CR 8807

ANNUAL REPORT

FOR THE PERIOD ENDING 25 NOVEMBER 1996

EXPLORATION LICENCE 7797, BATTEN CREEK, McARTHUR BASIN, N.T.

1:250,000 Sheet Area: Mount Young SD53-15

T PATERSON

JANUARY 1997

Exploration Licence 7797 is held by:

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REF: \\MINXPER_SRV01\USERS\PATERSON\SEC\FGGAS\CREPORT\8807BATTEN.DOC
21/2/97

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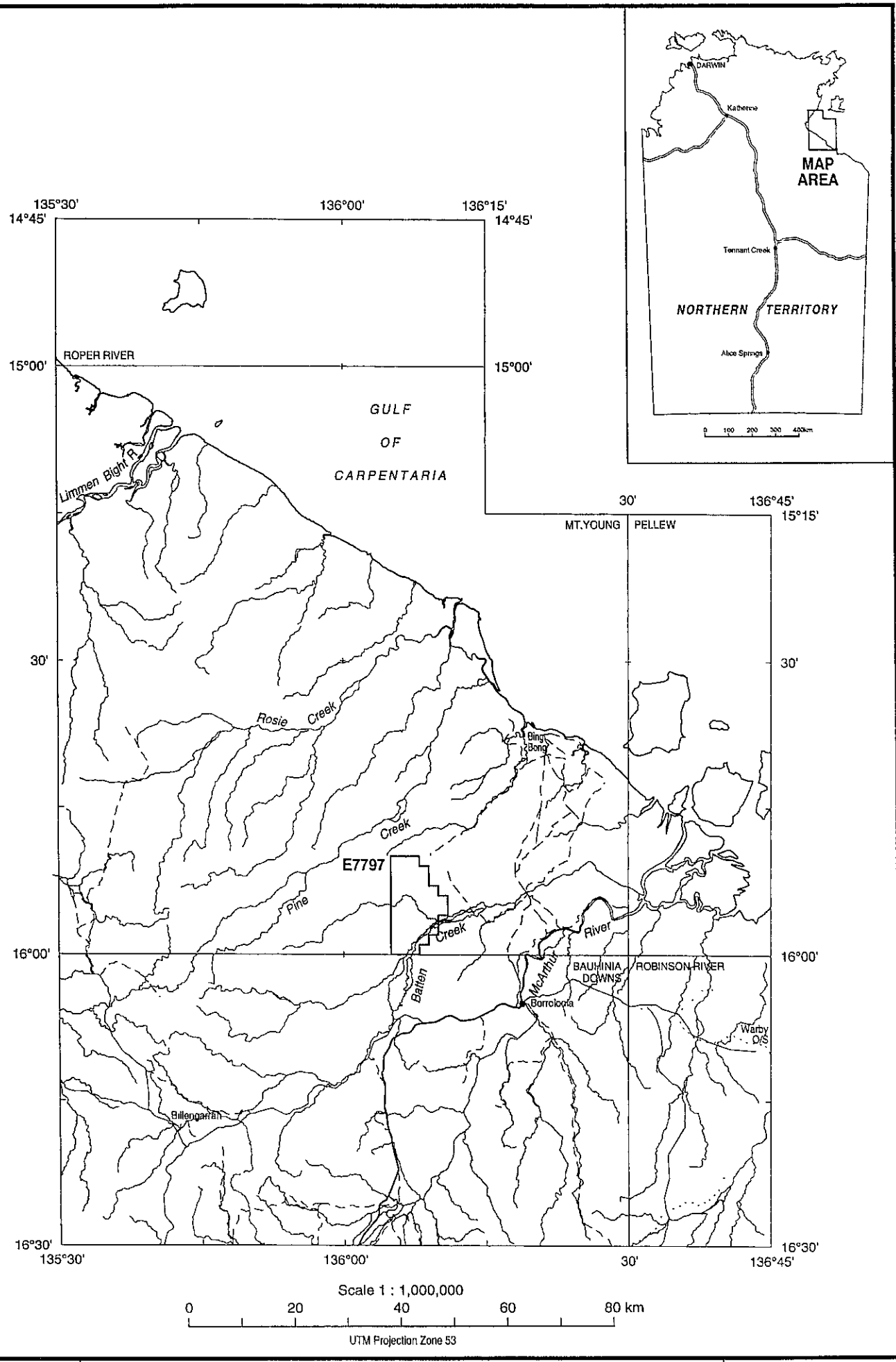

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Drawn : R.J.Clark	NORTHERN PLATFORMS PROGRAM E7797 BATTEN CREEK, N.T.		Drg. No. : A4-6229
Date : 13.2.97	TENEMENT LOCATION		FIGURE 1
Revised :			

SUMMARY

During the 1996 field season, EL7797 was explored for manganese mineralisation, through the drilling of seven RC percussion holes. No significant mineralisation was intersected.

Four holes were sited around a hole drilled in 1995 (BCP010) which intersected manganese mineralisation in the Cretaceous overburden sequence. Three other holes were sited on PROTEM soundings from the 1995 season, which showed conductors in the upper 50 m.

As a result of the lack of significant intersections of manganese, the licence area has been dropped.

1. INTRODUCTION

This report describes exploration carried out by BHP Minerals Pty Ltd (BHP) on Exploration Licence (EL) 7797 in the period 22 March 1996 to 25 November 1996 The licence is located in the Gulf region of the Northern Territory. Exploration in previous years was for base metals, but work in the 1996 field season was directed at manganese mineralisation within the Cretaceous cover sequence. Work completed comprises:

- Interpretation of results from previous geophysical and drilling programs.
- Clearing on overgrown access tracks.
- Seven RC drill holes, for a total of 364.5 m.
- Rehabilitation of drill sites from the previous season.

Total expenditure for the period is $ 41,186 (Appendix 1).

1.1 Location, Access and Physiography

EL7797 is located north of Borroloola in the Gulf region of the Northern Territory (Fig. 1). Borroloola is approximately 970 km by sealed road from Darwin.

EL7797 is located in the south-eastern part of the Mount Young 1:250,000 map sheet area. Access is by a sealed road which runs north from Borroloola to Bing Bong. From this road, limited access to EL7797 is gained by station tracks and access lines cleared by BHP in 1995.

Most of the area is flat and covered by quartz sand. Maximum elevation is approximately 50 m ASL. Vegetation varies from thick acacia and melaleuca scrub to

open eucalypt woodland. The main drainages are Galah Creek and Batten Creek, which flows generally north-east towards the Gulf.

1.2 Tenement Status

EL7797 ("Batten Creek") was granted to BHP on 27 October 1992. The licence has been part of the Batten Creek Project (approved 22 February 1994) which has at various times also included ELs 7892, 8541 and 8656.

EL7577 was surrendered on 25 November 1996.

1.3 Rehabilitation

Access tracks were cleared, where necessary, during the 1995 field season. Drill sumps from the 1995 drilling were filled in and some existing access tracks were cleared of growth during the 1996 season. None of the 1996 drill holes required sumps, as all were shallow RC holes. Natural regrowth of vegetation in this region has proved to be very vigorous, as the growth on the 1995 tracks has shown.

2. GEOLOGY

EL7797 is located within the mid-Proterozoic McArthur Basin, in the north eastern part of the Batten Trough. The target style of mineralisation in the 1992 - 1995 period was Zn-Pb-Ag mineralisation within the Proterozoic sedimentary sequence.

The Proterozoic units outcrop in about 20% of the licence area, particularly in the western and southern parts. The units are gently folded and strike north-west (Fig. 2). Exposed stratigraphy includes the Barney Creek Formation and Reward Dolomite of the Umboolooga Sub-Group, Lynott Formation and Yalco Formation of the Batten Sub-Group. These units comprise a variety of sandstone, siltstone and dolomite lithologies.

To the east of the outcropping Proterozoic are areas covered by Cretaceous sedimentary rocks and surficial sands and alluvial deposits. The Cretaceous sequence can be up to 60 m thick and is dominantly siltstone and claystone, with lesser sandstone. A 1995 drill hole, BCP010, intersected 15% Mn between 30 and 36 m, hosted in this sequence (Paterson, 1996).

3. DRILLING

Seven RC holes were drilled on EL7797 in late August 1996. Drilling was performed by Gaden Drilling of Batchelor, NT, using a UDR650 rig. Hole details are provided in Table 1. Hole locations are shown in Figure 2. Drill logs are contained in Appendix 2, and graphic logs are provided in Plate 3.

TABLE 1 - DRILL HOLE DETAILS

HOLE NAME	EASTING*	NORTHING*	DEPTH (m)	TARGET
BCP013	622050	8238150	52	400 m W of BCP010
BCP014	623975	8236630	60	PROTEM Site B2366/240, 0-51 m @ 24 Ωm
BCP015	622400	8237700	52	400 m S of BCP010
BCP016	622430	8238530	49.5	400 m N of BCP010
BCP017	625650	8238200	52	PROTEM Site B2382/256, 18-30 m @ 7.8 Ωm
BCP018	624000	8238200	50	PROTEM Site B2382/240, 0-56 m @ 35 Ωm
BCP019	622800	8238200	49	400 m E of BCP010

364.5

* AMG Zone 53

Four holes, BCP013, BCP015, BCP016 and BCP019 were located 400 m west, south, north and east of BCP010 respectively. These were designed to test the continuity of the manganese mineralisation intersected in BCP010. The other holes, BCP014, BCP017 and BCP018, were drilled on PROTEM sounding sites which showed conductive shallow layers. These soundings were completed in the 1995 field season.

All holes intersected highly to moderately weathered rocks. No significant thickness of manganese was present in any hole. Proterozoic basement was reached in the three holes east of the BCP010 area. The precise position of the unconformity is not

confidently placed, due to the strong weathering. Thick intervals of chert (after carbonate) or red dolostones were considered to be Proterozoic.

The Cretaceous sequence proved to be a surprisingly variable mixture of siltstone, claystone and sandstone with minor chert. A consistent correlation of layers between the holes in the BCP010 area is not obvious. For example, BCP016 contained no sandstone, apart from the surficial layer, whereas BCP013 and BCP015 each contain prominent quartz sandstone beds.

The samples from the Cretaceous were generally yellow to brown and siltstone samples were clayey, due to the strong weathering.

Trace to minor manganese is present in most holes. The only hole which contained an interval of massive manganese is BCP018; between 27.0 and 27.5 m.

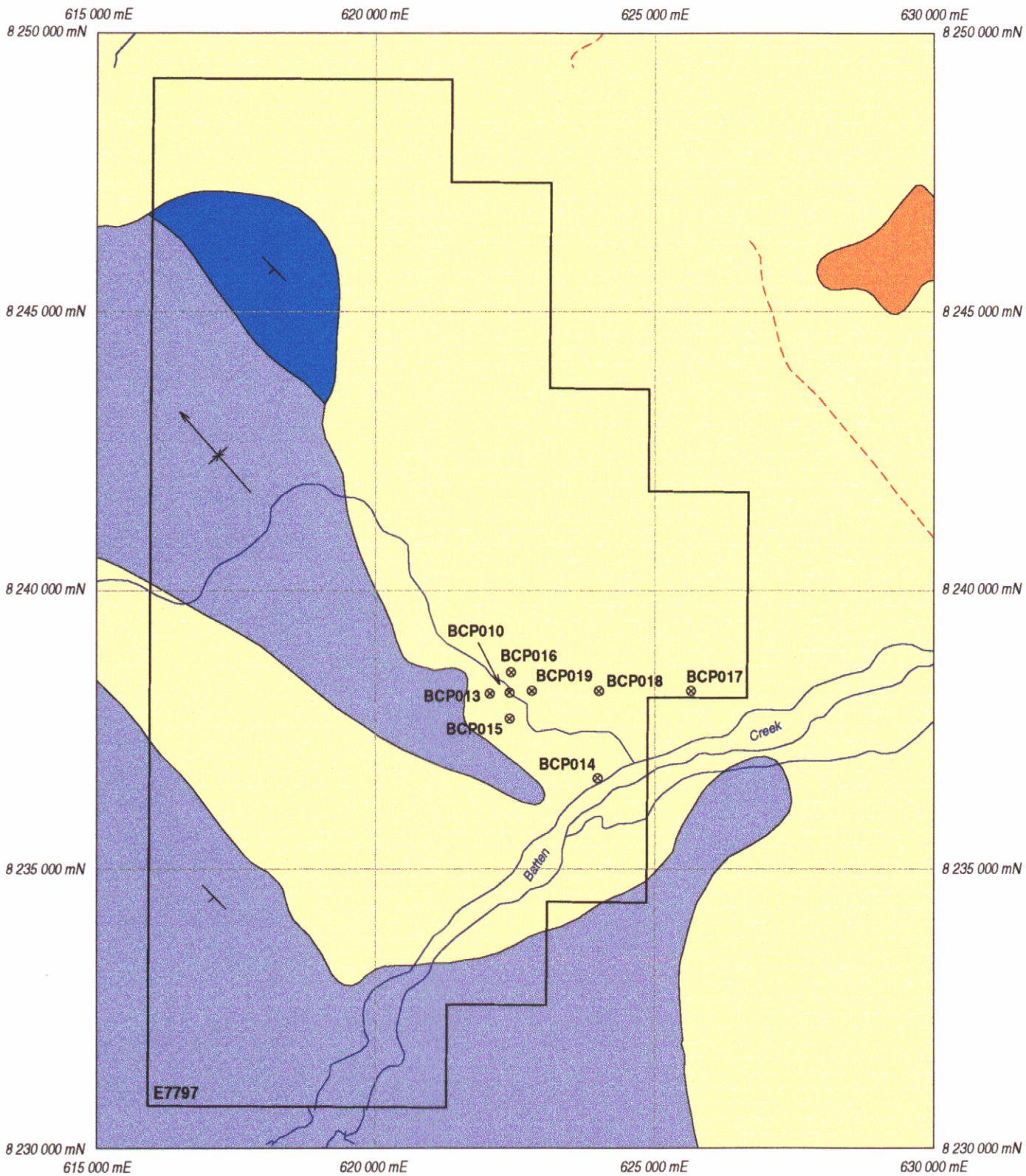
4. ANALYTICAL RESULTS

All holes were sampled by six metre composites from surface to end of hole. The samples were analysed by Analabs Pty Ltd of Townsville. Elements determined were Cu, Pb, Zn, Ag, As, Fe, Mn. Where appreciable visible Mn was observed, the sample interval was closed to 2 m and down to 0.5 in the case of BCP018.

