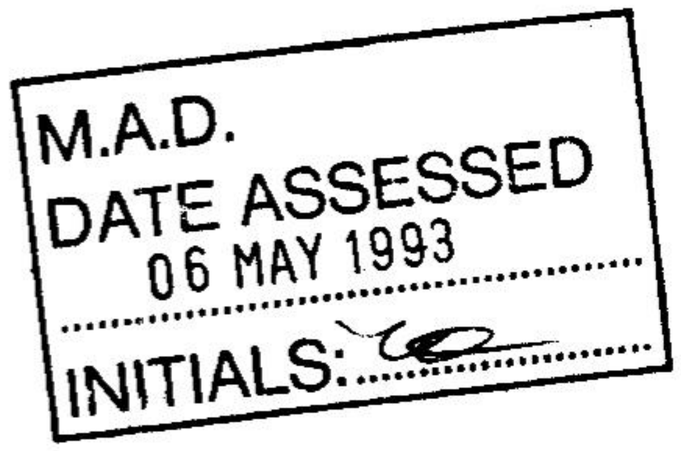
EPM 7733 TEMPLETON, NW QUEENSLAND

FINAL REPORT

CR 7538

JANUARY 1993



CR#24352

EPM 7733 TEMPLETON, NW QUEENSLAND

FINAL REPORT

CR 7538 **JANUARY 1993**

L STEWART

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SUMMARY

EPM 7733, Templeton is located approximately 30 km south-west of Mt Isa and was granted to BHP Minerals Limited for a period of two years from 5 March 1991.

Exploration undertaken during 1991 involved a literature review of previous exploration, aeromagnetics, acquisition of Landsat TM data, minor rock chip sampling and limited soil and auger sampling. Results were disappointing and as such the tenement block was reduced from 50 sub-blocks to 16 sub-blocks.

The retained area covered a Pb-Zn auger geochemical anomaly detected by Carpentaria Exploration Company (CEC) during the mid-1970's. During 1992 the best of the CEC auger geochemical anomalies were tested to approximately 50 m by a RAB drilling program. The drilling program revealed variably weathered Proterozoic and younger rocks containing no significant mineralisation.

The lack of encouragement for indications of a significant SEDEX style base metals deposit resulted in the relinquishment of the tenement on 13 January 1993.

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1. INTRODUCTION

1.1 The Templeton Project Area

EPM 7733 was located approximately 30 km SW of Mt Isa in north west Queensland (Figure 1). The EPM was named "Templeton" after the Templeton River which flows through the northern area.

Exploration within EPM 7733 was focussed on SEDEX style base metal deposits in the Western Succession of the Mt Isa Block. An understanding of the complex rift histories and fluid pathways may be the key to discovery of another world class deposit in the area. Major SEDEX deposits in the area include HYC, Century, Lady Loretta, Hilton and Mt Isa. The concept of fundamental "structural corridors" has focussed our exploration activities along key structures.

Most of the exposures in EPM 7733 are Proterozoic sandstones and siltstones of the McNamara Group. Approximately forty per cent of the tenement is covered by shallow Cainozoic colluvium. The May Downs Fault is 7 km east of the northern tenement block and terminates diffusely in the northern part of the southern tenement block. The May Downs Fault structure is a major "structural corridor" that separates the Sybella Granite to the east and McNamara Group sediments to the west.

The principal activities undertaken during the 1991 field season were; completion of an aeromagnetic survey over the entire tenement area, compilation of previous exploration data on open file, acquisition of Landsat TM data, minor rock chip sampling and limited soil and auger sampling.

In 1992 the principal exploration activity was a 26 hole RAB drilling program following up moderate level auger geochemical anomalies generated by CEC in the mid-1970's.

1.2 Tenement Details

EPM 7733, Templeton (Figure 1), was granted to BHP Minerals Limited for an initial term of two years from 5 March 1991. Initially 50 sub-blocks were granted. A reduction in area to 16 sub-blocks was effected on 4 March 1992 (34 sub-blocks relinquished).

