SUMMARY

A program of exploration was undertaken to investigate the potential for Mt Isa styled copper mineralisation and Sedex styled mineralisation in the Dajarra area. An airborne EM survey was completed over the entire joint venture area and identified a number of significant conductors within prospective Mt Isa Group sediments and Eastern Creek Volcanics adjacent to the Wonomo and Mount Annable Faults. Several conductors were selected for ground EM surveying and geochemical soil sampling. Assessment of the results has commenced. EPMs 7650, 7649 & 10128 1 September 1996

1. INTRODUCTION

BHP Minerals Ltd has entered into a joint venture with Aberfoyle Resources Ltd covering EPMs 7650, 7649 and 10128 to explore for Mt Isa-styled Cu and Sedex Pb/Zn styled mineralisation. The tenements are located between 30 to 110km south of Mount Isa and are accessible via the Diamantina Development road (Figure 1). This report documents the exploration activities undertaken by BHP Minerals Ltd since the inception of the joint venture on 3 July 1995. This work consists of an airborne EM survey; processing and interpretation of EM data; ground inspection of selected anomalies; moving loop EM surveying and geochemical soil sampling on selected grids.

2. TENEMENT INFORMATION

EPMs 7650 and 7649 were granted to Aberfoyle Resources Ltd on 13 February 1991 and 15 February 1991 respectively. EPM 10128 was granted to Aberfoyle Resources Ltd on 24 June 1994.

3. PREVIOUS EXPLORATION

Past exploration activities undertaken within the area of the tenement have been summarised in Appendix A. Prior to the inception of the joint venture, Aberfoyle Resources Ltd completed the following work: - a compilation of all previous geochemical data - Flying of 75Hz 1ms GEOTEM airborne EM survey - ground based EM follow-up of two anomalies identified from the GEOTEM survey - ground based EM follow-up of a 3750nT magnetic anomaly - drilling of a ground EM defined GEOTEM anomaly - two east-west reconnaissance gravity traverses Drilling by Aberfoyle Resources Ltd failed to intersect any significant mineralisation.