The maximum Mn value of 15% was from 27.0 to 27.5 m in BCP018. All holes except BCP015 and BCP019 contained 6 m intervals with >1% Mn. Zones of elevated Mn in the geochemistry generally agree well with visual observations of Mn in the drill samples.

Elevated Cu, Zn, Ag and Fe are present in some holes, both in the Cretaceous and Proterozoic.

In BCP014, values of Cu (489 ppm), Zn (692 ppm), Ag (0.4 ppm) and Fe (31.7%) occur in the highly weathered Proterozoic, in an interval of elevated Mn (3.23%



Cover units

Batten sub-group

Umbooloogа sub-group

Tawallah group

BCP010 ⊗ RC Drillhole location and number

N

Scale 1 : 100,000

0 2 4 6 8 km

UTM Projection - Zone 53

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Drawn : R.J.Clark	NORTHERN PLATFORMS PROGRAM E7797 BATTEN CREEK	Drg. No. : A4-6230
Date : 13.2.97	DRILLHOLE LOCATIONS & SIMPLIFIED GEOLOGY	FIGURE 2
Revised :		

between 52 and 54 m). These values appear to be declining in the base of the hole. In BCP018 the maximum Cu (1360 ppm) and Zn (335 ppm) occur in the interval of thin manganese mineralisation between 27.0 and 28.0 m. This is within the Cretaceous sequence.

5. CONCLUSIONS AND RECOMMENDATIONS

No significant thicknesses of manganese mineralisation were found. The best value of 15% Mn was present over only 0.5 m and is clearly not of economic interest.

The four holes positioned around BCP010 showed that the Mn intersected in that hole does not continue as a simple and extensive horizon over the area.

While the maximum Mn values occur in the Cretaceous interval, elevated Mn is also present in the weathered Proterozoic. This observation along with textural features suggests that the Mn is of secondary origin (or at least remobilised) rather than being a primary, sedimentary accumulation such as at Groote Eylandt.

The Cretaceous sequence shows significant lateral variation in lithologies. This may be due to the proximity to the outcropping Proterozoic, which might have been an emergent area, or a local high during sedimentation in the Proterozoic. The presence of elevated Cu, Zn and Ag seems to be in part related to the high levels of Mn and Fe, which in this weathered environment may have a scavenging effect. However in this area, there are known to Proterozoic units with elevated but uneconomic base metals, for example the Barney Creek Formation in drill hole MCA5, some 8 km to the north west.

The drilling program in 1996 showed that the Mn mineralisation intersected in BCP010 is not of economic dimensions, and that other conductors are not associated with economic Mn mineralisation. In view of these results, EL7797 has been surrendered.

6. REFERENCES

PATERSON, 1996. Annual Report for the period ending 22 March 1996, Batten Creek Project Area, McArthur Basin, NT. Exploration Licences 7797 and 8656. BHP CR8526.

APPENDIX 1

EXPENDITURE

EL7797 - BATTEN CREEK

22 March 1996 to 25 November 1996

Wages and Salaries	8,443
Field Support	2,953
Drilling	11,524
Vehicles	2,159
Equipment	6,607
Geochemistry	419
Office Expenses	551
Other	976
In- House Services:	
Drafting	690
Sub-Total	**34,322**
20% of Total for Corporate Overheads	6,864
TOTAL	**$41,186**

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APPENDIX 2

DRILL LOGS

McARTHUR BASIN PROJECT - DRILLING REFERENCE SHEET

HOLE TYPE

AUG	Auger drill hole
DDH	Diamond drill hole
DPH	Diamond and percussion hole
PDH	Percussion drill hole
RAB	Rotary Air Blast hole
RCH	Reverse circulation drill hole

AMG PRECISION

TOPO	Coordinates measured from topo map
SURV	Coordinates surveyed
SATL	Coordinates from satellite GPS
TAPE	Coordinates measured by compass and tape
PACE	Coordinates measured by Compass and pace

COVER/BASEMENT DESCRIPTION

OTH	Uncoded Geologic Time
CEN	Cenozoic (undifferentiated)
QUA	Quaternary (undifferentiated)
TER	Tertiary (undifferentiated)
MES	Mesozoic (undifferentiated)
CRE	Cretaceous
UCR	Upper Cretaceous
LCR	Lower Cretaceous
PAZ	Paleozoic (undifferentiated)
CAM	Cambrian
PRO	Proterozoic (undifferentiated)
UPR	Upper Proterozoic
MPR	Middle Proterozoic
LPR	Lower Proterozoic
ARC	Archean

SAMPLE NATURE

WT	Wet sample
DY	Dry sample
DP	Damp sample
NR	No (or poor) sample return

FORMATION

Qa	Quaternary Alluvium
Qr	Quaternary Coastal Alluvium
Qc	Quaternary Beach Ridges
Cz	Cainozoic
Czb	Cainozoic Black Soil
Czc	Cainozoic Limestone
Czc	Cainozoic Sand
Czl	Cainozoic Ferricrete
Crk	Cainozoic Calcrete
Tg	Gollinger Beds
Kl	Cretaceous
Cmt	Top Springs Limestone
Clc	Cox Formation
Clv	Cambrian Basalt
Clb	Bukalara Sandstone
Pdl	Dolerite Sills
Pr	Roper Group
Prmy	Kyalla Member
Prmz	Sherwin Ironstone Member
Prmk	Moroak Sandstone Member
Prv	Velkerri Formation
Pre	Bessie Creek Formation
Pro	Corcoran Formation
Pra	Abner Sandstone
Prah	Hodgson Sandstone Member
Praj	Jalboi Member
Prax	Arnold Sandstone Member
Prr	Crawford Formation
Pru	Mainoru Formation
Prg	Kilgour Sandstone Member
Pri	Limmen Sandstone
Prn	Mantungula Formation
Pn	Nathan Group
Png	Dungaminnie Formation
Pnz	Balbirini Dolomite
Pny	Smythe Sandstone
Pk	Karns Dolomite
Pm	McArthur Group
Pmm	Amos Formation
Pmo	Looking Glass Formation
Pmr	Stretton Sandstone
Pmj	Yalco Formation
Pmn	Lynott Formation
Pmnd	Donnegan Member
Pmnh	Hot Springs Member
Pmnc	Carambirini Member
Pmx	Reward Dolomite
Pmq	Barney Creek Formation
Pmpc	Cosco Dolomite Member
Pmp	Teena Dolomite
Pme	Emmerugga Dolomite
Pmei	Mitchell Yard Dolomite Member
Pmea	Mara Dolomite Member
Pmf	Myrtle Shale
Pmi	Leila Sandstone
Pmt	Tooganinie Formation
Pmd	Tatoola Sandstone
Pma	Amelia Dolomite
Pml	Mallapunyah Formation
Pms	Masterton Sandstone
Pu	Nyanantu Formation
Pt	Tawallah Group
Ptt	Tanumbirini Rhyolite
Ptm	Warramana Sandstone
Ptg	Gold Creek Volcanics
Pto	Wollogorang Formation
Pte	Settlement Creek Volcanics
Ptnw	Wuralkwuntya Member
Ptn	Wununmantyala Sandstone
Ptq	Aquarium Formation
Ptlr	Rosie Creek Sandstone
Ptl	Sly Creek Sandstone
Pts	Seigal Volcanics
Pty	Yiyintyi Sandstone
Pls	Scrutton Volcanics

HELEN SPRINGS.

Pla Attack Creek Form

Plh Hayward Creek Form

Plm Morphett Creek

PLS Short Range Sand

ROCK TYPE

ACVL	Acid volcanic (general)
AREN	Arenite
ARGL	Argillite
ARKS	Arkose
BASC	Basic rock (general)
BASL	Basalt
BAVL	Basic volcanic (general)
BCRK	Bioclastic rock
BLSH	Black shale
BREC	Breccia
CALC	Calcrete
CEMN	Cement (= foadue)
CARB	Carbonate (general)
CHER	Chert
CLAY	Clay, unconsolidated
CYST	Claystone
CONG	Conglomerate
DOAS	Dolarenite
DOLM	Dolomite
DOLR	Dolerite
DOLS	Dolomitic Limestone
DOLU	Dololutite
DURC	Duricrust
EVAP	Evaporite
FAGO	Fault gouge
FAZN	Fault zone
FERC	Ferricrete
FEZN	Ferruginous zone
GABR	Gabbro
GOSS	Gossan
GRAN	Granite
GRAV	Gravel
GRWC	Greywacke
GRIT	Grit
GTST	Gritstone
IGNS	Igneous (general)
INTR	Intrusive (general)
IRON	Ironstone
JASP	Jasper
KIMB	Kimberlite
LATR	Laterite
LATT	Latite
LIST	Limestone
LOST	Lost core
LRCH	Laterite cap, hard
LRCS	Laterite cap, soft
LRMO	Laterite mottled zone
LRPL	Laterite pallid zone
MAGN	Magnetite
MARB	Marble
MARL	Marl
MSSX	Massive sulphides
MDST	Mudstone
MFRK	Mafic rock (general)
MFVL	Mafic volcanic (general)
MUDD	Mudd, unconsolidated
OVER	Overburden, sands/clays
PBCG	Pebble Conglomerate
PBSS	Pebbly Sandstone
PCRK	Pyroclastic rock (general)
PEBB	Pebbles, unconsolidated
PELT	Pelite
PHYL	Phyllite
PISL	Pisolite
PORP	Porphyry
QZCB	Quartz carbonate
QZVN	Quartz vein
QZIT	Quartzite
RHYL	Rhyolite
ROCK	Rock (general)
RUDT	Rudite
SAND	Sand, unconsolidated
SAPR	Saprolite
SDRK	Sedimentary rock (general)
SILC	Silcrete
SNST	Sandstone
SEDM	Sediment (general)
SHAL	Shale
SILT	Silt, unconsolidated
SIST	Siltstone
SLAT	Slate
SOIL	Soil
SYEN	Syenite
TCAN	Trachy-andesite
TEBX	Tectonic breccia
TRAC	Trachyte
TUFF	Tuff
UNRK	Unidentified rock
VEIN	Vein
VLCT	Volcaniclastic (general)
VOLC	Volcanic (general)
VOID	Void
WACK	Wacke
XTTF	Crystal tuff
XXXX	Rock x
YYYY	Rock y

ROCK TYPE QUALIFIER

?-	Probable
??	Possible
AA	Altered
AB	Autobrecciated
AE	Aeolian
AF	Algal
AR	Argillaceous
AK	Arkosic
AN	Andesitic
BA	Basic
BD	Bedded
BC	Bioclastic
BH	Biohermal
BL	Bleached
BM	Biostromal
BS	Basaltic
CA	Calcareous
CB	Carbonate
CC	Calcretized
CE	Cerussitic
CS	Carbonaceous
CH	Cherty
CI	Continental
CL	Chloritic
CP	Complex
CY	Clayey
CG	Conglomeratic
C+	Co-dominant
C-	Contact zone
DT	Dirty
DL	Doleritic
DO	Dolomitic
D+	Dominant
DY	Dyke
EV	Evaporitic
FO	Foliated
FR	Fracture zone
FM	Fragmental
FH	Fresh
FZ	Fault zone
FG	Ferruginous
FU	Fluvial
FS	Fossiliferous
G+	Good trace
GI	Graphitic
GR	Granitic
GS	Glassy
GT	Gritty
GV	Gravelly
HA	Halitic
I-	Sill
IG	Igneous
IB	Interbedded
IN	Intrusive
KA	Kaolinitic
LC	Lacustrine
LE	Leuco
LG	Lagoonal
LI	Lithic
LS	Limey
LM	Laminated
LR	Lateritic
MA	Magnetite-bearing
MC	Micro
MF	Mafic
MH	Marine, shallow
MI	Micaceous
MN	Marine
MS	Massive
M+	Minor
NM	Non-marine
OG	Organic
PC	Pyroclastic
PI	Pisolitic
PJ	Plastic (stiff, puggy)
PP	Porphyritic
PY	Pyritic
QS	Quartzose
QY	Chalcedonic
QZ	Quartz
RS	Residual
RY	Rhyolite
R-	Stringer zone
SA	Sandy
SD	Sedimentary
SF	Silicified
SH	Shaly
SI	Silty
SP	Spotty
SR	Sericitic
SS	Siliceous
SU	Surficial
S-	Sheared
S=	Sulphitic
TF	Tuffaceous
TR	Transported
T+	Trace
U-	Unconsolidated
VC	Volcaniclastic
VL	Volcanic
V-	Vein
XL	Crystalline
-F	Fresh
-W	Weathered

