AUTHORITY TO PROSPECT 4080M
PIKEDALE, QUEENSLAND

Six Monthly Report
For the Period
27 August 1987 to 27 February 1988

+Final report 16.5.88

Freeport of Australia, Incorporated

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1.0 SUMMARY

Freeport McMoRan Australia Limited is the holder of Authority to Prospect (A to P) 4080M. This is the fifth six-monthly report on the A to P and details the exploration carried out by Freeport during the period 27 August 1987 to 27 February 1988.

Recent exploration was concentrated on the Pikedake area as being the most prospective within the A to P. Drilling during the current six-monthly period was targeted to test a number of structural zones with associated anomalous soil geochemistry, similar to and including the line of old workings at Pikedale. The results indicated widespread very low level mineralisation, with the only significant results from the Pikedale workings. Consideration of these results indicates that this zone does not have the grade or tonnage potential to satisfy the economic criteria established by Freeport for a deposit of this type.

Given that the area drilled was considered to be the most prospective within the A to P and that this area has failed to provide a potential resource, no further exploration on the A to P is considered to be warranted. It is therefore recommended that A to P 4080M be relinquished.

2.0 INTRODUCTION

Freeport McMoRan Australia Limited is the holder of Authority to Prospect (A to P) 4080M which was granted by the Queensland Department of Mines on 27 August 1985 for a period of two years and renewed on 27 August 1987 for an additional two years.

This is the fifth six-monthly report on the A to P and details the exploration carried out by Freeport over the period to 27 August 1987 to 27 February 1988.

360 000 mE

380 000 mE

Spring Ck

68 40 000m N

6840 000mN

40

Pike

LickHole Ck

STANTHORPE
14 km

TEXAS ROAD

STANTHORPE

Pike Creek

68 20 000mN

6820 000 mN

Area Relinquished

360 000 mE

TN

5 0 5 10 Km.

FREEPORT

FREEPORT OF AUSTRALIA , INCORPORATED

ATP 4080 M 'PIKEDALE'

LOCATION MAP
RELINQUISHED AREAS

Geologist : H.RYAN	Scale : 1:250 000	Map Ref. : SH 56-2
Drafting : D.M.Duggan	Date : NOV. 1986	FIGURE : 1

3.0 LOCATION AND TENURE

Authority to Prospect 4080M is centred on Pikedale which lies 34km west of Stanthorpe on the Stanthorpe-Texas Road (Figure 1). Access to the A to P is gained from Stanthorpe via the Stanthorpe-Texas Road which crosses the centre of the A to P from east to west. A number of secondary roads and property tracks provide access within the A to P.

Authority to Prospect 4080M was granted to Freeport McMoRan Australia Limited by the Queensland Department of mines on 27 August 1985 for a period of two years and renewed for an additional two years on 27 August 1987. The granted area was comprised initially of 93 sub-blocks, was reduced to 52 sub-blocks on 27 August 1986 and further reduced to 26 sub-blocks on 27 August 1987. These sub-blocks are designated as follows on Block Identification Map - Series B, Armidale:

Retained Area

Blocks	Sub-blocks
380	z.
452	d,e,j,k.
453	a,f,g,l.
524	f,g,l,m,n,q,r,s,t,w,x,y.
596	c,d,e,j,k.
597	a,f,l.

Second Relinquishment

Blocks	Sub-blocks
380	n,o,s,t,u,y.
381	v.
452	o,p,r,s,v,w,x.
453	b,m.
524	a,b,c,h,z.
596	o,p.
597	a,f,l.

First Relinquishment

Blocks	Sub-blocks
380	x.
451	d,e,j,k,o,p,t,u,y,z.
452	a,b,c,f,g,h,l,m,n,q.
523	e.
524	o,u,v.
596	a,b,f,g,h,l,m,n,q,r,s,v,w,x.
597	q,r.

4.0 EXPLORATION ACTIVITIES

4.1 Introduction

Freeport took out A to P 4080M to explore for polymetallic base and precious metal mineralisation of a style similar to that at Drake and Silver Spur. At Pikedale the known mineralisation of this type occurs within an elongate lense shaped NW trending Permian outlier on Devonian-Carboniferous Texas Beds and is associated with a NW trending structure.

Also, a similar and parallel Permian outlier is mapped to the north of Pikedale at "Alum Rock" and potential was considered to exist for a repetition of Pikedale style mineralisation within this unit.

An initial programme of regional stream geochemistry was carried out over the A to P which identified three anomalous areas. Follow-up stream geochemistry over these anomalies defined two areas, one anomalous in gold and the other in zinc. The anomalies were not considered to be highly significant and follow-up was left, pending results on more prospective areas within the A to P.

Because of the drainage pattern, much of the key areas at Pikedale and Alum Rock could not be adequately tested by stream geochemistry and a programme of mapping and rock chip sampling was undertaken over these areas. On the Pikedale outlier, the work defined two anomalous areas; the Pikedale and Lickholes anomalies. At Alum Rock, mapping and petrology indicated potential for epithermal mineralisation within the sequence but assay results were generally poor.

The Lickholes anomaly is defined by scattered anomalous rock chip geochemistry over a large area.

