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BILLITON AUSTRALIA
THE METALS DIVISION OF THE
SHELL COMPANY OF AUSTRALIA LIMITED

ANNUAL and FINAL REPORT FOR EXPLORATION ON
E.L. 4816 BOOMLERA SIDING

AUTHOR: C J CREAGH
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SUMMARY

Exploration Licence (E.L.) 4816, Boomlera Siding is located approximately 22 kms northwest of Pine Creek.

The licence area is the subject of a Joint Venture Agreement between Coronation Hill Gold Mines NL and The Shell Company of Australia Limited, which commenced on the 1st July 1988. Coronation Hill Gold Mines NL hold the tenements, with The Shell Company of Australia as manager and operator of the joint venture until their formal withdrawal from the JV on 14th September, 1990.

The geology within the licence area is comprised of interbedded siltstone shales and greywackes of the Early Proterozoic Burrell Creek Formation of the Finniss River Group. Regional metamorphism to greenschist facies occurs associated with at least two phases of deformation, an upright north-northwest folding, and gentle north-northeast warping. There is also some evidence of shearing, probably related to the major north-northwesterly trending Pine Creek Shear Zone.

This report contains a summary of all previous work carried out on the licence area, with respect to the Joint Venture. Work carried out during the current reporting period has consisted of gridding, BCL soil sampling and scout geological traverses over areas of interest. Results from this recent work have not been encouraging and no further work is planned.

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1.0 INTRODUCTION

Exploration Licence 4816, Boomlera Siding, was granted to Coronation Hill Gold Mines NL on the 13th August, 1987 for a period of three years.
The Shell Company of Australia Limited, entered into a Joint Venture Agreement with Coronation Hill Gold Mines (McKinlay Joint Venture) which included E.L. 4816, on the 1st July, 1988.

This report details the work completed and results gained by Billiton Australia, The Metals Division of The Shell Company of Australia Limited, on behalf of the McKinlay Joint Venture, during the year ended 13th September, 1990. Shell withdrew from the McKinlay Joint Venture effective 14th September, 1990.

This report excludes any results on work completed on a number of MCN's and MLN's controlled by the Joint Venture within E.L. 4816.
Exploration within the licence area has focused on locating near surface bulk tonnage gold mineralisation.

2.0 TENEMENT STATUS

Exploration Licence 4816 was granted on the 13th August 1987 and expired on the 12th August, 1990. A one block reduction was carried out on the 13th July 1989.

3.0 GEOLOGY

The geology within the licence area is comprised of interbedded siltstones, shales and greywackes of the Early Proterozoic Burrell Creek Formation, of the Finniss River Group (Figure 1). Regional metamorphism to greenschist facies occurs associated with at least two phases of deformation, an upright north-northwest folding, and gentle north-northeast warping.

The geology of the tenement has been described in considerable detail in the Annual Report for Exploration Licence 4816, by Coronation Hill Gold Mines NL, September 1988, and this information will not be repeated here. Readers are referred to this report for details on stratigraphy, depositional environment, thermal history and structural history.

4.0 MINERALISATION

Exploration Licence 4816 encompasses several known mineralised zones - the Elizabeth, a small gold reef mine, two small silver-lead mines, the Flora Belle and the McKinlay, alluvial deposits along the McKinlay River, and small scattered alluvial gold deposits.

These mines are described in the above mentioned report and will not be described in detail here.

5.0 PREVIOUS WORK

The previous work listed below is with respect to the McKinlay Joint Venture only.

5.1 Geological Mapping and Rock Chip Sampling

Early reconnaissance traverses and uncontrolled rock chip sampling along a major northwest striking ridge (the Su Ah Ray prospect), resulted in several anomalous Au assays, the best being 0.91 g/t Au. Samples were collected from minor sheeted to stockwork quartz-limonite vein systems within interbedded siltstones, shales and greywackes. Significant rock chip assays, up to 5.4 g/t Au, were returned from earlier work carried out by Zapopan NL over the same ridge.

As a result of the earlier favourable rock chip results, the Su Ah Ray prospect was gridded over a strike length of 2.6 km at 200m line spacing. The grid was mapped at 1:5,000 scale, with rock chip samples collected over zones of quartz-limonite veining. Best results were 0.96 g/t Au. Encouraging base metal values of 4.40 % Pb and 1350 g/t Ag were obtained along strike from the Old McKinlay Ag - Pb Mine.