COLOUR LIGHT

N	Black
1	Darkest
2	Very dark
3	Dark
4	Medium dark
5	Medium
6	Medium light
7	light
8	Pale (very light)
9	Palest
W	White
B	Banded
M	Mottled
S	Spotty
P	Patchy

COLOUR HUE

I	Pink
R	Red
O	Orange
U	Brown (Umber)
T	Tan
Y	Yellow
K	Khaki
L	Lime
G	Green
Q	Aqua
B	Blue
V	Violet
P	Purple
M	Mauve
E	Grey
W	White
N	Black (Noir)

WEATHERING

?	Unsure
F	Fresh rock
W	Weathered
0	Fresh
3	Slightly weathered
5	Moderately weathered
7	Highly weathered
9	Extremely weathered

GRAIN SIZE

1	Fine Silt	(.004- .016mm)
2	Medium-Coarse Silt	(.016- .06 mm)
3	Fine Sand	(.06 - .25 mm)
4	Medium-Coarse Sand	(.25 - 1.0 mm)
5	Grit-Granule	(1.0 - 4.0 mm)
6	Small Pebble	(4.0 - 16. mm)
7	Medium-Large Pebble	(16. - 64. mm)
8	Cobble	(64. - 250.mm)
9	Boulder	(> 250.mm)

SORTING

0	not sorted
1	extremely poorly sorted
2	very poorly sorted
3	poorly sorted
4	fairly poorly sorted
5	moderately well sorted
6	fairly well sorted
7	well sorted
8	very well sorted
9	extremely well sorted

CONTACT

B-	Breccia zone
E-	Erosional
F-	Faulted
G-	Gradational
H-	Chilled
I-	Interbedded
L-	Lithological
M-	Mineralised
R-	Irregular
U-	Unconformable
X-	Undetermined
-0	sharp
-1	over 0 to 5 cm
-2	over 5 to 50 cm
-3	over 50 cm to 1 m
-4	over 1 m to 10 m
-5	in excess of 10 m

STRUCTURE

<F	Micro-faults
<V	Micro-veins
>V	Macro-veins
AN	Axis of anticline
AS	Axis of syncline
AX	Axis of any fold
B-	Bedding, B1 B2.. specific beds
BC	Bedding cross
BD	Bedding (gen)
BG	Bedding, graded
BL	Bedding, laminar
BN	Banding
BR	Reverse graded bedding
BS	Bedding, slumped
C-	Contact, C1 C2.. specific contact
CL	Lower contact
CR	Crenulations
CU	Upper contact
CV	Cleavage, 1C 2C.. specific cleavage
D-	Dyke, D1 D2.. specific dyke
DB	Dyke bottom
DT	Dyke top
E-	Seam, E1 E2.. specific seams
F-	Fault, F1 F2.. specific faults
FB	Flow banding
FO	Foliation
FR	Fracture set
FW	Footwall
FZ	Fault zone
GN	Gneissosity
HW	Hanging wall
JS	Joint set
L-	Lineation, L1 L2.. specific lineation
LS	Lens
M-	Marker bed
O-	Flow
PD	Pods
R-	Stringer
S-	Shear
SC	Schistosity
SS	Slickensides
SW	Stockwork
UA	Angular unconformity
UF	Upward fining
UN	Unconformity
V-	Vein, V1 V2.. specific veins
VC	Vein, calcite
VG	Vein, gypsum
VM	Vein swarm
VQ	Vein, quartz
YL	Styolites

STRUCTURE THICKNESS

0	<2mm
1	2-5mm
2	0.5-2cm
3	2-5cm
4	5-20cm
5	20-50cm
6	0.5-2m
7	2-5m
8	5-20m
9	>20m

ROCK TEXTURE

<F	Microfaulted
<V	Microveined
>F	Macrofaulted
>F	Macroveined
AG	Algal matted
AM	Amygdaloidal
AO	Amorphous
AQ	Aggregate
BC	Bioclastic
BD	Bedded
BG	Segregation Banded
BI	Irregularly Banded
BK	Blocky
BL	Bleached
BN	Banded
BS	Basaltic
BT	Botryoidal
BU	Bioturbaceous
BX	Brecciated
CM	Chilled Margin
CN	Concretionary
CO	Compact
CR	Crenulated
CS	Close structured, framework supported
CT	Clastic
CU	Cumulate
CV	Cavernous
CX	Cataclastic
CZ	Cellular
DE	Deformed
DI	Disrupted
EA	Earthy
EQ	Equigranular
F-	Faulted
FB	Flow banded
FD	Folded, disharmonic
FG	Folded, gentle
FH	Folded, tight
FI	Fissile
FK	Flute casted
FL	Folded, isoclinal
FM	Fragmental
FO	Foliated
FR	Fractured
FS	Fossiliferous
FT	Folded
FX	Fault breccia
FY	Flaggy
GD	Grade bedded
GF	Graphic
GG	Gossanous
GL	Granulose
GO	Granophyric
GR	Granitic
GY	Greasy
HF	Hornfelsic
HO	Homogeneous
HT	Heterogeneous
IC	Intercumulate
ID	Indurated
IM	Imbricate
IQ	Inequigranular
IR	Irregular
IS	Interstitial
KC	Casted
LA	Lattice
LB	Lensoid banded
LD	Lineated
LI	Lithic
LK	Load casted
LM	Laminated
LN	Lenticular
LV	Lava
LY	Layered
MB	Compositionally banded
MC	Mud cracked
MS	Massive
ND	Nodular
OA	Ocellar
OC	Orbicular
OO	Oolitic
OS	Open structured, matrix supported
PF	Feldspar porphyritic
PG	Pegmatitic
PH	Phyllitic
PI	Pisolitic
PK	Poikilitic
PL	Peletal
PO	Porous
PP	Porphyritic
PQ	Quartz porphyritic
PR	Pseudo breccia
PV	Partings
PW	Pillowed
RL	Relict
RM	Ripple marked
RP	Replaced
RW	Reworked
RX	Recrystallised
S-	Sheared
SB	Slabby
SC	Shistose
SE	Stressed
SG	Saccharoidal
SG	Sugary
SL	Slaty
SM	Slumped
SP	Spotty
SR	Scoured
SS	Soft sed slumping
SU	Spherulitic
SW	Stockwork
SY	Sparry
SZ	Stromatolitic
TB	Texturally banded
TC	Trachytic
TF	Tuffaceous, shardy
UF	Uniform
VB	Vein breccia
VF	Veriform
VG	Vuggy
VN	Veined (gen)
VS	Vesicular
VV	Veined
WL	Welded
WS	Wispy
WX	Pillowed breccia
XB	Cross bedded
XC	Cross cutting
XE	Xenolithic
YL	Styolitic

ALGAE

AG	Algal Mat
LD	Low Domal Stromatolites
SD	Steep Domal Stromatolites
CO	Conophyton
KK	Kussiella Kussiensis Krylov Complex
OP	Organ Pipe
EC	Egg Carton

EVAPORITE ANDOTHER DIAGNOSTIC TEXTURES

AN	Anhydrite Pseudomorphs
BF	Bubble and Flake
BL	Radiating Bladed Gypsum Cast
CC	Cauliflower Cherts
DS	Discordal Gypsum
EN	Enterolithic Anhydrite
FB	Flake breccia
GY	Gypsum Pseudomorphs
HA	Halite Casts
HX	Gypsum Pseudohexagons
IC	Intraclast breccia
MC	Mottled Carbonate
MG	Millet Seed Gypsum
OV	Ovoids
PA	Pearl Anhydrite
TP	Tepee Structure

MINERAL

AH	Anhydrite
AK	Ankerite
AS	Arsenopyrite
AU	Gold
BA	Barite
BO	Bornite
CA	Calcite
CB	Carbonate (general)
CC	Chalcocite
CE	Cerussite
CI	Cuprite
CL	Chlorite
CP	Chalcopyrite
CU	Copper
CV	Covellite
CY	Clay
DD	Diamond
DO	Dolomite
DS	Disseminated sulphides
DO	Disseminated oxides
EC	Epidote-chlorite
EP	Epidote
FD	Feldspars
FL	Fluorite
FE	Iron oxides (general)
GA	Garnet
GL	Galena
GN	Glauconite
GO	Goethite
GY	Gypsum
HA	Halite
HE	Hematite (earthy)
HM	Hemimorphite
HS	Hematite (specularite)
KA	Kaoliuite
LI	Limonite
MA	Magnetite
MC	Malachite
MH	Maghemite
MI	Mica
MN	Manganese oxides
MO	Molybdenite
MY	Manganese carbonates
MR	Marcasite
MU	Muscovite
OX	Oxides
PL	Pyrolusite
PO	Pyrrhotite
PY	Pyrite
QZ	Quartz
QC	Quartz-carbonate
QE	Quartz-epidote
QS	Quartz-sericite
SD	Siderite
SK	Smectite
SP	Sphalerite
SU	Sulphides (general)
SX	Sulphides (oxidised)
WA	Wad (manganese)

MINERAL MODE

#	Pseudomorphs
-	Present (mode not important)
<	Micro-veins
>	Macro-veins
?	Unsure of mineral/alteration
A	Amygdaloids, cavity fill, vughs
B	Blebs
C	Clasts
D	Disseminations
E	Encrustations and coatings
F	Fracture coatings
G	Gouge
H	Alteration rims
I	Eyes, augen
J	Interstitial, cement
K	Stockwork
L	Laminations
M	Massive
N	Nodules, pisolites
O	Spots
P	Pervasive
Q	Patches
R	Rosettes and crystal clusters
S	Selvages and envelopes
T	Crystalline
E	Euhedral crystals
V	Veins
W	Boxwork
X	Breccia fillings, matrix
Y	Matrix
Z	Crystalline phenocrysts

MINERAL QUANTITY

0	not present
1	trace (visible with lens)
2	very low (visible to unaided eye)
3	low (several specks)
4	fairly low (trace - 1%)
5	moderate (1% - 5%)
6	significant (5% - 10%)
7	high (10% - 20%)
8	very high (20% - 50%)
9	extremely high (50% - 100%)

- ENTERED ON
OK.

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE HEADER SHEET

Sheet 1 of 1

PROJECT : MCARTHUR
Work Area : BATTEN CREEK.
Tenement : _____ Job No. : BBS

Location : 1:250 000 Sheet Name : MOUNT YOUNG.
1:100 000 Sheet Name : BING BONG.

Grid Name : _____
Grid Type (AMG, GEO, Local) : AMG

Collar Co-ordinates :-

AMG Precision : GPS - SATL
AMG Easting : 622050 Local Grid Easting : _____
AMG Northing : 8238150 Local Grid Northing : _____
AMG Zone : 53 Azimuth : - R.L. : - Inclination : -90°

Hole Depth : 52m Depth to Water : -
Depth to Basement : - Depth of Oxidisation : -

Cover Description (standard codes) : KR = CRE
Basement Description (standard codes) : _____
Stratiraphic Unit : _____
Tectonic Unit : McARTHUR BASIN.

DRILLING INFORMATION

CONTRACTOR : GADEN DRILLING.
RIG TYPE : IDR 650.
Date Commenced : 29-08-96 Date Completed : _____

HOLE NUMBER : BCP013
Oz Recon Record No. : _____
Logged By : MIKE RENNISON.
Drill Target : FOLLOW-UP DRILLING TO MW INTERSECTION IN BCP10 400m to EAST.

HOLE TYPE

Method / Size	From	To	Comments
5 1/4" RC HAMMER.	0	52m	

WEDGE POSITION

Depth from Collar	Azimuth	Inclination

MATERIAL LEFT IN HOLE

Casing	From	To	Comments
PVC	0	4m	

SURVEY DATA

Depth	Azimuth	Dip

METHOD

Depth	Azimuth	Dip

GEOPHYSICAL LOGGING

Type	Contractor	From	To	Comments

COMMENTS : _____

ANALYSIS

Sampled Inter. From	Sampled Inter. To	Sample No's. From	Sample No's. To	Sample Type	Laboratory Batch No.	Elements	Method

COMMENTS : _____

SUMMARY LOGS

From	To	Formation	Lithology

INTERSECTIONS

From	To	Cu	Pb	Zn					

GENERAL COMMENTS : _____

A3-3912 May 1994

ENTERED 3-11

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE LOG SHEET

Sheet ____ of SK.