4. EXPLORATION RATIONALE

4.1 Regional Geology EPMs 7650, 7649 and 10128 are underlain by a sequence of Early to Middle Proterozoic sediments and volcanics referred to as the Leichhardt River Fault Trough bounded to the west by the Palaeozoic Georgina Basin and to the east by the Kalkadoon-Leichhardt Block. The Kalkadoon-Leichhardt Block is in faulted contact with the Leichhardt River Fault Trough around Mt Isa and to the north but in the Dajarra area their relationship is not clear. The Georgina Basin is clearly on-lapping the Leichhardt River Fault Trough in the Dajarra area. 138930 139900' 139%30' 140900 MT ISA MT ISA TEMPLETON 1:100,000 SHEET MARY KATHLEEN 2100 GOA CREEK OBAN DUCHESS 10873 ANNABLE Duchess 7650 DAJARRA JV (2) 21%30 CARANDOTTA ARDMORE DAJARRA 10128 DAJARRA JV (3) Dajarra DA.JARRA GEOTEM SURVEY 7649 DAJARRA JV (1) 22900 LAKE KATHERINE LESLIE PEAK BUCKINGHAM DOWNS Scale 1 : 1,000,000 0 10 20 30 40 50 km Cairns Lambert Conformal Conic Projection Standard Parallels 20%40' and 23%20 Townsville o Mt Isa Mackay Rockhampton $ 8 4 1 BRISBANE LOCATION MAP BHP Minerals Ply. Lid. A.C.N. 008 694782 Prepared A Johnstone BHP Exploration - BHP Minerals Centre : Brisbane Drawn : W Mead DAJARRA JOINT VENTURE PROJECT A4-1852 NORTH WEST QUEENSLAND Date : July 1996 LOCATION MAP FIGURE 1 EPMs 7650, 7649 & 10128 2 September 1996 region south of Mt Isa consists of basement and cover sequences two and three (see Figure 2). In this area the Leichhardt River Fault Trough is divided into eastern, central and western zones. This report is only concerned with the central and eastern belts separated by the Wonomo Fault which extends into the Mount Annable Fault to the North. The basement consists of the Sulieman Gneiss west of the Wonomo Fault and the younger Bottle Tree Formation to the east. The Bottle Tree Formation is conformably overlain by the Haslingden group, while the Sulieman Gneiss is overlain by the Kallala Quartzite and the Jayah Creek Metabasalt including the Timothy Creek Sandstone Member. The Jayah Creek Metabasalt is possibly equivalent to the Eastern Creek Volcanics which forms the lower part of the Haslingden Group with the Mount Guide Quartzite. The Haslingden Group and Jayah Creek Metabasalt form Cover sequence 2. Cover sequence 3 consists of the Carters Bore Rhyolite and Mt Isa Group. The Carters Bore Rhyolite is found in the south of the tenement area where it is inferred to be faulted against the Mount Guide Quartzite to the east and overlain disconformably by possible Mt Isa Group stratigraphy to the west. The Mount Isa Group stratigraphy is found in narrow partly fault bounded blocks to the east of the Mount Annable and Wonomo Faults extending south from Mt Isa. Thicker stratigraphic piles are found in the Wavely basin and the Carbine Creek Basin to the south. The Mt Isa formation in this area consists of the Warrina Park Quartzite, Moondarra Siltstone, Breakaway Shale and possibly Native Bee Siltstone in the thicker packages. Unfortunately the Urquhart shale host to the Ag-Pb-Zn and Cu ore bodies at Mt Isa has not been discovered to date. 4.2 Mineralisation Several copper prospects and indications of copper mineralisation are known in the area. Sporadic mining activity has been carried out at Mt Annable and Blue Hills workings which lie in the Wavely Basin, and at the Bald Hills mine west of the Wavely Basin. Copper mineralisation in the Wavely basin is hosted within the Moondarra Siltstone of the Mt Isa Formation; a unit consisting of laminated shales and siltstones, often carbonaceous and graphitic, dolomitic silty sandstone, in places stromatolitic, and quartzites with interbedded argillite and sandstone. Regionally this unit is preferentially weathered and outcrops poorly and is often covered in quartzite scree from the overlying Warrina Park Quartzite. Minor occurrences of copper mineralisation are also reported from the Warrina Park Quartzite usually in the form of turquoise. Although the tenement area has been subject to a number of exploration campaigns in the past, drill testing of copper prospects and anomalies has been sporadic and limited in extent. BHP Tenements Site 5 Site 6 Cainozoic Site 9, 10 Mesozoic Cambrian Sybella Granite Surprise Creek Formation Mt Isa Group Site 16, Haslingden Group Kalkadoon Granite Leichhardt Volcanics Undifferentiated Proterozoic Site 46 X 0 20 km 22900 139930 CR 4 BHP Minerals Pty. Ltd. A.C.N 008 694 782 BHP Prepared : A Johnstone Exploration - BHP Minerals Centre : Brisbane DAJARRA JOINT VENTURE Drawn : W Mead EPM 7649, 7650, 10128 AND 10873 Drawing No.: CDB812 Date July 1996 REGIONAL GEOLOGY FIGURE 2 Revised LOCATION OF PROJECTS EPMs 7650, 7649 & 10128 3 September 1996 The principal exploration target is Mt Isa-styled copper and Sedex Pb/Zn styled mineralisation, the possibility for high grade structurally controlled deposits also exists. The Mt Isa Formation and Eastern Creek Volcanics adjacent to the Wonomo and Annable Faults is the main focus for exploration but the possibility for other locations for mineralisation will not be ignored. It is accepted that while the previous exploration activity succeeded in locating much of the outcropping mineralisation the full potential was far from realised because of the poorer exposure of the host units and the very limited follow-up drilling of detected anomalies. The Moondara Siltstone is a complicated laminated carbonaceous/graphitic siltstone containing zones of dolomitic silty sandstone, sandstone, interbedded argillite, quartzite and stromatolites. The Moondara Siltstone is very graphitic (black) at depth, but at surface leaches to a soft light chalky coloured siltstone. The Eastern Creek Volcanics consists of massive to strongly cleaved basalt lava flows interlayered with sandstones, conglomerates and other sedimentary rocks. Individual basalt flows do not generally exceed 40m in thickness. In some areas siltstones are found in the Eastern Creek Volcanics which are graphic. The Moondarra Siltstone and some sediments in the Eastern creek Volcanics are the only regional conductors in the area. All other sedimentary units in the area have little or no electromagnetic response. The region exhibits a good magnetic contrast between the Eastern Creek Volcanics and other relatively non magnetic stratigraphic units (Figure 3). Mineralisation, however, may have a magnetic response and could also have a gravity response in this area. It is expected that copper mineralisation or sulphides in the Moondara Siltstone and eastern Creek Volcanics would have a higher conductive response than the host, and any mineralisation outside the Moondara Siltstone and Eastern Creek Volcanics would be a clearly defined conductor in a resistive host. 5. WORK COMPLETED BY BHP MINERALS In summary the work undertaken by BHP since the inception of the joint venture has consisted of: - an airborne EM survey utilising the GEOTEM system - processing and interpretation of GEOTEM data ground inspection of 20 GEOTEM anomalies - moving loop EM surveying of 7 GEOTEM anomalies soil sampling on 3 EM grids