Outside the Su Ah Ray grid rock chip sampling results have been poor with stockwork quartz veining never wider than 1m, returning best values of 0.29 and 0.23 g/t Au.

5.2 Stream Sediment Sampling

A total of 30 active sediment 5kg BCL Au and 200g, -80# Ag, Pb, Zn, Cu, As stream sediment samples were collected from EL 4816. Sampling was restricted in the southern block by poor relief and extensive alluvial cover.

Results from the BCL Au sampling were encouraging with up to 221 ppb Au being recorded within the Snaddens Creek drainage system.
Results from the southern block and -80# sampling were disappointing. In keeping with N.T. Department of Mines and Energy requirements the southern block of EL 4816 was relinquished in July 1989.

5.3 Soil Sampling

Composite 2kg BCL and -80# soil samples were collected over 50m intervals on the Su Ah Ray grid. Samples were analysed for Au, Ag, Pb, Zn, Cu and As. Three major zones of quartz-limonite veining consistently recorded over 8 ppb Au with the main zone anomaly occurring over a 1.6km strike length. Pb and As anomalies occur coincident with the main Au anomalies. Minor Ag and Zn anomalies are also present off-set from the gold anomalies. The consistently low tenor of the BCL Au anomalies within the Su Ah Ray grid may be due to the discontinuity and limited width of the vein system.

5.4 Drilling

A 12 hole open hole percussion programme was drilled at the Su Ah Ray prospect in October 1988. A total of 1120m were drilled upon gold in soils anomalies and mapped lead/silver veining. The majority of holes were disappointing with consistently low gold values, only minor quartz veining and rare sulphides being intersected. Best results were obtained from MP2 with 1m @ 8.01 g/t Au and 13m @ 1.16% Zn, and MP12 with 11m @ 327 g/t Ag and 2.8% Pb, associated with a sub-vertical galena-sphalerite-pyrite-quartz-carbonate vein, similar to the McKinlay Mine.

Surface follow-up work on MP12 revealed a true maximum width of mineralisation of 4m and a strike extent of less than 100m. Despite the encouraging grades no further work is proposed on this prospect due to:-

1) discontinuous vein style of gold and base metal mineralisation.
2) poor gold grades and widths in drilling.
3) very limited tonnage potential for both mineralisation types (<200,000t).

5.5 Aeromagnetics

Detailed airborne magnetic and radiometric data was acquired from Aerodata Holdings as part of a major multi-client survey over the Pine Creek Geosyncline. This survey was completed using a 200m flight line spacing, 5000m tie line spacing and 70m mean sensor height. Image processing was completed by GeoImage of Brisbane. No discrete aeromagnetic targets were delineated.

5.6 Ground Magnetics

A ground magnetic survey, using a 200m line spacing and 10m sampling interval has been conducted over the Su Ah Ray grid. The results of the survey have shown that the main zones of quartz-limonite veining are magnetically inactive. Two major northwesterly trending magnetic highs occur, one on either side of the main mineralised zone, the eastern anomaly lying along strike and southeast of the McKinlay Pb - Ag workings.

6.0 WORK COMPLETED

6.1 Soil Sampling

A grid covering some 21.6 line kilometres, with a 200m line spacing, was completed to the northeast of the Su Ah Ray prospect. The grid was emplaced as part of a follow-up programme resulting from significantly anomalous BCL Au assays being obtained from the Snadden's Creek drainage system (i.e. 172 ppb, 194 ppb, 131 ppb, 221 ppb and 43.7 ppb).
A BCL Au soil sampling programme was carried out on the grid, with -8# samples taken every 5m and composited over 50m to give a 2kg sample for analysis.

Results from the programme were disappointing (Figure 2) with gold-anomalous areas only corresponding to Snadden's Creek and suspected to be related to alluvial gold. The source of the gold in Snadden's Creek is thought to be the old Snadden's Creek gold battery located beside the Spring Hill Road just outside the western boundary of E.L. 4816.

6.2 Ground Magnetics Follow-up

Two major northwesterly trending magnetic highs occur on either side of the Su Ah Ray ridge (Figure 3). The eastern anomaly lies along strike and southeast of the McKinlay Pb - Ag workings.