DATE : 29-08-96 LOGGED BY : MIKE RENNISON HOLE DEPTH : 52m. JOB No. : 8135 HOLE NUMBER : BCP013

DRILLED INTERVAL FROM	TO	SAMPLE NATURE	CORE LOSS %	FORMATION	ROCK TYPE MAJOR	q	q	MINOR	q	q	WEATHERING	COLOUR LIGHT	COLOUR HUE	GRAIN TEXTURE SIZE SORTING	AVERAGE	MAXIMUM	STRUCTURE CONTACT	STRUCTURE S1	ANGLE TO LCA	THICKNESS	STRUCTURE S2	ANGLE TO LCA	THICKNESS	ROCK TEXTURE T1	T2	ALGAE A1	A2	EVAPORITE AND OTHER DIAGNOSTIC TEXTURES 1	2	3	SULPHIDE MINERALISATION PYRITE m	%	CHALCOPYRITE m	%	GALENA m	%	SPHALERITE m	%	m	%	COMMENTS :
10	12	DIY			LAITR						9	4	R																												Laterite hardcap DRY.
12	13	↓			LAITR						9	4	R																												
13	14				CIYIST						9	9	E/B																												Leached clay zone with Fe mottles
14	16				CIYIST						9	9	T/E																												
16	18				SI/IST			CIYIST			9	9	E																												
18	19				SI/IST	SA		CIYIST			9	7	T																												
19	110				SI/IST						9	4	R																												Fe oxide band - laterite?
110	112				SI/IST	BD		CLAIY			9	5	T																											
112	114				SI/IST	BD					7	6	T																												Minor dendritic Mn on fractures
114	116				SI/IST	BA		SINIST	SI		7	6	T																											Some colour variation. Minor Mn
116	118				JINIST	QZ					7	4	YIT	4	3	4																								at base.
118	210	DP			SWIST	QZ		CLAIY			7	4	U	4	3	4																								?025m Mn at top ST sample.
210	212	DP			SI/IST	SA		CIYIST			7	4	U																												Some massive Mn fragments (58)
21·5 → 212	215	WT			SI/IST	CY					7	3	U																												Drop samples Tr Mn
212	215	↓			SI/IST	CY					7	3	U																												Tr Mn.
215	310				SI/IST	CY					7	4	U																												Minor Mn.
310	315				SWIST	QZ		CI			7	4	E	3	3																									Minor Mn.
315	410				CIYIST	SI					7	3	E																												Minor tiny botryoidal Mn Tr
410	415				CIYIST	SI					7	3	E																												Injecting Water
415	510				CIYIST	SI					7	3	E																												↓
510	515				CIYIST	SI					7	5	E																												
515	610				CIYIDIT	SI					7	7	E/T																												Minor Botryoidal Mn Tr
610	615				CIYIST	SI		SINIST			7	5	YIT	3	3																									AA. Tr
615	710				SI/IST	QZ	BD				7	5	YIT	3	2																									
710	715				SYIST	BD	SF				7	5	YIT																												Algal Lam dolomite ?
715	810				SINIST			SI/IST			7	5	YIT																											Minor Mn Tr
310	312	↓			SI/IST	BD	SII	SINIST	IB		7	5	TIB																												Minor Mn Tr
312	314				CIHIER	BD		SWIST	QZ		7	7	TIB																												Minor Mn fragments.
314	316				CIYIST	SI		CIHIER			7	6	TIB																												Minor Fg Snst beds.
316	318				CIYIST	SI					7	6	TIB																												
318	410				CIYIST	SI		SINIST	FG		7	6	TIB																												Thin band of Fg snst/sist
410	412				CIYIST	SI					7	6	GIU																												Minor grit in sample.
412	414				SWIST	QZ	CY				7	6	GIU	7	3																									
414	416				SI/IST	BD	CY				7	6	GIU																												
416	418				SI/IST	CY		SINIST	QZ		7	6	T	7	3																										
46	50				SIST	CY		SNST	QZ		7	6	T	7	3																									
50	52				SIST			SNST	QZ		5	6	T	4	3	4																								

28-30 SNST SIST SI BD 75YT Tr Mn

Very clayey sample.
Minor thin green clayey sist interbeds

HOLE NUMBER : ____

A3-3911 May 1984

ENTERED 3-10-96

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE HEADER SHEET

Sheet 1 of 1

PROJECT : NORTHERN PLATFORMS. McARTHUR.
Work Area : BATTEN CREEK
Tenement : _____ Job No. : BBS

Location : 1:250 000 Sheet Name : MOUNT YOUNG.
1:100 000 Sheet Name : BING BONG

Grid Name : _____
Grid Type (AMG, GEO, Local) : _____

Collar Co-ordinates :-

AMG Precision : GPS.
AMG Easting : 623975 E Local Grid Easting : _____
AMG Northing : 8236630 Local Grid Northing : _____
AMG Zone : 53 Azimuth : - R.L. : - Inclination : -90°

Hole Depth : 60 Depth to Water : -
Depth to Basement : - Depth of Oxidisation : -

Cover Description (standard codes) : _____
Basement Description (standard codes) : _____
Stratiraphic Unit : _____
Tectonic Unit : McARTHUR BASIN

DRILLING INFORMATION

CONTRACTOR : GADEN DRILLING.
RIG TYPE : UDR 650
Date Commenced. : 29-08-96 Date Completed : 29-08-96

HOLE NUMBER : BCP014
Oz Recon Record No. : _____
Logged By : MIKE RENNISON.
Drill Target : PROTEM SOUNDING
0-5 l/m @ 24 Rm
km south east of BCP010 Mn intersection.

HOLE TYPE

Method / Size	From	To	Comments
5 1/2" RC HAMMER.	0	60m	

WEDGE POSITION

Depth from Collar	Azimuth	Inclination

MATERIAL LEFT IN HOLE

Casing	From	To	Comments
PVC	0	4m.	

SURVEY DATA

Depth	Azimuth	Dip

METHOD

Depth	Azimuth	Dip

GEOPHYSICAL LOGGING

Type	Contractor	From	To	Comments

COMMENTS : _____

ANALYSIS

Sampled Inter. From	Sampled Inter. To	Sample No's. From	Sample No's. To	Sample Type	Laboratory Batch No.	Elements	Method

COMMENTS : _____

SUMMARY LOGS

From	To	Formation	Lithology

INTERSECTIONS

From	To	Cu	Pb	Zn					

GENERAL COMMENTS : _____

HOLE NUMBER : _____

A3-3912 May 1994

ENTERED 10/10/96

Sheet 1 of 1

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE LOG SHEET

DATE : 29-08-96 LOGGED BY : MIKE RENNISON HOLE DEPTH : 60m JOB No. : BBS HOLE NUMBER : BCP014

DRILLED INTERVAL FROM	TO	CORE LOSS % (SAMPLE NUMBER)	FORMATION	ROCK TYPE MAJOR	q	q	MINOR	q	q	WEATHERING	COLOUR LIGHT	COLOUR HUE	GRAIN TEXTURE SIZE SORTING	AVERAGE	MAXIMUM	CONTACT	STRUCTURE S1 STRUCTURE	ANGLE TO LCA	THICKNESS	STRUCTURE S2	ANGLE TO LCA	THICKNESS	ROCK TEXTURE T1	T2	ALGAE A1	A2	EVAPORITE AND OTHER DIAGNOSTIC TEXTURES 1	2	3	SULPHIDE MINERALISATION PYRITE m	%	CHALCOPYRITE m	%	GALENA m	%	SPHALERITE m	%	m	%	COMMENTS :
10	12	QV1		LIITIR			SIINIO	Q12		7	3	RI																											Laterite hardcap.
12	14	↓↓		SIISIT	CLY		CICIAY			7	6	BIE																											Mottled clay zone.
14	16	↓↓		CICIAY	SII		SIMSIT	Q12		7	7	BIE																											Thin fg bands of sust.
16	18			CICIAY	SII		SIMSIT	Q12	FIG	7	7	EI																											AA
18	110			CICIAY	SII		CIMIER			7	7	TIE																											Fragments of chert
110	112			CICIAY	SII		CIMIER			7	7	TIE																											
112	114			CICIAY	SII		CIMIER			7	7	TIE																											
114	116	DIP		CIYISIT	SII					7	6	OIT																											
116	118	MT		CIMSIT	SII					7	6	TI																											Injecting water
118	120	↓↓		CIYISIT	SII		SIMSIT	FIG		7	6	YI																											Minor fg sust fragments.
120	122			CIYISIT	SII		SIMSIT	FIG	SIF	7	7	OIT																											
122	124			CIYISIT	SII		CIMIER	BIO		7	6	YI																											Chert fragments, V minor fg sust.
124	126			CIYISIT	SII		SIMSIT	SIF		7	7	TI																											
126	128			SIMSIT	SIF		SIISIT	SIF	BIO	7	8	EI																											
128	130			CIMIER			SIMSIT	FIG	SIF	7	6	UI																											
130	132			CIMIER	BIO		SIISIT	FIG		7	5	UI																											Chert replacing plan. algal dols?
132	134			SIMSIT	FIG	SIF	CIMIER			7	5	UI																											Sust has angular fragments fe
																																						cemented lag?
134	136			DI	FIG		DIOLIO	AIF	SIF	7	4	UI																											Silicified algal dolomites with minor
136	138			CIMIER	BIO		DIOLIO	AIF	SIF	7	4	UI																											more fg intervals AA
138	140			CIMIER			DIOLIO	AIF	SIF	7	5	UI																											AA.
140	142			DIOLIO	AIF	SIF	CIMIER			7	5	UIT																											Silicified laminated algal dolomite?
142	144			SIISIT	FIG		SIMSIT	FIG		7	3	UI																											Minor chert. - fg interval
144	146			SIISIT	FIG	MIS	CIMIER			7	5	UI																											Minor Mn on fractures.
146	148			SIISIT	FIG		CIMIER			7	5	UI																											
148	150			CIMIER			SIISIT	FIG		7	6	UIO																											Minor Mn on fractures.
150	152			SIMSIT	SIF		SIISIT	FIG		7	5	UI																											Dolomite/dolutite fine beds alt
																																						non silicified. Interbedded w
																																						fg sist.
152	154			SIISIT	FIG		CIMIER			7	5	UI																											Minor Mn ~10%?
154	156			DIOLIO	AIF	SIF	SIXISIT	DG		7	3	EIU																											Minor Mn ~5%?
156	158			DIOLIO	AIF	SIF				7	4	EIU																											Silicified Algal dolomites.
158	160			DIOLIO	AIF	SIF	SIISIT			7	4	UI																											AA
160	161																																					-

HOLE NUMBER : _____

A3-3911 May 1994

ENTERED 24-10-96 SI

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE HEADER SHEET

Sheet 1 of 1

PROJECT : NORTHERN PLATFORMS
Work Area : BATTEN CREEK
Tenement : _____ Job No. : BBS.

Location : 1:250 000 Sheet Name : MOUNT YOUNG.
1:100 000 Sheet Name : BING BONG.

Grid Name : _____
Grid Type (AMG, GEO, Local) : _____

Collar Co-ordinates :-

AMG Precision : GPS
AMG Easting : 622400 Local Grid Easting : _____
AMG Northing : 8237700 Local Grid Northing : _____
AMG Zone : 53 Azimuth : - R.L. : - Inclination : -90°

Hole Depth : 52m Depth to Water : 26m ?
Depth to Basement : - Depth of Oxidisation : -

Cover Description (standard codes) : _____
Basement Description (standard codes) : _____
Stratiraphic Unit : _____
Tectonic Unit : _____

DRILLING INFORMATION

CONTRACTOR : GARDEN DRILLING.
RIG TYPE : UDR 650
Date Commenced : 29-08-96 Date Completed : 30-08-96

HOLE NUMBER : BCP015
Oz Recon Record No. : _____
Logged By : MIKE RENNISON
Drill Target : Follow-up to Mn intersection 400m north in BCP010.