6. GEOTEM SURVEY

From 23 August to 15 September 1995 Geoterrex Pty Ltd completed an airborne electromagnetic (GEOTEM) survey and magnetic survey over the Dajarra Joint Venture area to define and evaluate the potential of any conductors within the Moondarra Siltstone or Eastern Creek Volcanics or adjacent to the Mount Annable or Wonomo Faults. EPMs 7650, 7649 & 10128 4 September 1996 gridded data to highlight the strongest GEOTEM responses. The base for all operations was Mt Isa, Queensland The survey was conducted by collecting data along east west lines with a separation of 300m. In total, 4858 line kilometres of GEOTEM electromagnetic and magnetic data was collected during this period. A plan of the survey boundary and location is shown in Figure 1. A base frequency of 25Hz was used for the GEOTEM survey with a 4 ms pulse. Both X and Z component data were collected. The nominal terrain clearance for the plane was 105m and for the towed "bird" receiver 70m. The magnetic data was collected using a stinger magnetometer attached to be plane. Equipment and survey specifications are detailed in Appendix 2. 6.1 GEOTEM Interpretation and Results All the GEOTEM lines were initially processed using TEMPER software to produce conductance and conductivity pseudo depth sections which were then displayed with line data and magnetic profiles. These combined sections defined many excellent conductors. The Dajarra area is known for units of conductive stratigraphy such as the Prd. Most of the GEOTEM responses in the Dajarra survey are associated with the conductive Moondara Siltstone. To better differentiate between the conductive stratigraphy and stronger conductors within it, images of gridded Z & X channel Amplitude data were produced (Figures 3 and 4). The images show areas with the strongest GEOTEM responses in the Moondara Siltstone. These images with the addition of vector geological information, were used to highlight interesting anomalies. Profiles over the anomalies were again examined SO decay curve time constants could be calculated. The most interesting anomalies are listed below in Table 1. In conjunction with GEOTEM, magnetics were collected using a stinger magnetometer. An image of the magnetics can be seen in Figure 5. 6.2 Ground Inspection of GEOTEM Anomalies Ground inspection of the anomalies listed in Table 1 highlighted a number requiring further investigation Of the 18 anomalies examined in the field, seven were chosen to be covered with ground EM. The criteria for further work on each anomaly included the GEOTEM response and shape, stratigraphic position, structural position and other previous work, predominantly geochemistry. Anomalies 005, 009/010, 011/012 and 21/31 were all considered to have potential for further work. Temper profile sections showing the GEOTEM response for the 7 anomalies are shown in Figures 9 to 12.