Several surface traverses have been unsuccessful in determining the source of these anomalies, most probably due to magnetite or pyrrhotite formation in selected, more Fe rich beds, during contact metamorphism.

7.0 CONCLUSION

Exploration to-date has failed to locate significant near surface bulk tonnage gold mineralisation. Due to the negative exploration results, no further exploration is proposed for the licence area.

EXPENDITURE STATEMENT

AREA	CURRENT REPORTING PERIOD	TOTAL EXPENDITURE
Regional Office - Staffing	15,842	36,622
- Support	7,400	12,995
Tenement Costs	0	15
Geophysical Surveys	469	1,086
Analyses	12,094	25,635
Drilling	0	22,325
Aerial Photography	0	562
Gridding/Access	0	11,231
Geological Studies	0	1,267
Other	0	46
Geotechnical Services	0	0
Head Office Management Administration & Technical Services	2,998	11,885
Overheads	3,880	12,367
TOTAL	**42,683**	**136,036**

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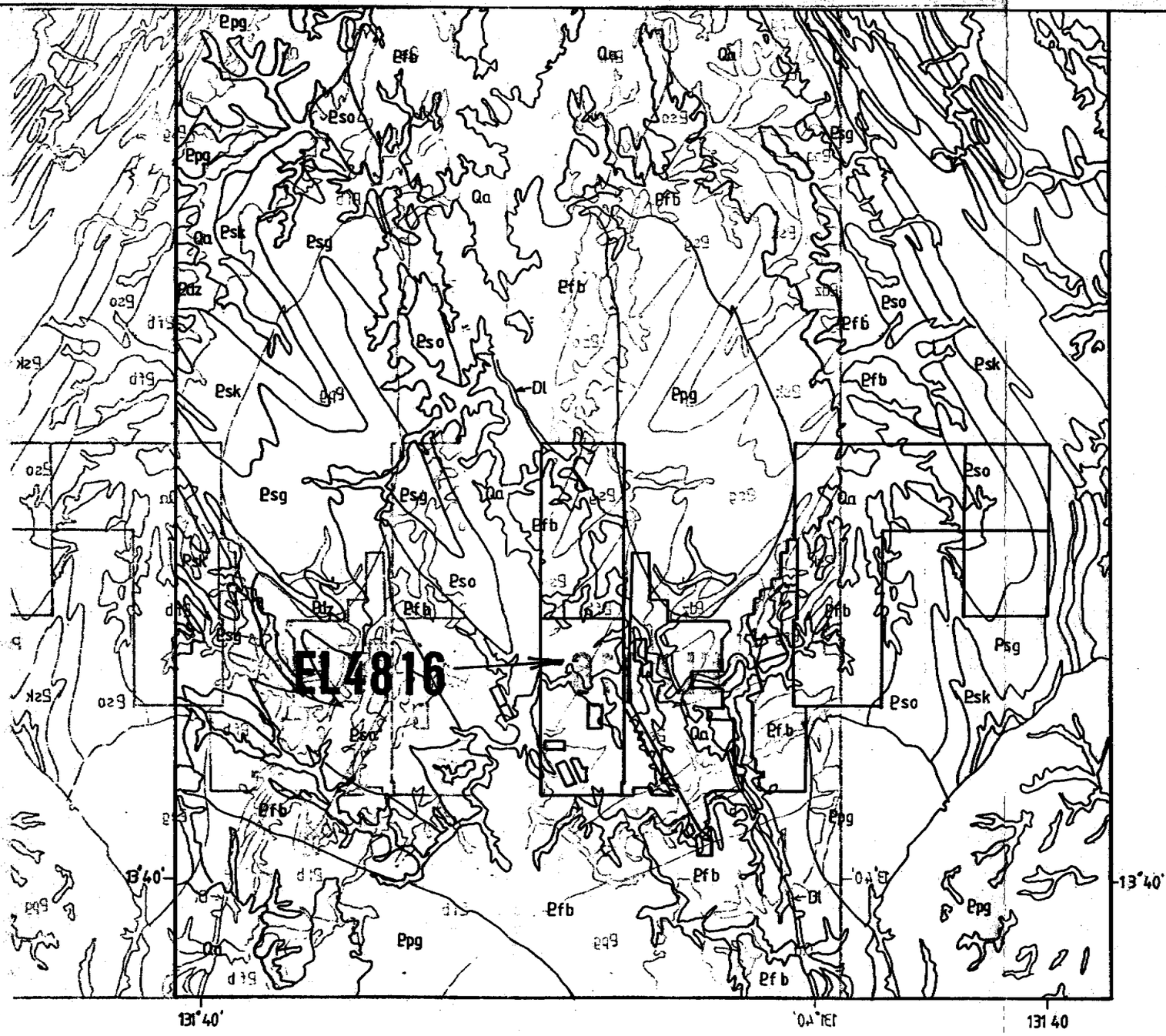
REFERENCES