The Pikedale anomaly was seen to have a strike length of 3.5km over the NW trending structural zone, including the Pikedale workings and mineralisation within the zone was noted along parallel structures. Potential was considered to exist for significant tonnages of ore to have developed within the structural zones or adjacent to the structures as massive replacement deposits in selective stratigraphic horizons. It was considered that the Pikedale anomaly was the most prospective area within the A to P and the exploration effort was concentrated on this area.

Grid controlled soil geochemistry and attendant mapping was carried out over Pikedale and showed the structural zone to be made up of three and possibly four parallel zones of fracturing and brecciation. The soil geochemistry showed the main zone which includes the Pikedale workings to be highly anomalous in base metals and with the anomaly extending well to the south beyond the surface workings. Similar, although slightly less intense anomalies were seen on some but not all of the zones of fracturing and brecciation north of the workings.

Significant anomalous areas were defined by the geochemistry and mapping associated with known mineralisation and a drilling programme was recommended to test the best of these anomalies.

4.2 Drilling

4.2.1 Details of Operations

A drilling programme was carried out over the period 23 October to 7 November 1987. The drilling contractors were Cherlor Air Drillers Pty Ltd using a Warman 750 rig. Fifteen holes were drilled totalling 1016m, and details are tabulated below. Drill Hole locations are shown in Figure 2.

Table 1. Summary of Drilling

Hole Number	Co-ordinates		Azimuth	Dip	Depth(m)	Sampling
PDH-001	10410E	8515N	048°	55°	70	1001-1033
PDH-002	10263E	9110N	228°	50°	100	1034-1081
PDH-003	10244E	9350N	048°	60°	50	1283-1305
PDH-004	10246E	9422N	048°	60°	70	1306-1338
PDH-005	10243E	9500N	048°	60°	66	1339-1369
PDH-006	10230E	96000	048°	60°	70	1370-1402
PDH-007	10208E	9700N	048°	60°	70	1403-1435
PDH-008	9995E	10233N	048°	60°	40	1082-1099
PDH-009	10026E	10224N	048°	60°	40	1100-1017
PDH-010	10054E	10200N	048°	60°	40	1118-1135
PDH-011	10084E	10185N	048°	60°	40	1136-1153
PDH-012	10068E	10900N	048°	55°	90	1154-1196
PDH-013	9886E	11000N	048°	55°	90	1197-1239
PDH-014	10064E	11000N	048°	55°	90	1240-1282
PDH-015	9960E	11322N	077°	55°	90	1436-11478

Holes were drilled open hole to a depth of 4m, PVC casing was cemented in and the remainder of the hole was drilled using Reverse Circulation techniques. Drilling was generally good, but some problems were encountered in the brecciated and broken ground about the old Pikedale workings (PDH003 - 007). Blockages in the rods slowed the drilling rate through these zones. Groundwater was also encountered in each drill hole and this also slowed the drilling.

Sampling was continuous over 2m intervals and the samples were split on site to a representative 6kgs. A total of 478 samples were collected and these were despatched to Australian Laboratory Services, Brisbane for analysis. The samples were assayed for Au by 50g Fire Assay / AAS and analysed for Ag, Cu, Pb, Zn & As by ICP.

A chip record of the holes was also kept and is stored at Freeport's Brisbane core shed.

4.2.2 Results of the Drilling

Drill Hole summaries, drill logs and assay results are presented at Appendix I.

The typical rock type encountered in the drilling was a sediment of clay to silt size with interbeds of fine lithic arenite and less common conglomerate. Mineralisation was predominantly pyrite, generally very fine, as disseminations and stringers. Other sulphides included chalcopyrite, sphalerite and galena associated with quartz and calcite in breccia zones. Although most holes encountered anomalous geochemistry, the only significant intersections were in holes PDH003 - 006, in the vicinity of the old Pikedale workings.

Assay results reflected the mineralisation noted in the logs and the better intersections are tabulated below. No anomalous gold was detected.

Hole Number	DRILLING (m) From	To	Thick.	ASSAYS (ppm) Cu	Pb	Zn	Ag
PDH002	30	52	22	176	508	0.20%	7
incl.	32	34	2	1400	3950	1.40%	34
PDH003	20	48	28	5662	1092	1.73%	37
incl.	20	40	20	7887	1463	2.40%	50
PDH004	18	54	36	291	453	0.36%	6
incl.	26	36	10	865	1336	1.00%	17
PDH005	22	42	20	644	1094	0.91%	19
PDH006	4	52	48	219	581	0.60%	5
1ncl.	18	30	12	678	1328	2.08%	18
PDH007	26	32	6	622	1580	1.43%	18

4.2.3 Discussion of Results

The drilling tested all of the significant geochemical anomalies associated with structures within the Pikedale area. The results indicate that in each case the surface geochemical anomalies were related to breccia hosted quartz carbonate sulphide mineralisation which was generally very low grade. The only significant mmineralisation was encountered over the line of old workings at Pikedale but the potential of this zone does not satisfy the economic criteria established by Freeport for this type of deposit.

6.0 RECOMMENDATIONS

Recent exploration was concentrated on the Pikedake area as being the most prospective within the A to P. Drilling during the current six-monthly period was targeted to test a number of structural zones with associated anomalous soil geochemistry, similar to and including the line of old workings at Pikedale. The results indicated widespread very low level mineralisation, with the only significant results from the Pikedale workings. Evaluation of these results indicates that this zone does not have the grade or tonnage potential to satisfy the economic criteria established by Freeport for a deposit of this type.

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