The original area granted comprised 50 sub-blocks as follows:

BIM	BLOCK	SUB-BLOCKS
CLON	518	M,R,W
CLON	590	B,H,J,N,O,P,S,T,U
CLON	735	C,D,E,H,J,K,N,O,P,S,T,U,Y,Z,
CLON	736	A,F,L,M,N,Q,R,S,V,W,X,Y
CLON	808	C,D,J,K,O,P,T,U,Z
CLON	809	V
CLON	880	E
CLON	881	A

139°10'
139°20'
139°30'
"New May Downs"
7720000N
20°40'
7700000N
20°50'
7680000N
21°00'
320000E
340000E
Mosquito Creek
Templeton River
Sandy Creek
BARKLY HWY
MT ISA
EPM 7733 Relinquished Area
Yaringa Creek
EPM 7733 Templeton
Big Toby Creek
EPM 7733 Relinquished Area
Little Toby Creek
Black Creek
DEVELOPMENTAL ROAD
Galah Creek
"Mt Guide"
Little DIAMANTINA

Scale 1:250,000

0 5 10 15 20 km

Transverse Mercator Projection
AMG Zone 54

Planimetric Information taken from
Mt Isa and Urandangi 1:250,000 Sheets

Microstation

Prepared : RRM, WGM	BHP Minerals Limited A.C.N. 008 694 782	Centre : Brisbane
Drawn : RRM, WGM	EPM 7733 TEMPLETON, NORTH WEST QUEENSLAND	A4-1402
Date : June 1992	LOCATION MAP	FIGURE 1
Revised :		

Total: 50 Sub-Blocks

EPM 7733 currently comprises 16 sub-blocks as follows:

BIM	BLOCK	SUB-BLOCK
CLON	735	C,D,E,H,J,K,N,O,P,S,T,U
CLON	736	A,F,L,Q

The work reported herein was conducted over two field seasons. Geological field and office work was supervised by R Smit and C Edgar and geophysical work by D Price in 1991. All work completed in 1992 was supervised by R Smit and L Stewart.

2. GEOLOGY AND PREVIOUS EXPLORATION

A literature review of past exploration activities near EPM 7733 Templeton was completed. Information had been collected from the GSQ open file mineral database. A coded summary of work conducted is given in Table 1 and 2. Table 1 lists past ATPs, relevant GSQ open file CR numbers and summarises the exploration methods used. Table 2 is a key to the abbreviations in Table 1 for the exploration methods employed.

EPM 7733 Templeton was divided into two blocks as shown in Figure 1.

2.1 Northern Block

The geology of the area is shown in Plate 1. Lower McNamara Group sediments are noted, but much of the area is covered by recent alluvium.

The May Downs structural corridor lies immediately to the east whilst the north-east trending Dingo corridor passes through the southern portion of the tenement block (Plate 1).

Previous exploration is limited to the southern half of the block where basement exposures are better. Shallow auger lines by Aquitaine and soil lines by CEC returned low base metal geochemistry. This downgraded the potential of the area.

A summary plan of previous exploration carried out in the northern block is attached in Appendix 1.

2.2 Southern Block

The geology of the area is shown in Plate 1. Lower McNamara Group sediments occupy much of the area and fall within the May Downs structural corridor. A main feature of the corridor is a flexure in the overall trend where it interacts with the Haslingden Block. Exposures are extremely poor in the flexure zone.

TABLE I

SUMMARY OF MINERAL EXPLORATION SURVEYS NEAR EPM 7733 "TEMPLETON"

ATP NO	COMPANY	YEAR GRANTED	GSQ CR NO RELEVANT REPORTS	PRIMARY OBJECTIVES	EXPLORATION METHODS EMPLOYED
97	RIO TINTO	1958	206, 207	ALL MINERALS (EXCEPT U)	G,o
128 (84,97,141)	RIO TINTO	1959	2228	ALL MINERALS	d,e,g,K,q,o,p
415	BROKEN HILL SOUTH/ MINES EXPLORATION	1967	2547, 2548, 2858 2862, 4015, 4697	PHOSPHATE	c,e,J,k,T,V,W,X M I N E S
727	PIONEER MINERALS	1970	4122	BASE METALS Au, PEGMATITES	d,v
1127	AQUITAINE	1972	4723	BASE METALS	e,j
1442	CEC	1974	5464	BASE METALS	e,g
1443	CEC	1974	5449	BASE METALS	e,g
1705,1706,1707	URANGESELLSCHAFT	1976	7324 6638 6572 6452	URANIUM	c,d,e,F,g j,k,m
3162	CEC	1981	14043 13059 12235	BASE METALS	f,g,j,k,p,q
3749	CEC	1984	13935	BASE METALS	E,F
4136	CENTRAL ELEC. GEN.	1986	16004	URANIUM	c,p,s
5858	HOMESTAKE	1989	20920	GOLD (BM)	e,F,g

TABLE 2

KEY TO TABLE 1 ABBREVIATIONS

a - aerial photography
b - photogeological mapping
c - regional geological mapping
d - detailed geological mapping
e - rock chip sampling
f - stream sediment sampling
g - soil sampling
h - costeaning
i - petrography
j - rotary/percussion drilling
k - diamond drilling
l - aeromagnetic
m - airborne radiometric
n - airborne scintillometer
o - airborne EM
p - ground magnetics
q - gravity
r - IP
s - other geophysics
t - mineral occurrence
u - anomaly evaluation
v - prospect evaluation
w - shaft sinking
x - metallurgical testing

NOTE: upper case - major work programme
lower case - minor work programme

CEC explored this area in the early '70s and again in the early '80s. The focus of their exploration in each case was Cu mineralisation within haematitic siltstones, sandstone and quartzites. Two prospect areas (Scotts and Monaghans) were defined and drill tested. Anomalous Cu values were returned, all of which were sub-economic - best intersection being 6.8 m at 0.24% Cu.

