETED

DATE ENTERED

217001

BP MINERALS AUSTRALIA

GEOCHEMICAL ANALYSIS SHEET

PROJECT: SA | EP ~~52~~ 52-1 | ADELAIDEAN | LEIGH CREEK | 424

SAMPLE LOCATION: NATMAP 1 : 250 000 SHEET NO. SH 54-9 | PHOTOGRAPHY/TRAVERSE | GRID | SAMPLE TYPE SSS | REPLICATE CODE | SAMPLED BY | DATE 01.10.88

DRILLHOLE DATA: HOLE I.D. | COLLAR N | COLLAR E | AZIMUTH | DIP | COLLAR R.L.

ANALYSIS: DETAILS OF ANALYSIS REQUIRED — AA2 As ~~Ba Zn~~ Fe Mn ~~AA4 Sb~~ P5

	SAMPLE NO.	DEPTH FROM OR NORTHING	DEPTH TO OR EASTING	GEOCODE
1	H 77601	6617700	259350	
2	H 77603	6617000	258400	
3	H 77605	6616550	257600	
4	H 77607	6618000	257300	
5	H 77609	6619250	259050	
6	H 77611	6619900	257200	
7	H 77613	6619950	256650	
8	H 77615	6619800	255050	
9	H 77617	6620200	255150	
10	H 77525	6621900	256500	
11	H 77527	6621910	255770	
12	H 77529	6623500	255300	
13	H 77531	6620360	255960	
14				
15				
16				
17				
18				
19				
20				

ELEMENT

	TUBE No.	As	% Fe	Mn		
1	3/5	12	3.9	321		
2	6	7	2.7	323		
3	7	9	2.5	347		
4	8	10	2.9	435		
5	9	6	2.7	370		
6	10	6	2.7	374		
7	11	6	2.8	370		
8	12	7	2.7	378		
9	13	6	2.6	344		
10	14	10	2.9	396		
11	15	11	2.9	342		
12	16	10	2.8	351		
13	17	5	3.0	384		
14						
15						
16						
17						
18						
19						
20						
	18	<1	<0.5	<5		
	19	12	3.7	327		
	20	100	13.3	484		
	METHOD	AA2	AA2	AA2		
	ANALYST	SW	SW	SW		
	DATE	3/11	2/11	2/11		

BOX NO. 56186

DATE TO LAB

DATE TO SAMPLE PREP

ENTERED

207063

138°26'

138°30'

30°22'

30°26'

30°30'

30°34'

6630000mN

6620000mN

MUNDY CREEK

SUNLAY CREEK

LEIGH CREEK

LEIGH CREEK H.S.

Leigh Creek South

250 000 mE

260 000 mE

SCALE 1:50000

0 1 2 3 4 km

QUATERNARY — Sand & alluvium

TERTIARY — Conglomerates

TRIASSIC — Coal Series

CAMBRIAN — Pound quartzite

MARINOAN — Purple & green slates

STURTIAN — Tapley Hill Formation: laminated slates, calcareous flags, dolomites & limestone bands

ADELAIDEAN

Complex crush zone

Fault

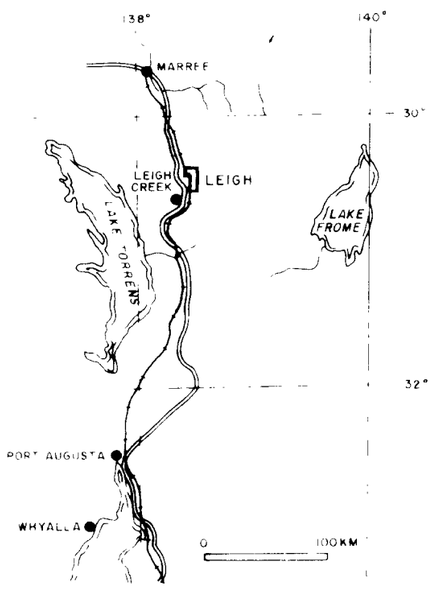

Fig 2 8069-1

BP MINERALS AUSTRALIA
EXPLORATION DIVISION

ADELAIDE GEOSYNCLINE PROJECT
E.L. 1543 - LEIGH
GEOLOGY

LOCATED IN	COPLEY	1:250 000 SHEET	
COMPILED	M WALKER	ADVANCE ISSUE	
DRAWN	S WHEELER 12/88	ORIGINAL HELD	MELBOURNE
APPROVED		DRAWING NUMBER	MEL 3275

138°26'

138°30'

30°22'

30°26'

30°30'

30°34'

MUNDY CREEK

488,489

486,487

484,485

490,491

492,493

494,495

496,497

498,499

500,501

SUNDAY CREEK

502,503

504,505

506,507

508,509

516,519

510,511

512
513

514 516
515,517

520,521

522,523

526,527

524
525

528,529

530,531

618,617

614,613

612,611

616,615

610,609

LEIGH CREEK HS

608 607

602,601

LEIGH CREEK

604,603

606,605

Copley

Leigh Creek South

6630000mN

6620000mN

260000mE

STREAM SEDIMENT SAMPLING
(all samples prefixed - M77)

504 B.L.E.G sample (even numbers)

503 Silt sample (odd numbers)

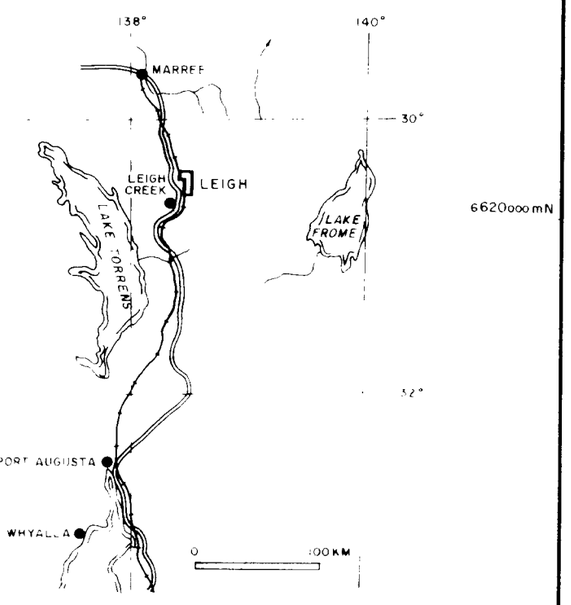

Fig 3 8069-2

SCALE 1 : 50 000

0 1 2 3 4 km

BP MINERALS AUSTRALIA
EXPLORATION DIVISION

ADELAIDE GEOSYNCLINE PROJECT
E.L. 1543 - LEIGH
B.L.E.G. AND SILT STREAM SEDIMENT SAMPLE LOCATIONS

LOCATED ON	COPLEY		1:250 000 SHEET	
COMP.	M WALKER	10/88	LAST REVISION	
DRAWN	S WHEELER	10/88	ORIGINAL HELD	MELBOURNE
CHECKED			DRAWING NUMBER	MEL 3076