HOLE TYPE

Method / Size	From	To	Comments
5¼" RC HAMMER	0	52m	

WEDGE POSITION

Depth from Collar	Azimuth	Inclination

MATERIAL LEFT IN HOLE

Casing	From	To	Comments
PVC	0	4m	

SURVEY DATA / **METHOD**

Depth	Azimuth	Dip	Depth	Azimuth	Dip

GEOPHYSICAL LOGGING

Type	Contractor	From	To	Comments

COMMENTS : _____

ANALYSIS

Sampled Inter. From	Sampled Inter. To	Sample No's. From	Sample No's. To	Sample Type	Laboratory Batch No.	Elements	Method

COMMENTS : _____

SUMMARY LOGS

From	To	Formation	Lithology

INTERSECTIONS

From	To	Cu	Pb	Zn					

GENERAL COMMENTS : _____

A3-3912 May 1994

ENTERED 24-10-96

Sheet 1 of 1

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE LOG SHEET

DATE : 30-08-96 LOGGED BY : MIKE RENNISON HOLE DEPTH : 52m JOB No. : BBS HOLE NUMBER : BCP015

DRILLED INTERVAL FROM	TO	CORE LOSS % (SAMPLE MATRIX)	FORMATION	ROCK TYPE MAJOR	q	q	MINOR	q	q	WEATHERING	COLOUR LIGHT	COLOUR HUE	GRAIN TEXTURE SIZE SORTING	AVERAGE	MAXIMUM	CONTACT	STRUCTURE S1	ANGLE TO LCA	THICKNESS	STRUCTURE S2	ANGLE TO LCA	THICKNESS	ROCK TEXTURE T1	T2	ALGAE A1	A2	EVAPORITE AND OTHER DIAGNOSTIC TEXTURES 1	2	3	SULPHIDE MINERALISATION PYRITE m	%	CHALCOPYRITE m	%	GALENA m	%	SPHALERITE m	%	m	%	COMMENTS
10	12	DIY		SIMIO			CHIEIR			7	6	U1																											
12	14			CIHIER			SIMISIT			7	5	Y14																													
14	16			SI/ISIT	BID					7	4	YIT																													
16	18			SI/ISIT	D10°					7	6	U1																													Minor Mn on fractures.
18	110			SI/ISIT	BIO	SIF				7	5	U1																												Mn on fractures.
110	112			SI/ISIT	SIF		SIMISIT			7	4	UIE																												
112	114			SI/ISIT	SIF		SVISIT	BID	SIF	7	4	UIR																												May have been algal dolomite
114	116	DIP		SIMISIT	QI2		CIHIER			7	5	U1Y	3	3																									injecting water from 15m.
116	118	DIP		SI/ISIT	SIF		BRIEIC	SIA	SIF	7	6	U1Y																												Silicified carbonate sequence?
118	210	WIT		CIYISIT	SII		SI/ISIT	BIO		7	7	Y1																												
210	212	↓ ↓		CIYISIT	SII		SI/ISIT	IIB	SIF	7	5	Y1R																													Tr Mn
212	214			CIYISIT			SI/ISIT	IIB	SIF	7	8	E1Y																													Tr botryoidal Mn - leached?
214	216			SIMISIT	QI2		SI/ISIT	IIB		7	5	Y1	6	5																										Tr Mn
216	218			SIMISIT	QI2		CIYISIT	SII		7	6	Y1	7	5																										
218	310			SIMISIT	QI2					3	5	Y1	7	4	5																									Clean qz sand
310	312			SIMISIT	QI2					3	6	Y1	7	4																										Aa
312	314			SIMISIT	QI2					3	6	Y1	7	4																										Very minor Mn
314	316			SIMISIT	QI2					3	6	Y1	7	4																										
316	318			SIMISIT	QI2					3	5	Y1	7	4																										Minor Fe staining on surfaces
318	410			SIMISIT	QI2					3	5	Y1	7	4																										
410	412			SIMISIT	QI2		CLAIY			5	5	Y1R	7	4																										Red clay intervals.
412	414			CLAIY			SIMISIT	QI2		7	4	R1	7	4																										
414	416			CLAIY			SIMISIT	QI2	IIB	7	4	R1	7	4																										
416	418			SI/ISIT			SIMISIT	QI2		7	5	R1Y	7	4																										
418	510			SI/ISIT			SIMISIT	QI2		7	5	R1Y	7	4																										Minor Mn
510	512			SI/ISIT	BID					7	5	R1Y																												Minor fragments of massive Mn.
E10H																																						w/B

Hired
Recd 29/11/94

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE HEADER SHEET

Sheet 1 of 1

PROJECT : NORTHERN PLATFORMS - BATTEN TROUGH.
Work Area : BATTEN CREEK.
Tenement : _____ Job No. : 885

Location : 1:250 000 Sheet Name : MOUNT YOUNG
1:100 000 Sheet Name : BING BONG.

Grid Name : _____
Grid Type (AMG, GEO, Local) : _____

Collar Co-ordinates :-

AMG Precision : GPS.
AMG Easting : 622430 Local Grid Easting : _____
AMG Northing : 8238530 Local Grid Northing : _____
AMG Zone : 53 Azimuth : – R.L. : – Inclination : -90°

Hole Depth : 49.5m Depth to Water : _____
Depth to Basement : _____ Depth of Oxidisation : _____

Cover Description (standard codes) : _____
Basement Description (standard codes) : _____
Stratiraphic Unit : _____
Tectonic Unit : McARTHUR BASIN.

DRILLING INFORMATION

CONTRACTOR : GADEN DRILLING.
RIG TYPE : UDR 650.
Date Commenced : 30-08-96 Date Completed : 30-08-96.
Hole abandoned at 49.5m due to blocked hammer.

HOLE TYPE

Method / Size	From	To	Comments
5¼" RC HAMMER.			

WEDGE POSITION

Depth from Collar	Azimuth	Inclination

MATERIAL LEFT IN HOLE

Casing	From	To	Comments
PVC	0	4m	

SURVEY DATA

Depth	Azimuth	Dip

METHOD

Depth	Azimuth	Dip

SUMMARY LOGS

From	To	Formation	Lithology

HOLE NUMBER : BCP016
Oz Recon Record No. : _____
Logged By : MIKE RENNISON
Drill Target : Follow-up to Mn intersection 400m south in BCP010.

GEOPHYSICAL LOGGING

Type	Contractor	From	To	Comments

COMMENTS : _____

ANALYSIS

Sampled From	Sampled To	Inter. From	Inter. To	Sample No's. From	Sample No's. To	Sample Type	Laboratory Batch No.	Elements	Method

COMMENTS : _____

INTERSECTIONS

From	To	Cu	Pb	Zn					

GENERAL COMMENTS : _____

HOLE NUMBER : _____

Gerald 30/10/96

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE LOG SHEET

Sheet 1 of 2

DATE : 30-08-96 **LOGGED BY :** MIKE RENNISON **HOLE DEPTH :** 49.5m **JOB No. :** BBS **HOLE NUMBER :** BCP016.

DRILLED INTERVAL FROM	TO	CORE LOSS % (SAMPLE NATURE)	FORMATION	ROCK TYPE MAJOR	q	q	MINOR	q	q	WEATHERING	COLOUR LIGHT	HUE	GRAIN TEXTURE SIZE SORTING	AVERAGE	MAXIMUM	CONTACT	STRUCTURE S1	ANGLE TO LCA	THICKNESS	STRUCTURE S2	ANGLE TO LCA	THICKNESS	ROCK TEXTURE T1	T2	ALGAE A1	A2	EVAPORITE AND OTHER DIAGNOSTIC TEXTURES 1	2	3	SULPHIDE MINERALISATION PYRITE m %	CHALCOPYRITE m %	GALENA m %	SPHALERITE m %	m %	m %	COMMENTS :
0	2	DY		SAND			PDSK			7	6	U																								Transported sand, hardcap.
2	4	↓↓		SI/ST	FG		P/SL			7	5	RU																								
4	6			CLAY			SI/ST			7	4	YU																								Leached clay zone. + Fe oxides.
6	8			SI/ST	CY		CLAY			7	5	YU																								
8	10			SI/ST	CY		~~CLAY~~			7	4	YY																								Tr Mn and Fe oxides.
10	12			SI/ST	CY		CLAY			7	4	RU																								
12	14			SI/ST	CY		CLAY			7	4	U																								
14	16			SI/ST	CY		CLAY			7	6	TU																								Tr Mn and Fe oxides.
16	18			SI/ST	CY					7	4	RU																								
18	20			SI/ST	CY	BD				7	4	RU																								Mn on fractures
20	22			CYST			SI/ST			7	7	YU																								Minor Mn.
22	24			CYST			SI/ST			7	6	TU																								Last 0.5m black siltstone.
24.0	24.5			SI/ST	BD	SF				7	1	EU																								
24.5	25.0			SI/ST	SF		CYST			7	1	EU																								Tr Mn.
25.0	25.5			SI/ST			CYST			7	3	EU																								
25.5	26.0			CYST	SI					7	3	RU																								
26.0	26.5			SI/ST	BD					7	3	EU																								Tr Mn
26.5	27.0			SI/ST	CY					7	3	RU																								
27.0	27.5			CYST	SI					7	3	EU																								
27.5	28.0			SI/ST	BD	CY				7	3	RU																								
28.0	28.5			SI/ST	BD	CS				7	2	EG																								
28.5	29.0			SI/ST	CS					7	3	EG																								
29.0	29.5			CYST	SI					7	4	BU																								
	30.0			SI/ST	CY					7	3	U																								
	30.5			SI/ST	CY					7	2	U																								Minor Mn fragments.
	31.0			SI/ST	CY					7	3	RU																								
	31.5			SI/ST	CY					7	3	RU																								
	32.0			SI/ST	CY					7	4	RU																								
	34.0	DP		SI/ST	CY					7	5	RU																								Minor Massive Mn.
	36.0	DP		CHER			SI/ST	CY		7	3	EG																								Black chert fragments.
36.0	36.5	DP		SI/ST	CY					7	4	U																								Minor Massive Mn
36.5	37.0	DP		SI/ST	CY					7	4	U																								
	37.5	WT		CHER						7	3	U																								Injecting Water. Poor Sample ret
	38.0	↓↓		SI/ST	CY		CHER			7	3	U																								

A3-3911 May 1994

HOLE NUMBER :

logged 30/10/96

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE LOG SHEET

Sheet 2 of 2

DATE : 30-08-96 LOGGED BY : MIKE. HOLE DEPTH : 49.5m JOB No. : BBS HOLE NUMBER : BCP016.

DRILLED INTERVAL FROM	TO	CORE LOSS %	FORMATION	ROCK TYPE MAJOR	q	q	MINOR	q	q	WEATHERING	COLOUR LIGHT	COLOUR HUE	GRAIN TEXTURE SIZE SORTING	AVERAGE	MAXIMUM	CONTACT	STRUCTURE S1	ANGLE TO LCA	THICKNESS	STRUCTURE S2	ANGLE TO LCA	THICKNESS	ROCK TEXTURE T1	T2	ALGAE A1	A2	EVAPORITE AND OTHER DIAGNOSTIC TEXTURES 1	2	3	SULPHIDE MINERALISATION PYRITE m	%	CHALCOPYRITE m	%	GALENA m	%	SPHALERITE m	%	m	%	COMMENTS :
38.10	38.15	WT		CHERT	S1					7	3	U1																											
38.15	39.10	↓	↓	CHERT	S1					7	3	U1																											
39.10	39.15			CHERT	S1					7	3	U1																											
39.15	40.10			CHERT	S1					7	3	U1																											
40	42.10			S1	CHERT					7	5	U1E																											Some massive chert fragments ~2%
42	44.10			S1	CHERT			CHERT		7	5	U1E																										
44	46.10			S1	CHERT	CHERT		CHERT		7	5	U1E																										
46	49.15			CHERT			S1			7	5	U1E																											Blocked hammer, hole abandoned
EOH																																					

A3-3911 May 1994

HOLE NUMBER : _____

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE HEADER SHEET

Sheet 1 of 1

PROJECT : NORTHERN PLATFORMS
Work Area : BATTEN CREEK.
Tenement : _____ Job No. : BBS

Location : 1:250 000 Sheet Name : MOUNT YOUNG.
1:100 000 Sheet Name : RING BONG.

Grid Name : _____
Grid Type (AMG, GEO, Local) : _____

Collar Co-ordinates :-

AMG Precision : GPS
AMG Easting : 625650 Local Grid Easting : _____
AMG Northing : 8238200 Local Grid Northing : _____
AMG Zone : 53 Azimuth : - R.L. : - Inclination : -90°

Hole Depth : 52 Depth to Water : _____
Depth to Basement : _____ Depth of Oxidisation : _____

Cover Description (standard codes) : _____
Basement Description (standard codes) : _____
Stratiraphic Unit : _____
Tectonic Unit : _____

DRILLING INFORMATION

CONTRACTOR : GABEN DRILLING.
RIG TYPE : UDR 650.
Date Commenced : 31-08-96 Date Completed : 31-08-96.

HOLE NUMBER : BCP017
Oz Recon Record No. : _____
Logged By : MIKE RENNISON
Drill Target : PROTEM Sounding 18-30m @ 7·8 JLm.
Min intersection 3·2km West in BCP010.

HOLE TYPE

Method / Size	From	To	Comments
5¼" RC HAMMER	0	52	

WEDGE POSITION

Depth from Collar	Azimuth	Inclination

MATERIAL LEFT IN HOLE

Casing	From	To	Comments
PVC	0.	4m.	