7. GROUND EM FOLLOW-UP

Solo Geophysics collected SIROTEM ground EM data over anomaly DJ-005 from 23 to 21 October 1995. The surveys consisted of two 2 km lines of moving loop data and eight fixed loop surveys for 15.4km of data. From 6 to 22 November 1995 Geoterrex Pty Ltd collected additional ground electromagnetic EM data using a PROTEM system in the Wavely and North Carbine basins in the Dajarra area. Anomalies DJ-009. DJ-010, DJ-011, DJ-012, DJ-021 and DJ-031 were investigated. A total of 16.2 km of moving loop PROTEM was collected Table 1 - Stage 1 Anomalies from the Dajarra GEOTEM survey Anomaly East North Line to Line Tau Z Tau XC ZC Mag Rank Depth Note Setting/Unit Stage Follow up DJ 001 332657 7660804 4371 4381 1.47 1.27 15 10 no 3 surface may dip slightly to the east, maybe stratigraphy Qtz Arkose/Red Rock 2 Profiles/Setting alt DJ 002 335284 7658714 4281 4311 1.71 1.87 15 8 low 3 surface flat body in Z, dips to east in X DJ 004 336562 7649704 4011 4031 1.6 2.69 10 8 low 3 0-200 X dips to east, Z interesting 400m solution horse shoe anomaly DJ 005 334222 7646205 3911 3901 1.88 2.25 20 20 low 2 50-150 X solution horse shoe anomaly, Z M shaped in Ch18 indicates Pim/Piw/ECVs 1 Ground EM Follow-up vertical completed DJ 006 330079 7682009 3421 3451 2.43 2.94 20 25 low 4 25-50 folded conductor both limbs have same tau DJ 007 326400 7626500 3 Check Profiles/Setting DJ 008 328958 7627207 3261 3271 2.11 2.32 20 slight 3 150-200 X, two conductors have same tau that make up anomaly Z, picking on track 3 Check Profiles/Setting up X, is close to surface, Z shows may dip to east 2 low 7 8 2.25 2.95 3261 7627198 DJ 009 330285 0-100 1 Ground EM Followup Related to DJ 9 dips to west 0-200 2 1.58 3261 DJ 010 331341 7627206 3.15 15 7 low 1 Ground EM Followup DJ 011 328820 7625408 3201 2.25 2.53 30 15 no 2 100 Vertical or sips slightly to the west 1 Ground EM Followup DJ 012 330079 7624181 3163 3182 2.51 3.82 25 40 high 1 180-200 Good coincident mag and cond anomaly south of current grid, Pib 1 Ground EM Followup DJ 014 331944 7624979 3182 3.13 2.85 30 25 slight 2 200 Individual Anomaly but sits in Pib, X may dip slightly to E, DJ 015 330995 7619080 2991 2981 2.55 2.94 30 20 slight 3 350 deeper anomaly may sit on eastern dipping arm of fold? X, 100m! Dyke 3 Check Profiles/Setting DJ 016 335963 7607092 2592 2601 null 1.16 5 3.5 slight 3 200-300 little response on X better Z in fault zone Important to check with MMI DJ 017 333044 7601401 2402 1.2 1.24 10 8 low 3 0-50 High Amp in late channels but plots shallow DJ -019 338295 7588214 1961 1.23 1.75 13 8 high 3 0-50 Ass. with flat toped mag high probably ECV's at surface DJ 020 342689 7587310 1931 1.43 2.16 14 12 no 3 150-200 wide X response, wide Z response 3 Check Profiles/setting Braded chn DJ 021 344095 7585802 1891 3.29 3.12 25 20 slope 1 280-320 Good anomaly 1 EM Followup DJ 022 340665 7582192 1761 1771 1.68 1.56 17 13 low 3 0-60 High amplitude fast decay 3 Check Profiles/Setting DJ 023 345242 7582190 1761 2.54 1.75 9 7 no 3 50-110 wide Z response matches big mag response, stratigraphy 4 Check Profiles/Setting DJ 024 344250 7581000 DJ 025 343750 7579750 DJ 028 340634 7571113 1391 2.04 1.79 7 5 slope 3 80-100 This looks like stratigraphy - better coupling 3 Check Profiles/Setting DJ 029 344022 7572295 1431 