CEC's regional work which involved stream, soil, rock chip and auger sampling for the most part returned low base metal geochemistry. The only anomalism of note occurs in the flexure zone where elevated Pb and Zn values were intersected in auger holes. A maximum Pb value of 740 ppm was returned - this remains untested.

A summary plan of previous exploration carried out in the southern block is attached in Appendix 1.

3. BHP EXPLORATION

3.1 Aeromagnetics

A major "open range" aeromagnetic survey (Yaringa Survey) was flown over key areas within the Mt Isa Western Succession including the Templeton project area. By arrangement with the Queensland Department of Resource Industries, BHP retains a five year exclusivity on this survey.

3.2 Rock Chip Sampling

A total of 23 rock chip samples were collected on EPM 7733. Results are presented in Appendix 2 and locations are shown on Plate 1. The only anomalous rock chips were from a ferruginous siltstone from the Upper Gunpowder Creek Formation. This unit outcrops poorly in the core of a small tight syncline at the south-east end of the tenement. Maximum values obtained were 270 ppm Cu, 680 ppm Zn and 190 ppm Pb. A 1 km soil line (line 5) was completed to follow-up these anomalous rock chips.

3.3 Soil Geochemistry

3.3.1 Soil Orientation Lines (Lines A and B)

Two soil orientation lines were completed within the Templeton southern block; three size fractions were collected along each line, namely +20#, -20 +80# and -80#. A total of 261 soil samples were collected.

Line A traversed well exposed siltstone and sandstone members of the Gunpowder Creek Formation. Base metal values are very low though weak Zn anomalism is noted within colluvium along the eastern end of the line. This Zn anomaly confirms elevated Pb and Zn values recorded by CEC during bedrock auger drilling in the mid-1970's.

Line B traversed Cu anomalous haematitic sandstones of the Judenan Beds. This prospect, Monaghans Area J was drilled by CEC during the mid-1970's and returned weak sub-economic Cu intersections (<1% Cu). The geochemical soil anomaly over the prospect area extends for 300 m and returned a maximum Cu value of 820 ppm.

The location of soil orientation Lines A and B are shown in Plate 1 and soil profiles for each size fraction shown in Plates 2 and 3. Analytical results are tabled in Appendix 3.

3.3.2 Soil Lines (Lines 1-8)

Seven soil lines (Lines 1-4, 6-8) were completed within the Templeton southern block to evaluate prospective siltstones of the Gunpowder Creek Formation. Open file searches indicated that this area had not been previously tested. All soil lines (with the exception of Line 8) were extensions of cleared CEC auger lines.

One soil line (Line 5) was completed across a small tight syncline in the south-east portion of the Templeton southern block to follow-up some anomalous rock chips.

All base metal values along Lines 1-8 are very low.

The location of soil lines are shown in Plate 1 and analytical results tabled in Appendix 3.

3.4 1992 RAB Drilling Program

The 1992 RAB drilling program followed up anomalies generated by CEC in the mid-1970's. Five sites were selected on Lines B & D (Appendix 1, page 3). One drill hole was sited on the original auger geochemical anomaly and nominally two holes at 50 m spacing were drilled on either side. The program was carried out by A & J Drilling utilising a modified Warman 650 drill rig. The completed program comprised 26 holes for a total of 1307.5 m. Composite 6 m samples were taken from surface or from interpreted top of Proterozoic basement and analysed by ANALABS, Townsville for Cu, Pb, Zn, Fe and Mn utilising method GA101 (perchloric acid digestion, AAS finish).

The location of drill holes is shown in Figure 2. Cross sections of each fence of drill holes are presented in Plates 4, 5 and 6. Drill logs, sample details and assay results and codes used in drill logs and cross sections, are presented in Appendices 4 through 6.

Geological logging of drill chips interpreted Proterozoic basement at generally less than 20 m depth with an irregular palaeosurface. Filling these irregularities was clean quartz sandstone of variable thickness considered to be Cambrian channel deposits. Recent sand and lithics up to several metres thick cover the Cambrian and Proterozoic sequence.