SURVEY DATA / **METHOD**

Depth	Azimuth	Dip	Depth	Azimuth	Dip

GEOPHYSICAL LOGGING

Type	Contractor	From	To	Comments

COMMENTS : _____

ANALYSIS

Sampled Inter. From	Sampled Inter. To	Sample No's. From	Sample No's. To	Sample Type	Laboratory Batch No.	Elements	Method

COMMENTS : _____

SUMMARY LOGS

From	To	Formation	Lithology

INTERSECTIONS

From	To	Cu	Pb	Zn					

GENERAL COMMENTS : _____

HOLE NUMBER

A3-3912 May 1994

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE LOG SHEET

Sheet 1 of 1

DATE : 31-08-96. LOGGED BY : MIKE RENNISON HOLE DEPTH : 52m JOB No. : 885. HOLE NUMBER : BCP017

DRILLED INTERVAL FROM	TO	CORE LOSS % (SAMPLE NATURE)	FORMATION	ROCK TYPE MAJOR	q	q	MINOR	q	q	WEATHERING	COLOUR LIGHT	COLOUR HUE	GRAIN TEXTURE SIZE SORTING	AVERAGE	MAXIMUM	CONTACT	STRUCTURE S1	ANGLE TO LCA	THICKNESS	STRUCTURE S2	ANGLE TO LCA	THICKNESS	ROCK TEXTURE T1	T2	ALGAE A1	A2	EVAPORITE AND OTHER DIAGNOSTIC TEXTURES 1	2	3	SULPHIDE MINERALISATION PYRITE m	%	CHALCOPYRITE m	%	GALENA m	%	SPHALERITE m	%	m	%	COMMENTS
0	12	DIY		PISIC			SIAINIO			7	3	R1																													Laterite hardcap 0/c 100m S.
12	14	DIY		PIFISIC						7	4	YR																													Silicified dolomite 0/6 600m
14	16	↓↓		SI/ISIT						7	5	YR																													Dendritic Mn on fractures.
16	18			SI/ISIT	SIF					7	4	R1																													
18	110			SI/ISIT	SIF					7	4	R1B																													
110	12			CIKIAY	SY					7	3	R1																													Minor fine wavy Mn (Tr).
112	114			SI/ISIT	CIY		CICIAY			7	3	R1																													Minor Massive Mn. ~10cm?
114	116			CICIAY	SIA					7	3	R1																													Tr Mn small fragments / Fe oxides.
116	118			CIYISIT	SI/					7	4	R1																													Tr Mn fragments.
118	210			CIYISIT	SI/		SI/ISIT			7	5	BW																													Tr Mn fragments.
210	212			CICIAIY			SIMISIT			7	4	R1																													
212	214			SI/ISIT			CICIAY			7	6	BIT																													
214	216			SI/ISIT	CIY		SIMSIT	BIO		7	4	R1	4	3	3																									
216	218	MT		SI/ISIT	SIF		CICIAIY			7	6	OM																													Prob. Injecting water
218	310	↓↓		DIOIMM	SIF					7	7	TM																													
310	312			SI/ISIT	BID	D.P.	SI/ISIT	SIF		7	7	U1																													
312	314			SI/ISIT			CIMIER			7	5	T1																													
314	318			SI/ISIT			SI/ISIT	BIO	SIF	5	5	TIB																													
318	410			CIMIER			SI/ISIT			5	4	TIB																													
410	414			SI/ISIT			CIMIER			5	5	TIB																													
414	416			SI/ISIT			CIMIER			5	5	TIY																													
416	418			SI/ISIT						5	5	TIY																													
418	512			SI/ISIT	BIO	SIF				5	3	T1																													
EOH																																							

COMMENTS :
Laterite hardcap 0/c 100m S.
Silicified dolomite 0/6 600m
West. - Proterozoic.
Calcareous coating on Fe ppts.??
Dendritic Mn on fractures.
Minor fine wavy Mn (Tr).
Minor Massive Mn. ~10cm?
Tr Mn small fragments / Fe oxides.
Tr Mn fragments.
Tr Mn fragments.
Prob. Injecting water

HOLE NUMBER :

A3-3911 May 1994

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE HEADER SHEET

Sheet 1 of 1

PROJECT : NORTHERN PLATFORMS
Work Area : BATTEN CREEK.
Tenement : _____ Job No.: BBS

Location : 1:250 000 Sheet Name : MOUNT YOUNG.
1:100 000 Sheet Name : BING BONG.

Grid Name : _____
Grid Type (AMG, GEO, Local) : _____

Collar Co-ordinates :-

AMG Precision : GPS
AMG Easting : 624000 Local Grid Easting : _____
AMG Northing : 8238200 Local Grid Northing : _____
AMG Zone : 53 Azimuth : - R.L.: - Inclination : -90°

Hole Depth : 50m Depth to Water : 20m
Depth to Basement : 32m?? Depth of Oxidisation : _____

Cover Description (standard codes) : _____
Basement Description (standard codes) : _____
Stratiraphic Unit : _____
Tectonic Unit : McARTHUR BASIN

DRILLING INFORMATION

CONTRACTOR : GADEN DRILLING
RIG TYPE : UDR 650.
Date Commenced : 31-08-96 Date Completed : 31-08-96.

HOLE NUMBER : BCP018
Oz Recon Record No.: _____
Logged By : MIKE RENNISON.
Drill Target : PROTEM Sounding 0-56m @ 35.3m.
Min intersected 1.6 km WEST in BCP010.

HOLE TYPE

Method / Size	From	To	Comments
5 1/4" RC HAMMER	0	50m	

WEDGE POSITION

Depth from Collar	Azimuth	Inclination

MATERIAL LEFT IN HOLE

Casing	From	To	Comments
PVC	0.	4m.	

SURVEY DATA

Depth	Azimuth	Dip

METHOD

Depth	Azimuth	Dip

GEOPHYSICAL LOGGING

Type	Contractor	From	To	Comments

COMMENTS : _____

ANALYSIS

Sampled Inter. From	Sampled Inter. To	Sample No's. From	Sample No's. To	Sample Type	Laboratory Batch No.	Elements	Method

COMMENTS : _____

SUMMARY LOGS

From	To	Formation	Lithology

INTERSECTIONS

From	To	Cu	Pb	Zn					

GENERAL COMMENTS : _____

HOLE NUMBER : _____

A3-3912 May 1994

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE LOG SHEET

DATE : 31-08-94 LOGGED BY : MIKE RENNISON. HOLE DEPTH : 50m JOB No. : BBS HOLE NUMBER : BCP018

DRILLED INTERVAL FROM	TO	CORE LOSS % (GRADE MINERALOGY)	FORMATION	ROCK TYPE MAJOR	q	q	MINOR	q	q	WEATHERING	COLOUR LIGHT	COLOUR HUE	GRAIN TEXTURE SIZE SORTING	AVERAGE	MAXIMUM	CONTACT	STRUCTURE S1	ANGLE TO LCA	THICKNESS	STRUCTURE S2	ANGLE TO LCA	THICKNESS	ROCK TEXTURE T1	T2	ALGAE A1	A2	EVAPORITE AND OTHER DIAGNOSTIC TEXTURES 1	2	3	SULPHIDE MINERALISATION PYRITE m	%	CHALCOPYRITE m	%	GALENA m	%	SPHALERITE m	%	m	%	COMMENTS
0	12	WT		SIAWIO						7	5	YIO																												Contamination from last hole.
12	14	DIY		SI/SIT	BIL		CIHIER			7	8	YIH																												
14	16	↓↓		SI/SIT	BIL		BIRIEIC	CIH		7	7	EI																												
16	18			SI/SIT	AIC		SIMIST	FIG		7	7	EI																												
18	10			SI/SIT	BIL		CIHIER			7	7	EIH																												
10	12	DIP		SI/SIT	BIL					7	7	EIH																												
12	14	DIY		SI/SIT	BIL					7	8	EI																												
14	16	↓		SI/SIT	BIO	SIF	CIHIER			7	6	EIH																												
16	18			SI/SIT	BID	DIO?	SIISIT	BIO	SIF	7	6	EIH																												
18	20	DIP		SI/SIF	BIO	DIO?	SI/SIT	BIO	SIF	7	4	EI																												
20	22	DIY		SI/SIT						7	5	OIT																												Water table.
22	24	WT		SI/SIT			CICIAY			7	4	YIH																												Injecting water Mn on fractures
24	26	↓↓		SI/SIT			CIHIER			7	4	YIH																												Black chert
26	27			SI/SIT						7		NI																												Black Mn? Very hard black lithology.
27.10	27.15						CIHIER			7		NI																												Massive Mn??
27.15	28.10			SI/SIT						7		NI																												Lesser Mn??
28.10	28.15			SI/SIT						7	3	EIH																												Minor Mn??
28.15	32.10			SI/SIT			CIHIER			5	5	TH																												
32.10	34.10			SI/SIT			CIHIER			3	5	BIT																												Some rounded clasts - contam or Log?
34.10	40.10			SI/SIT						3	5	YIT																												Minor Mn. Dendritic on fracture.
40.10	48.10			DIOIM						0	5	RIT																												Red pink and highly indurated
48.10	50.10			DIOIM			CIHIER			0	5	RIT																												- Fresh Proterozoic - Fe dolomite?
50.10	H																																						

HOLE NUMBER : _____

Faxed 31/10/96

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE HEADER SHEET

Sheet 1 of 1

HOLE NUMBER : BCP019

Oz Recon Record No.: _____

Logged By : MIKE RENNISON.

Drill Target : Follow-up of Wm intersected in BCP010 400m to West.

PROJECT : _____

Work Area : BATTEN CREEK

Tenement : _____ Job No.: 885

Location : 1:250 000 Sheet Name : MOUNT YOUNG

1:100 000 Sheet Name : BING BONG

Grid Name : _____

Grid Type (AMG, GEO, Local) : _____

Collar Co-ordinates :-

AMG Precision : GPS

AMG Easting : 622800 Local Grid Easting : _____

AMG Northing : 8238200 Local Grid Northing : _____

AMG Zone : 53 Azimuth : — R.L. : — Inclination : -90°

Hole Depth : 49m Depth to Water : _____

Depth to Basement : _____ Depth of Oxidisation : _____

Cover Description (standard codes) : _____

Basement Description (standard codes) : _____

Stratiraphic Unit : _____

Tectonic Unit : McARTHUR BASIN.

DRILLING INFORMATION

CONTRACTOR : GADEN DRILLING

RIG TYPE : UDR 650

Date Commenced : 31-08-96 Date Completed : _____

HOLE TYPE

Method / Size	From	To	Comments
5 1/4" RC HAMMER.	0		

WEDGE POSITION

Depth from Collar	Azimuth	Inclination

MATERIAL LEFT IN HOLE

Casing	From	To	Comments
~~4"~~ PVC	0	4m	

SURVEY DATA

Depth	Azimuth	Dip

METHOD

Depth	Azimuth	Dip

GEOPHYSICAL LOGGING

Type	Contractor	From	To	Comments

COMMENTS : _____

ANALYSIS

Sampled Inter. From	Sampled Inter. To	Sample No's. From	Sample No's. To	Sample Type	Laboratory Batch No.	Elements	Method

COMMENTS : _____

SUMMARY LOGS

From	To	Formation	Lithology

INTERSECTIONS

From	To	Cu	Pb	Zn					

GENERAL COMMENTS : _____

HOLE NUMBER : _____

A3-3912 May 1994

BHP Minerals Limited

McARTHUR BASIN PROJECT - DIAMOND DRILL HOLE LOG SHEET

Sheet 1 of

DATE : 31-08-96 LOGGED BY : MIKE RENNISON HOLE DEPTH : 49m. JOB No. : BRS HOLE NUMBER : BCP019

DRILLED INTERVAL FROM	TO	CORE LOSS % / SAMPLE NATURE	FORMATION	ROCK TYPE MAJOR	q	q	MINOR	q	q	WEATHERING	COLOUR LIGHT	COLOUR HUE	GRAIN TEXTURE SIZE SORTING	AVERAGE	MAXIMUM	CONTACT	STRUCTURE S1	ANGLE TO LCA	THICKNESS	STRUCTURE S2	ANGLE TO LCA	THICKNESS	ROCK TEXTURE T1	T2	ALGAE A1	A2	EVAPORITE AND OTHER DIAGNOSTIC TEXTURES 1	2	3	SULPHIDE MINERALISATION PYRITE m	%	CHALCOPYRITE m	%	GALENA m	%	SPHALERITE m	%	m	%	COMMENTS
10	12	D Y		S/S			C L A Y	S A		7	5	U																											
12	14	↓ ↓		C L A Y	S A		S A N D			7	6	U																											
14	16			S/S	C Y	B L	S W S	G 2	F G	7	6	U																											
16	18			S W S	G 2		S/S	C Y		7	6	U	E																										Fragments of ppf? → gravels?
18	110			S/S	B L		S W S			7	5	O U																										Rounded fragments log.
110	112	D P		S/S	B L					7	5	U																										Water.
112	114	D P		C L A Y	S/		S W S	F G		7	7	E G																										
114	116	D P		S/S			C L A Y			7	5	T																										
116	118	M T		S/S			C L A Y			7	5	G																										
118	210	↓ ↓		S/S			S W S	F G		7	5	U																										Injecting water
210	212			S/S			C M E R			7	5	U																										
212	214			C L A Y			S/S	F G		7	6	Y G																										
214	216			S/S			C L A Y			7	7	U																										
216	310			S/S						5	7	U																										
310	312			S/S						5	7	U R																										Green and red siltstones - hard!?
312	314			S/S	B D					5	7	Y G																										Tr Mn
314	316			S/S						3	7	U																										
316	318			S/S	B D					3	6	U																										
318	410	N R		S/S	B D	G S				0		N																										Black, grean and red sists. - hamm
410	412			S/S	C Y					2	5	Y B																										Hammer grabbed - little sample
412	414			S/S						0	6	E																										
414	416			S/S						0	5	Y B																										Poor sample recovery
416	419			S/S						0	6	E																										Poor Sample recovery.
EOH																																					

HOLE NUMBER :