null 1.88 7 6 low 4 0-250 Same as 28 but closer to wult(wonomo) DJ 030 350117 7568103 1291 1331 4.31 2.52 20 8 slope 2 200-220 This has an excellent X Tau, vertical body, becomes more tabular to Hematite Qz Gossan 2 Check Profiles/Setting S DJ 031 344790 7585500 1871 1.65 2.05 10 5 low 3 100-150 May be related to 42, M shaped in Z, DJ 032 332929 7643098 3791 3811 1.89 1.28 6 3 high 3 150-200 Not a good response, But correlates with huge mag anomaly, ECV's in Fault DJ 033 332151 7641305 3731 3741 2.23 null 5 4 high 3 100-300 Not a good response in X or Z, probably fault response DJ 034 330990 7638611 3642 3652 2.79 2.94 20 20 slope 3 100-200 Z, decay is Mshaped slower on E peak, solution is also deeper -400m. DJ -035 334192 7598619 3231 3241 null 6.94 3 2 slope 3 280-300 This anomaly has a decay below noise but good decay DJ 036 334705 7620613 3041 null null 1 1 high 5 0-10 ADI gives response but this looks like noise DJ 037 330318 7622677 3111 2.93 3.51 40 30 slight 3 150-180 Same unit as 11 12 and 15, Z M shaped eastern ass. with mag high, DJ 038 340071 7609512 2671 2681 null null 2 1 slight 5 0-400 Surface response DJ 039 334730 7603795 2481 2471 4.45 1.2 15 3.5 slope 3 250-300 the excellent X tau is in noise, but this is in an interesting structural position DJ 040 344753 7600806 2381 3.95 1.59 6 7 low 4 0-30 possible wide surface response, Z shows high amp in last few channels DJ -041 340762 7594487 2171 2.39 1.42 20 10 low 3 200-250 fault related X single peak Z M shaped may dip slightly to east DJ 042 343721 7588759 1981 2071 2.91 2.59 18 4 slope 2 180-220 complex faulting, X & Z both single peak DJ 043 348655 7584903 1851 1.48 1.21 10 8 slope 4 0-50 Interesting surface anomaly alvie Anomaly East North Line to Line X Tau Z Tau XC ZC Mag Rank Depth Note Setting/Unit Stage Follow up DJ 044 338915 7584899 1851 1.47 2 8 7 high 4 50-80 Interesting surface anomaly coincident with mag peak DJ 045 338283 7583694 1811 1.59 1.51 15 8 low 3 10-110 X, shows nice anomaly dipping to E DJ 046 347912 7578287 1631 1661 2.57 2.43 30 13 slope 2 150-210 Better X response, sub-vertical may dip to west DJ 047 343660 7578009 1631 1.83 4.20\* 13 10 no 3 50-100 Z shows excellent decay but this is noise, X real anomaly worth a look DJ 048 335319 7664109 4491 4501 null 2.18 5 2 slight 4 0-100 Looks shallow maybe stratigraphy DJ 049 333949 7653901 4151 4212 null null 2 2 no 5 0-100 High Amp Early Ch no decay-shallou source, Salty Brine type response DJ 050 330881 7632010 3421 2 4.71 20 20 yes 4 220 sits on edge of Pim EPMs 7650, 7649 & 10128 5 September 1996 have been used to refine electromagnetic responses and enable more accurate assessment of each anomaly for drill target selection. Four contractors and two vehicles were used to collect the data during each survey. Production was slowed due to the extreme temperatures +40 deg C, high humidity +80% and thick vegetation The topography in the area around the quartzites is dominated by steep ranges which also slowed progress on some grid lines. Grids were positioned using GPS and pegged every 100m with lines spaced 200m apart. Figure 6 shows the positions of the grids The PROTEM data was collected using 200 by 200m loops. PROTEM readings were made at both the centre of each loop and 50m from the centre of the loop, before loops were moved (Figure 7). Both 6.25 and 25 Hz PROTEM data were collected giving both good shallow and deep ground penetration. The moving loop SIROTEM data was collected using the same survey specifications as for the PROTEM. Gain 1 and 10 data was collected to enable both shallow and deep ground penetration in a similar way to the PROTEM. The fixed loop SIROTEM survey required a static 600m X 300m loop with lines of data collected of the long side of the loop (Figure 8). 