Fresh Proterozoic rocks were rare but when intersected comprised dominantly black carbonaceous siltstone or interbedded micaceous siltstone and fine quartz mica sandstone with rare feldspathic zones. Weathered Proterozoic rock types were more dominant and comprised clays, leached and silicified siltstone and sandstone, chert (possibly secondary by solution effects) and some arkosic sandstone. Several iron phases were present resulting in a variety of sample colouring especially in the finer fractions i.e. purple (hematite), brown or tan (more oxidised ferruginous material).

Assay results did not provide any encouragement beyond generally confirming the initial moderate level anomalies. Patchy elevated values of Cu, Pb and Zn occur in six holes which correspond to the original auger geochemical anomalies.

Hole	Interval	Result
TER003	18-54 m	6 samples @ 118 ppm Pb, 215 ppm Zn, 4.43% Fe 848 ppm Mn.
TER008	12-18 m	160 ppm Pb.
TER012	12-18 m	310 ppm Pb.
TER013	12-18 m	200 ppm Pb.
TER018	30-42 m	2 samples @ 96 ppm Cu, 143 ppm Zn, 6.65% Fe.
TER025	6-18 m	2 samples @ 255 ppm Cu, 116 ppm Zn.

4. CONCLUSIONS AND RECOMMENDATIONS

Review of work conducted by previous explorers and exploration carried out by BHP during 1991 significantly downgraded the potential of EPM 7733, Templeton, to the degree that the tenement holding was reduced from 50 to 16 sub-blocks on 4 March 1992.

RAB drilling completed in 1992 in the area retained, which contained a Pb-Zn auger geochemical anomaly detected by CEC during the mid-1970's discovered no significant mineralisation. The lack of encouragement for indications of significant SEDEX style mineralisation brought a recommendation to relinquish the tenement. This recommendation was implemented on 13 January 1992.

315000E

316000E

TER017 TER018 TER019 TER020 TER021

TER025 TER024 TER023 TER022 TER026

7694000E

7694000N

7693000N

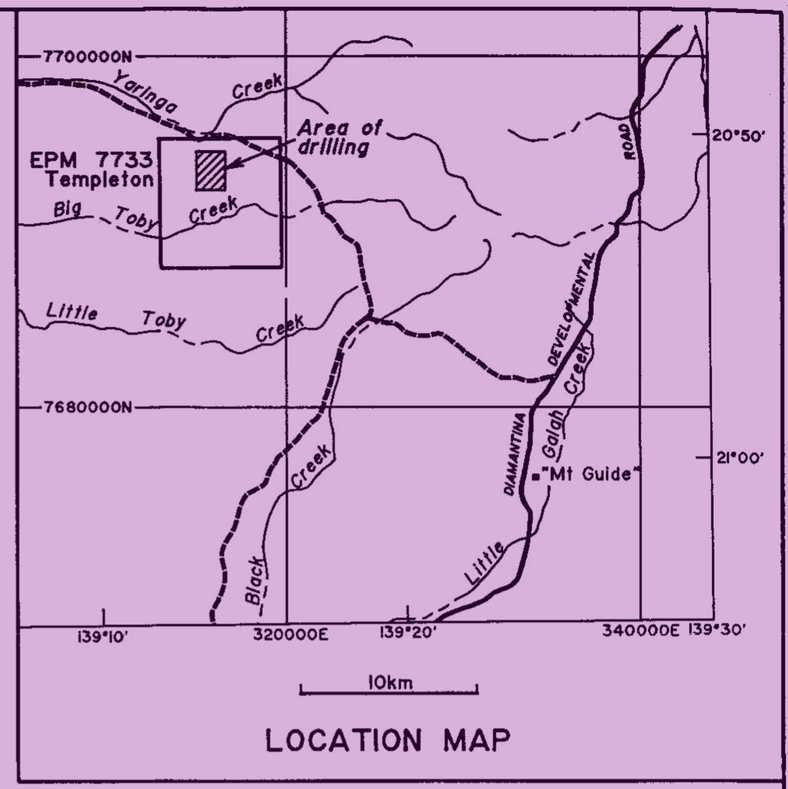
TER001 TER002 TER003 TER004 TER005

TER006 TER007 TER008 TER009 TER010

TER011 TER012 TER013 TER014 TER015 TER016

315000E

316000E



LOCATION MAP

TER026 *Percussion drill hole and number*

Scale 1:10000

0 200 400 600 800 metres

Transverse Mercator Projection, AMG Zone 54.

Microstation

BHP Minerals Limited
A.C.N. 008 694 782

EPM 7733, TEMPLETON, N.W.QUEENSLAND

LOCATION OF DRILL HOLES

Prepared : L.Stewart	Date : March 1993	FIGURE 2
Drawn : RRM	Revised:	
Centre : Brisbane	A3-937	