ALLEN, R., (1988) ANNUAL REPORT for EL 4816
Coronation Hill Gold Mines NL

QUATERNARY
- Qa — Silt, sand, clay, soil & gravel

EARLY PROTEROZOIC
- Dl — Dolerite dyke
- Ppg — Coarse porphyritic granite
- Pdz — Zamu dolerite
- Pfb — Burrell Creek Formation
- Pso — Mt Bonnie Formation
- Psg — Gerowie Tuff
- Psk — Koolpin Formation
- Ppw — Wildman Siltstone

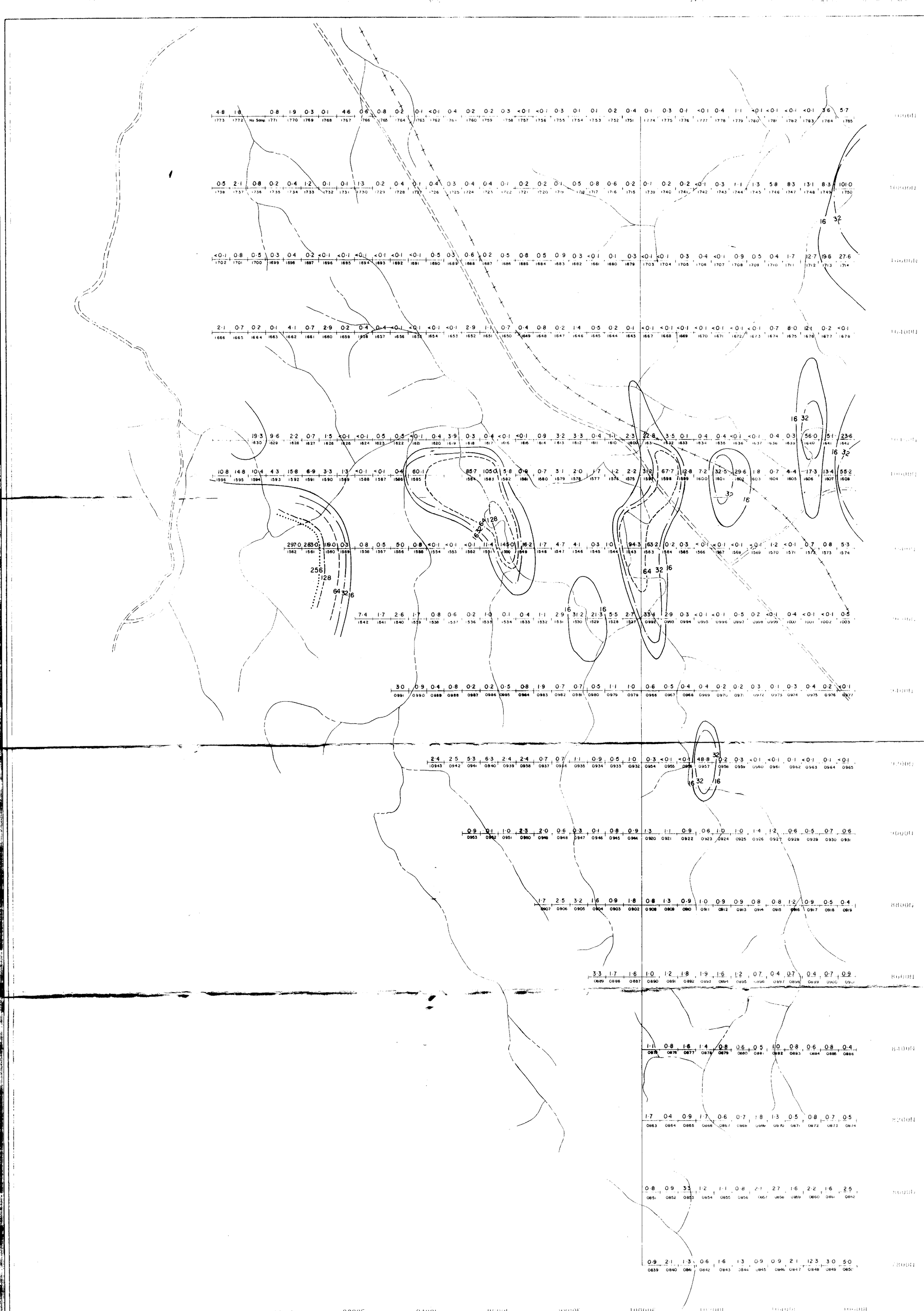


Billiton Australia
The Metals Division of the Shell Company of Australia Limited

Project: McKINLAY J V

Title: REGIONAL GEOLOGY
TENEMENT LOCATION

Author CC	Date 8/90	Scale 1:100,000	
Drawn CC	Office DWN	Revised	Date
Drawing No.			Fig. No. 1



BCL SOIL CONTOURS (ppb)

50m SAMPLE LOCATION

0889 SOIL SAMPLE LOCATION (PREFIXED BY 14)

48·8 SOIL SAMPLE RESULT (ppb)

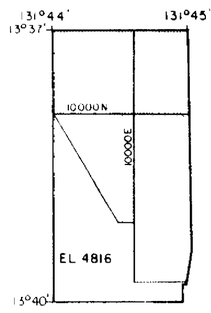
16

32

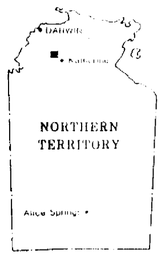
64

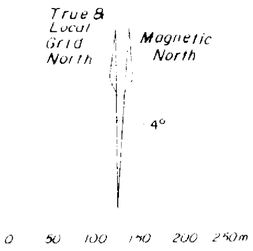
128

256



LOCATION MAP





Billiton Australia

The Metals Division of the Shell Companies in Australia Limited

BOOMLERA SIDING EL4816
NORTHERN TERRITORY

BOOMLERA SIDING
2kg SOIL SAMPLES
BCL Au (ppb)

FIG 2.

Author C R M	Dept CNS	Scale 1:5000	
Drawn B J T	Date 7/90	Recorded	Date