7.1 Ground EM Processing and Results The PROTEM and SIROTEM data was delivered to BHP, as AMIRA format .tem files. All lines were first plotted using AVGBHP2 and PLOTBHP5. A representative linear profile for each line is displayed in set of EM figures. It is clear that at most sites the GEOTEM anomalies have been successfully targeted with either the SIROTEM or PROTEM systems. Each line of moving loop data was processed using Imgcond to produce conductance and conductivity pseudo depth sections. The Imgcond sections clearly define all GEOTEM targets. 330000E 340000E 350000E 7660000N 7660000N EPM 10873 7650000N ANNABLE 7650000N ANOMALY DJEM 005 7640000N 7640000N EPM 7650 DAJARRA JV 7630000N ANOMALIES 7630000N DJEM 009 & DJEM 010 ANOMALIES DJEM 011 & DJEM 012 7620000N 7620000N O o 7610000N 7610000N EPM 10128 DAJARRA JV o 7600000N 7600000N 2 7590000N EPM 7649 DAJARRA JV 7590000N ANOMALIES DJEM021 & DJEM 031 7580000N 7580000N 7570000N 7570000N 330000E 340000E 350000E Grid Line er oston S wire Grid L ine 1aom 5Om Grid Line 20m A 84 b contro Ersbane Drawing No- MAeS Nol FGURE 1 Prepares jonnstone WBMP owwoLoone orewn RAM : Date e uniges wn RENNsed Re Moblle reciever positions K EMP Mlvecate PV. U4, AON 008604782 Prepared :A.Johnstone BHP Exploration - BHP Minerale Centre : Brisbane Drawn : C.J.W Drawing No.: A4-1856 Date : July 1996 FIXED LOOP EM FIGURE 8 Revised : EPMs 7650, 7649 & 10128 6 September 1996 GEOTEM : DJ-005 Lines 3901 Easting : 334222E Northing 7646205N X-Tau [ 2.26 Z-Tau : 3.29 Priority 2 SIROTEM Line 8900N (local grid line northing) Easting : 10700E Northing : 8900N Z-Tau : 11.6 (RMS Fit = 99.54%) COMMENTS AND RECOMMENDATIONS The GEOTEM response on line 3901 shows a strong conductor. The anomaly looks to be dipping to the west in the conductivity and conductance pseudo-sections, But the distemper 5 solution seems to indicate that the anomaly may be dipping to the east. The anomaly has a conductance around 20 (S) with a depth of less than 50m at its shallowest point. Tau calculations show the best decay as 2.29 for X component data (Figures 9a and 9b) The anomaly has good geophysical characteristics and sits in an interesting geological position. The amplitude images over this anomaly indicate that the conductor is offset by some structure into two parts. Two lines of ground EM PROTEM were collected over each part of the anomaly to help refine its electromagnetic response. Figure 9e shows Z-amplitude moving loop profile data from line 9500N, and Figure 9d shows the same data for line 8900N. Conductance and conductivity sections (Figures 9f and 9i) from these two lines shows a conductor dipping away to the west. As seen in the profile data the conductor seems to be a classic M shaped anomaly. However at first we were not sure whether two separate conductors were detected