A3-3911 May 1994

APPENDIX 3

ANALYSIS DETAILS AND RESULTS

BATTEN CREEK DRILL SAMPLES

HOLE	FROM	TO	SAMPLE
BCP013	0	6	EV9001
BCP013	6	12	EV9002
BCP013	12	18	EV9003
BCP013	18	24	EV9004
BCP013	24	30	EV9005
BCP013	30	36	EV9006
BCP013	36	42	EV9007
BCP013	42	48	EV9008
BCP013	48	52	EV9009
BCP013	18	20	EV9010
BCP013	20	22	EV9011
BCP014	0	6	EV9012
BCP014	6	12	EV9013
BCP014	12	18	EV9014
BCP014	18	24	EV9015
BCP014	24	30	EV9016
BCP014	30	36	EV9017
BCP014	36	42	EV9018
BCP014	42	48	EV9020
BCP014	48	54	EV9021
BCP014	54	60	EV9022
BCP014	52	54	EV9023
BCP014	54	56	EV9024
BCP015	0	6	EV9031
BCP015	6	12	EV9032
BCP015	12	18	EV9033
BCP015	18	24	EV9034
BCP015	24	30	EV9035
BCP015	30	36	EV9036
BCP015	36	42	EV9037
BCP015	42	48	EV9038
BCP015	48	52	EV9039
BCP016	0	6	EV9040
BCP016	6	12	EV9041
BCP016	12	18	EV9042
BCP016	18	24	EV9043
BCP016	24	30	EV9044
BCP016	30	36	EV9045
BCP016	36	42	EV9046
BCP016	42	49.5	EV9047
BCP016	40	42	EV9048
BCP017	0	6	EV9049
BCP017	6	12	EV9050
BCP017	12	18	EV9051
BCP017	18	24	EV9052
BCP017	24	30	EV9053
BCP017	30	36	EV9054
BCP017	36	42	EV9055
BCP017	42	48	EV9056
BCP017	48	52	EV9057
BCP018	0	6	EV9058
BCP018	6	12	EV9059
BCP018	12	18	EV9060
BCP018	18	24	EV9061
BCP018	24	26	EV9062

BATTEN CREEK DRILL SAMPLES

HOLE	FROM	TO	SAMPLE
BCP018	26	27	EV9063
BCP018	27	27.5	EV9064
BCP018	27.5	28	EV9065
BCP018	28	32	EV9066
BCP018	32	38	EV9067
BCP018	38	44	EV9068
BCP018	44	50	EV9069
BCP019	0	6	EV9070
BCP019	6	12	EV9071
BCP019	12	18	EV9072
BCP019	18	24	EV9073
BCP019	24	30	EV9074
BCP019	30	36	EV9075
BCP019	36	42	EV9076
BCP019	42	48	EV9077
BCP019	48	49	EV9078

ANALABS

ference : TV035547
eference : **001159**
t code :
rt date : 24/09/96
rt status : Final
: 1 of 9

Analabs Pty. Ltd.
ACN 004 591 664
50 Leyland St, Garbutt
Queensland 4814
Telephone : (077) 25 2311
Facsimile : (077) 79 7947

ANALYTICAL DATA

Sample	Cu	Pb	Zn	Ag	As	Fe
EV 9001	14	50	15	<0.2	15	4.77
EV 9002	9	45	9	<0.2	4	1.63
EV 9003	23	62	17	<0.2	<2	3.54
EV 9004	20	94	33	<0.2	7	5.79
EV 9005	15	52	21	0.2	6	2.89
EV 9006	19	61	32	<0.2	12	2.89
EV 9007	14	59	39	<0.2	8	2.33
EV 9008	26	72	60	<0.2	20	3.45
EV 9009	29	97	51	<0.2	19	2.67
EV 9010	24	96	33	<0.2	<2	7.68
EV 9011	18	85	26	<0.2	10	5.76
EV 9012	17	20	35	<0.2	6	2.91
EV 9013	18	14	72	<0.2	<2	0.79
EV 9014	29	30	59	<0.2	<2	1.60
EV 9015	65	38	36	<0.2	15	4.58
EV 9016	42	21	37	<0.2	<2	2.05
EV 9017	208	21	376	<0.2	5	12.00
EV 9018	133	23	149	<0.2	12	8.69
EV 9019	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
EV 9020	489	57	540	<0.2	59	31.69
EV 9021	121	30	392	<0.2	<2	16.21
EV 9022	93	61	233	<0.2	4	9.55
EV 9023	149	52	692	0.4	5	20.54
EV 9024	87	34	416	<0.2	3	10.29
EV 9025	150	219	1020	<0.2	21	9.60
EV 9031	28	23	33	<0.2	<2	3.55
EV 9032	29	34	34	<0.2	<2	2.89
EV 9033	26	36	26	<0.2	3	2.71
EV 9034	30	40	31	<0.2	<2	2.41
EV 9035	46	22	19	<0.2	11	2.03
EV 9036	9	6	4	<0.2	<2	0.67
EV 9037	31	12	10	<0.2	9	1.41
EV 9038	81	45	32	<0.2	27	4.53
EV 9039	64	80	50	<0.2	69	10.28
EV 9040	19	50	14	<0.2	10	6.27
EV 9041	28	30	36	<0.2	7	5.86
EV 9042	20	43	32	<0.2	<2	3.12
EV 9043	19	48	42	<0.2	2	2.87
EV 9044	20	81	86	<0.2	10	5.48
EV 9045	16	77	72	<0.2	19	5.03
EV 9046	19	61	46	<0.2	6	2.86
EV 9047	13	44	34	<0.2	11	2.28
EV 9048	37	64	37	<0.2	3	2.53
EV 9049	145	40	112	<0.2	24	10.51
EV 9050	99	36	53	<0.2	6	4.39
EV 9051	170	56	55	<0.2	19	6.39
EV 9052	152	68	74	<0.2	21	5.15
EV 9053	175	48	71	0.2	24	3.86
EV 9054	66	31	40	<0.2	3	1.83
EV 9055	97	25	69	0.4	2	3.01
Method	GI142	GI142	GI142	GI142	GI142	GI142
Units	ppm	ppm	ppm	ppm	ppm	%
Detection Limit	2	5	2	0.2	2	0.01

= not analysed, -- = element not determined, I.S = insufficient sample, L.N.R. = listed not received

reference : TV035547
reference : **001159**
ject code :
port date : 24/09/96
rt status : Final
: 2 of 9

Analabs Pty. Ltd.
ACN 004 591 664
50 Leyland St, Garbutt
Queensland 4814
Telephone : (077) 25 2311
Facsimile : (077) 79 7947

ANALYTICAL DATA

Sample	Cu	Pb	Zn	Ag	As	Fe
EV 9056	192	32	91	<0.2	4	3.31
EV 9057	29	8	52	<0.2	10	2.25
EV 9058	32	11	65	<0.2	<2	1.48
EV 9059	28	7	51	<0.2	<2	0.44
EV 9060	28	8	25	<0.2	<2	0.40
EV 9061	284	9	108	<0.2	17	1.83
EV 9062	620	23	125	<0.2	23	1.98
EV 9063	920	8	188	<0.2	3	1.22
EV 9064	1360	11	274	<0.2	<2	1.38
EV 9065	962	12	335	<0.2	25	3.02
EV 9066	263	8	159	<0.2	32	2.91
EV 9067	168	10	277	<0.2	72	6.02
EV 9068	84	8	80	<0.2	23	2.48
EV 9069	35	6	70	<0.2	<2	1.40
EV 9070	14	21	12	<0.2	<2	2.56
EV 9071	19	45	30	<0.2	4	6.65
EV 9072	20	59	28	<0.2	4	4.50
EV 9073	26	64	31	<0.2	19	4.94
EV 9074	53	75	30	<0.2	40	2.78
EV 9075	32	78	57	<0.2	28	3.95
EV 9076	75	109	49	<0.2	23	3.01
EV 9077	25	41	69	<0.2	43	3.34
EV 9078	19	53	53	<0.2	9	2.97

Method	GI142	GI142	GI142	GI142	GI142	GI142
Units	ppm	ppm	ppm	ppm	ppm	%
Detection Limit	2	5	2	0.2	2	0.01

Notes: N.A = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

reference : TV035547
ur reference : **001159**
Project code :
Report date : 24/09/96
eport status : Final
ge : 4 of 9

Analabs Pty. Ltd.
ACN 004 591 664
50 Leyland St, Garbutt
Queensland 4814
Telephone : (077) 25 2311
Facsimile : (077) 79 7947

ANALYTICAL DATA

Sample	Mn	P	Cd	Bi	Sb	Cr
EV 9001	399	300	<0.5	<10	<2	22
EV 9002	177	200	<0.5	<10	<2	13
EV 9003	1470	500	<0.5	<10	<2	16
EV 9004	1.61%	850	<0.5	<10	<2	11
EV 9005	7860	350	<0.5	<10	<2	12
EV 9006	4540	450	<0.5	<10	<2	3
EV 9007	1150	350	<0.5	<10	<2	8
EV 9008	935	550	<0.5	<10	<2	20
EV 9009	672	400	<0.5	<10	<2	24
EV 9010	2.76%	1050	<0.5	<10	<2	17
EV 9011	1.34%	750	<0.5	<10	<2	11
EV 9012	718	100	<0.5	<10	<2	22
EV 9013	237	<50	<0.5	49	14	6
EV 9014	133	200	<0.5	15	<2	20
EV 9015	336	350	<0.5	<10	<2	30
EV 9016	270	200	<0.5	<10	<2	10
EV 9017	576	550	<0.5	<10	<2	8
EV 9018	628	450	<0.5	<10	<2	12
EV 9019	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.	L.N.R.
EV 9020	6270	2200	<0.5	<10	<2	31
EV 9021	1.30%	650	<0.5	<10	<2	13
EV 9022	8500	400	<0.5	<10	<2	11
EV 9023	3.23%	1350	<0.5	<10	<2	15
EV 9024	2.05%	450	<0.5	<10	<2	14
EV 9025	1760	>5000	<0.5	<10	<2	34
EV 9031	2100	300	<0.5	<10	<2	8
EV 9032	3470	450	<0.5	<10	<2	6
EV 9033	1630	500	<0.5	<10	<2	9
EV 9034	1780	400	<0.5	<10	<2	12
EV 9035	710	400	<0.5	<10	<2	15
EV 9036	115	50	<0.5	<10	<2	8
EV 9037	1110	200	<0.5	<10	<2	11
EV 9038	1290	650	<0.5	<10	<2	19
EV 9039	7780	1350	<0.5	<10	<2	25
EV 9040	2850	250	<0.5	<10	<2	35
EV 9041	9010	450	<0.5	<10	<2	9
EV 9042	3830	350	<0.5	<10	<2	12
EV 9043	4200	300	<0.5	<10	<2	18
EV 9044	2.04%	700	<0.5	<10	<2	23
EV 9045	2.12%	550	<0.5	<10	<2	20
EV 9046	1.86%	400	<0.5	<10	<2	14
EV 9047	1.11%	300	<0.5	<10	<2	9
EV 9048	1.86%	500	<0.5	<10	<2	12
EV 9049	809	250	<0.5	<10	<2	36
EV 9050	2500	200	<0.5	<10	<2	12
EV 9051	1.43%	200	<0.5	<10	<2	12
EV 9052	2350	150	<0.5	<10	<2	10
EV 9053	5430	100	<0.5	<10	4	7
EV 9054	1610	50	<0.5	<10	<2	7
EV 9055	2040	100	<0.5	<10	<2	9
Method	GI142	GI142	GI142	GI142	GI142	GI142
Units	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	2	50	0.5	10	2	2
Upper Method	GA145					

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R = listed not received

A N A L A B S

ference : TV035547
eference : **001159**
ect code :
rt date : 24/09/96
status : Final
: 5 of 9

Analabs Pty. Ltd.
ACN 004 591 664
50 Leyland St, Garbutt
Queensland 4814
Telephone : (077) 25 2311
Facsimile : (077) 79 7947

ANALYTICAL DATA

Sample	Mn	P	Cd	Bi	Sb	Cr
EV 9056	4980	150	<0.5	<10	<2	17
EV 9057	1480	100	<0.5	<10	<2	12
EV 9058	187	<50	<0.5	33	8	10
EV 9059	115	<50	<0.5	13	<2	6
EV 9060	121	50	<0.5	<10	<2	9
EV 9061	1650	100	<0.5	<10	<2	12
EV 9062	8060	150	<0.5	<10	<2	8
EV 9063	6.20%	100	4.7	<10	9	13
EV 9064	14.92%	200	6.2	<10	12	21
EV 9065	9.35%	350	4.7	<10	8	19
EV 9066	1.61%	250	0.6	<10	<2	24
EV 9067	1.29%	550	<0.5	<10	<2	14
EV 9068	1.02%	250	<0.5	<10	<2	14
EV 9069	1610	150	<0.5	27	6	9
EV 9070	966	100	<0.5	<10	<2	21
EV 9071	5020	300	<0.5	<10	<2	23
EV 9072	6670	450	<0.5	<10	<2	11
EV 9073	6550	600	<0.5	<10	<2	7
EV 9074	2050	350	<0.5	<10	<2	18
EV 9075	6870	400	<0.5	<10	<2	23
EV 9076	2220	300	<0.5	<10	<2	35
EV 9077	3130	250	<0.5	<10	<2	17
EV 9078	2150	250	<0.5	<10	<2	23
Method	GI142	GI142	GI142	GI142	GI142	GI142
Units	ppm	ppm	ppm	ppm	ppm	ppm
Detection Limit	2	50	0.5	10	2	2
Upper Method	GA145					