Checked	Date	Surveyed	Date
Approved		Drawing No.	

CR90/571

10000 E

13°36'

13°44'

10000 N

9000 N

8000 N

7000 N

WESTERN BOUNDARY
OF EL 4816

EASTERN BOUNDARY
OF EL 4816

MLN 410
H

MCN 334

MCN 568

MCN 406

MCN 569

MCN 114

MLN 545

MLN 498

MCN
300

MCN 387

MLN 856

MLN 124

47400

47500

H

(Local Grid N)
324°(N)

0 100 200 300 400

SURVEY SPECIFICATIONS

MAGNETOMETER	:	GEOMETRICS G-856 PORTABLE PROTON MAGNETOMETER
RESOLUTION	:	0.1nT
SAMPLE INTERVAL	:	5m
LINE SEPERATION	:	200m
LINE DIRECTION	:	54 – 234 deg
SENSOR HEIGHT	:	2.0m
FIELD PROCESSING	:	HEWLETT PACKARD 85 MICROCOMPUTER
BASE STATION	:	47340nT
CYCLE RATE	:	120 sec.

PROCESSING

FILTERING	:	MANUAL GRAPHICAL SMOOTHING OF SURVEY DATA
CONTOURS	:	GENERATED FROM PLOTTED CONTOUR INTERCEPTS ON FILTERED AIMS PROFILES.

LEGEND

Low

H High

47650 Contour Interval 20nT

FIG. 3

Billiton Australia
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Project: McKINLAY JOINT VENTURE
NORTHERN TERRITORY

Title:
Su Ah Ray Prospect
CONTOURS OF TOTAL MAGNETIC INTENSITY

Author A.J.T./P.B.	Dept. Cns.	Scale 1:5000	
Drawn P.J.W.	Date 10/88	Revised	Date
Checked	Date	S'pceded	Date
Sheet No		Drawing No. C/MJ20/7	3

CR 90/571