Notes: N A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

reference : TV035547
ur reference : **001159**
roject code :
eport date : 24/09/96
port status : Final
e : 7 of 9

Analabs Pty. Ltd.
ACN 004 591 664
50 Leyland St, Garbutt
Queensland 4814
Telephone : (077) 25 2311
Facsimile : (077) 79 7947

ANALYTICAL DATA

Sample	Co	Ni	Mo	V
EV 9001	6	13	<2	82
EV 9002	3	11	<2	33
EV 9003	8	25	<2	31
EV 9004	24	45	<2	34
EV 9005	16	27	<2	19
EV 9006	10	18	<2	16
EV 9007	6	17	<2	27
EV 9008	6	23	<2	41
EV 9009	6	18	<2	36
EV 9010	28	40	<2	34
EV 9011	20	30	<2	26
EV 9012	11	14	<2	56
EV 9013	<2	6	<2	36
EV 9014	3	11	<2	57
EV 9015	8	19	<2	131
EV 9016	6	18	<2	40
EV 9017	20	54	<2	45
EV 9018	17	65	<2	29
EV 9019	L.N.R.	L.N.R.	L.N.R.	L.N.R.
EV 9020	137	216	4	55
EV 9021	104	136	2	33
EV 9022	41	85	<2	28
EV 9023	165	192	4	56
EV 9024	69	145	2	41
EV 9025	64	174	2	196
EV 9031	6	20	<2	28
EV 9032	10	12	<2	17
EV 9033	7	16	<2	19
EV 9034	14	25	<2	29
EV 9035	7	17	<2	14
EV 9036	<2	4	<2	<5
EV 9037	6	12	<2	11
EV 9038	16	28	<2	44
EV 9039	23	33	<2	61
EV 9040	18	22	<2	86
EV 9041	15	26	<2	33
EV 9042	7	27	<2	37
EV 9043	8	29	<2	34
EV 9044	9	34	<2	34
EV 9045	7	46	<2	33
EV 9046	5	42	<2	24
EV 9047	6	29	<2	18
EV 9048	4	37	<2	24
EV 9049	18	27	<2	164
EV 9050	22	25	<2	59
EV 9051	50	35	<2	78
EV 9052	28	32	<2	52
EV 9053	30	20	<2	40
EV 9054	13	11	<2	25
EV 9055	14	15	<2	24
Method	GI142	GI142	GI142	GI142
Units	ppm	ppm	ppm	ppm
Detection Limit	2	2	2	5

Notes: N A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

A N A L A B S

Analabs Pty. Ltd.
ACN 004 591 664
50 Leyland St, Garbutt
Queensland 4814
Telephone : (077) 25 2311
Facsimile : (077) 79 7947

r reference : TV035547
our reference : **001159**
Project code :
eport date : 24/09/96
eport status : Final

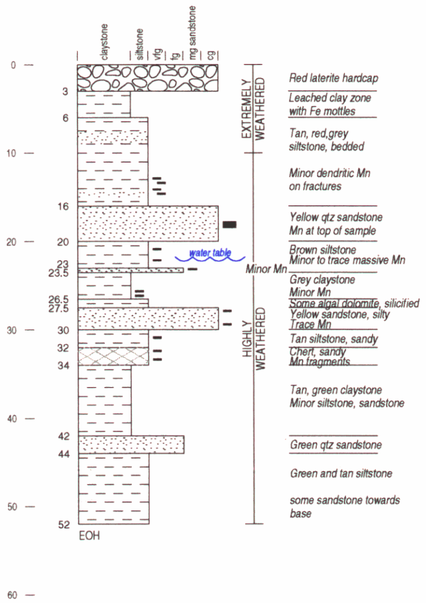
ANALYTICAL DATA

Sample	Co	Ni	Mo	V
EV 9056	14	36	<2	29
EV 9057	3	12	<2	23
EV 9058	3	9	<2	37
EV 9059	<2	6	<2	18
EV 9060	<2	7	<2	12
EV 9061	37	39	<2	20
EV 9062	123	127	2	22
EV 9063	226	125	3	28
EV 9064	271	123	<2	38
EV 9065	256	129	<2	42
EV 9066	83	78	<2	26
EV 9067	75	108	<2	28
EV 9068	49	28	<2	24
EV 9069	12	10	<2	22
EV 9070	9	13	<2	43
EV 9071	15	18	<2	47
EV 9072	18	25	<2	22
EV 9073	24	28	<2	21
EV 9074	16	31	<2	36
EV 9075	23	36	<2	44
EV 9076	15	30	<2	57
EV 9077	13	47	<2	44
EV 9078	12	29	<2	51

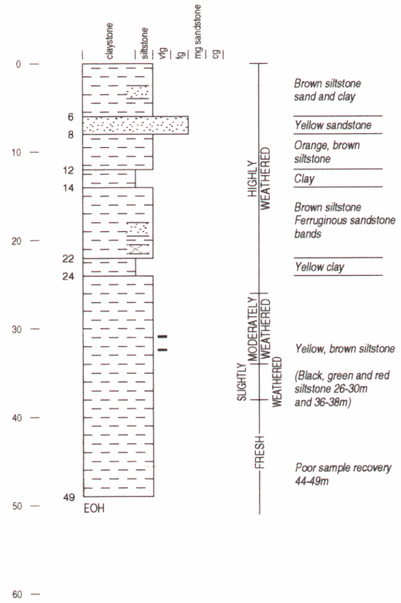
Method	GI142	GI142	GI142	GI142
Units	ppm	ppm	ppm	ppm
Detection Limit	2	2	2	5

Notes: N.A. = not analysed, -- = element not determined, I.S. = insufficient sample, L.N.R. = listed not received

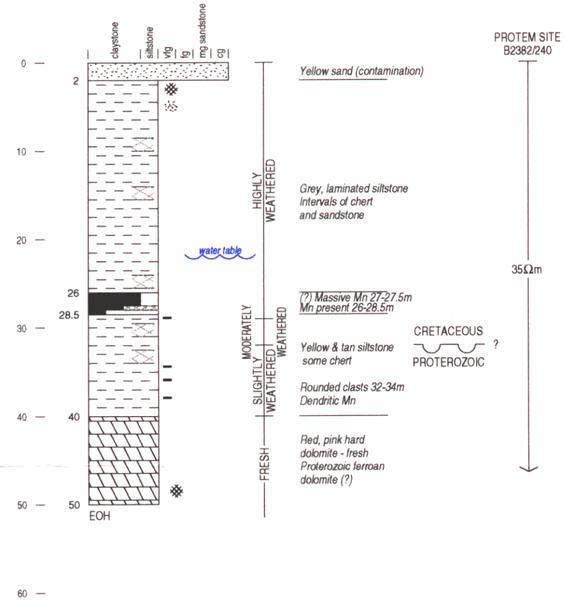
BCP013



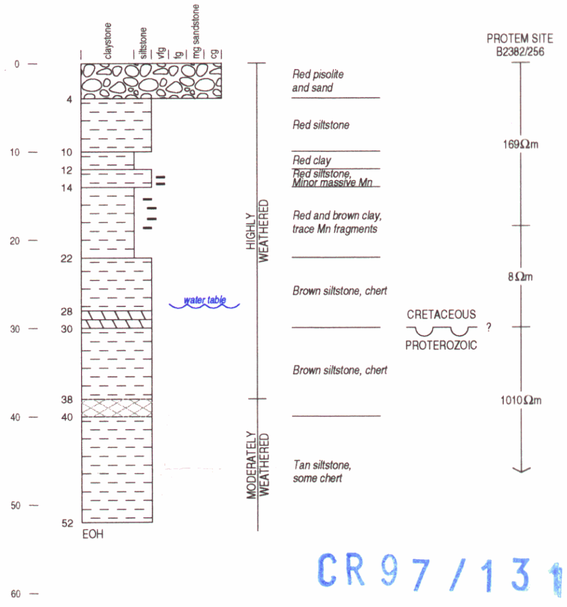
BCP019



BCP018

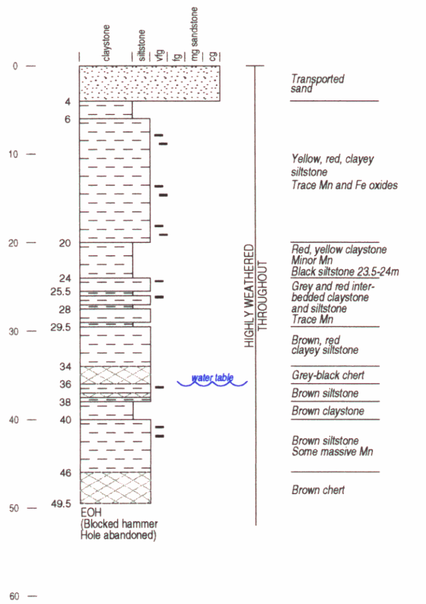


BCP017

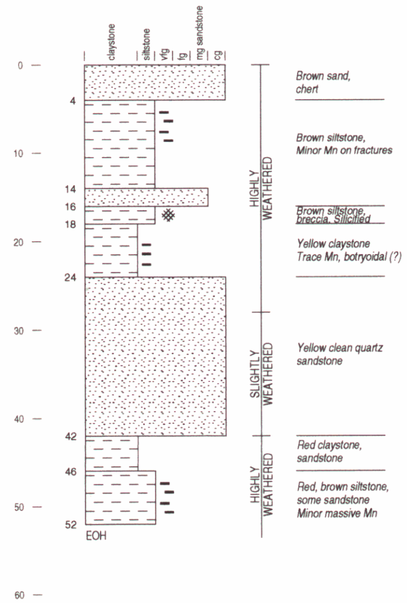


CR97/131

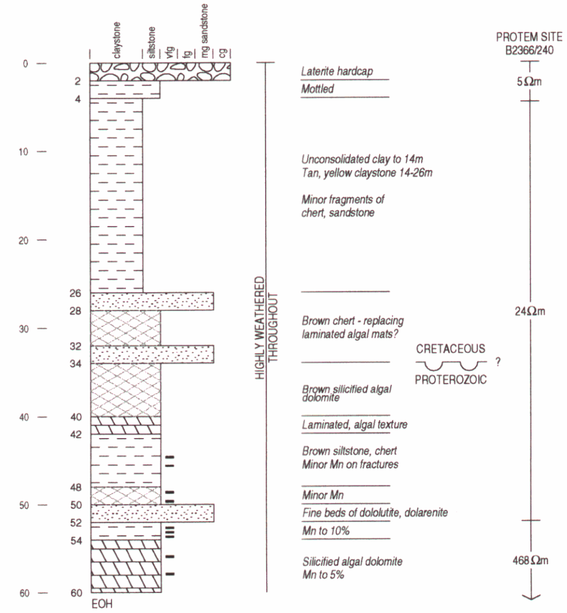
BCP016

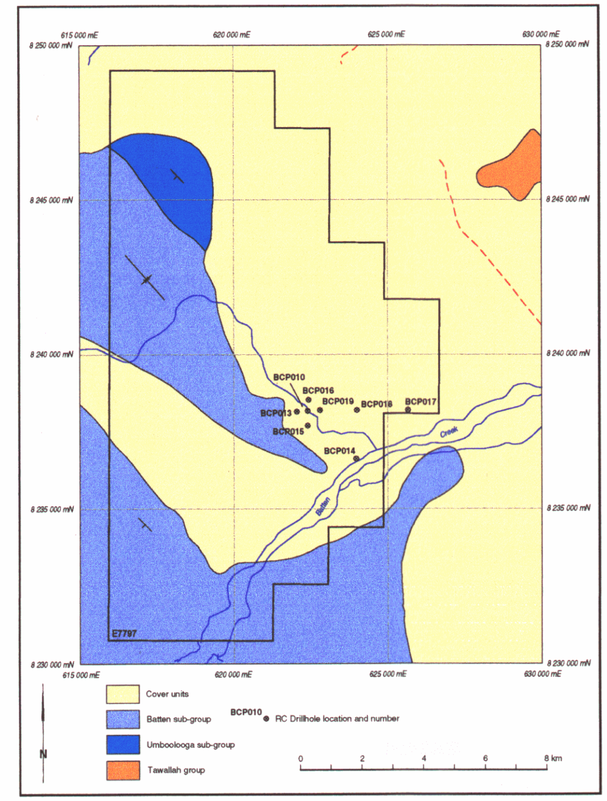


BCP015



BCP014





Laterite
Claystone/siltstone
Sandstone
Chert
Dolomite
Silicified
Manganese

Vertical Scale 1 : 500

0 10 20 30 40 metres

BHP Exploration - BHP Minerals
BHP Minerals Pty. Ltd., A.C.N. 008 694 782

McARTHUR PROJECT
EL7797 BATTEN CREEK, N.T.
DRILLHOLES BCP013-019
GRAPHIC LOGS

Prepared : T.Paterson	Date : 19-2-97	PLATE 1
Drawn : A.R.Veale	Revised :	
Centre : Perth	Drawing No : A2-2564	