by each moving loop line SO fixed loop SIROTEM was collected over each potential conductor defined in the Moving Loop lines. Thus eight loops of data was collected over the 4 potential conductors. The results from the fixed Loop SIROTEM clearly showed only one conductor was present on each line with an offset between the moving loop lines. Modelling of both data sets shows the conductor has a depth of 150m and a dip of 15 degrees to the east. Outcropping geology with a similar dip to the conductor and poor geochemistry, in addition to a shallow modelled depth and marginal time decay has downgraded the potential of this anomaly. The geophysical response is most likely due to un-weathered Moondarra siltstone at depth adjacent to the Mount Annable fault. 333000E 334000E 335000E 336000E EPM 10873 ANNABLE 7648000N 7648000N ANOMALY I DJEM 005 7647200N 7647000N 7647000N 7647000N 7646800N 7646600N 7646400N 7646200N 7646000N 7646000N 7646000N 7645800N 7645600N 7645000N 7645000N 333000E 334000E 335000E 336000E Scale 1 : 25,000 O 500 1000 1500 2000 metres Transverse Mercator Projection. AMG Zone 54. BHP Mnerals Ply. Lit, A.C.N 008 694782 Prepared : BHP Exploration - BHP Minerals Centre: Brisbane Drawn : Drawing No.: A4-9999 Date : Anomaly DJEM 005 Revised : FIGURE 9c DJEM-005, Line 8900N TEM Data, Z Component, Combined Gains 10000 D 7 4eee 10 4e0 L 6 11 X 12 r 0 13 te 0 17 & X 1B a 10250 10500 10750 11000 1125 FIGURE 9d Moving Loop Sirotem Line 8900N DJEM-005 Line 9500N TEM Data, Z Component, Combined Gains 6 40ee0 7 X X 4eee A A X X 10 4ee e 11 U 12 13 4e 14 15 X 16 e 17- 00 10500 11000 11500 FIGURE 9e Moving Loop Sirotem Line 9500N DJ-005 Loop1 Line 9500N TEM Data, Z Component +ee0 400 40 33 32 31 30 29 28 27 26 40 e0 40e6 10500 10600 10700 10800 10900 I 1 FIGURE 91 Fixed Loop Profile Loop 1 Line 9500N DJ-005 Loop 2 Line 9500N TEM Data, Z Component 14 15 16 49e0 17 18 19 20 4ee 21 22 23 24 25 26 28 27 10 29 30 31 32 33 34 35 38 40 400 1006 10500 10600 10700 10800 10900 FIGURE 9m Fixed Loop Profile Loop 2 Line 9500N DJ-005 Loop 3 Line 9500N TEM Data, Z Component 4eee 40e 4e 36 35 34 33 32 31 30 40 29: 28 27 26 25 23 21 20 19 17 4e0 18 15 4eee 10500 10600 10700 10800 10900 FIGURE 9n Fixed Loop Profile Loop 3 Line 9500N DJ-005 Loop 4 Line 9500N TEM Data, Z Component 4000 15 16 100 17 18 19 23 21 10 29 30 31 32 33 34 35 36. e ee 400e 12: 11 10500 10600 10700 10800 10900 1 FIGURE 9o Fixed Loop Profile Loop 4 Line 9500N Line 8900N Loop 5 TEM Data, Z Component 4e00 4ee 40 33 32 31 30 29 28 27 26 25 4e 24 23 22 21 20 19 18 17 15 18 400 12 4e06 10000 10100 10200 10300 10400 10500 I 1 FIGURE 9p Fixed Loop Profile Loop 5 Line 8900N Line 8900N Loop 6 TEM Data, Z Component 4000 4ee 4e 33 32 31 30 29 28 10 27 26 25 24 23 22 21 20- 18 100 19. 17 16 15 14 00e 13: 12 11 10000 10100 10200 10300 10400 10500 E I FIGURE 9q Fixed Loop Profile Loop 6 Line 8900N Line 8900N Loop 7 TEM Data, Z Component 12 13 4000 14 15 16 400 23 22 24 25 26 27 40 28 29 30 31 32 33 34 S tE 40 100 eee 10000 10100 10200 10300 10400 10500 FIGURE 9r Fixed Loop Profile Loop 7 Line 8900N Line 8900N Loop 8 TEM Data, Z Component 4000 40e 16 18 19 20 21 25 23 25 40 24 26 27 28 29 30 31 32 33 38 34 0 4ee 14. 13 400e 12 11 10000 10100 10200 10300 10400 10500 i J FIGURE 9s Fixed Loop Profile Loop 8 Line 8900N EPMs 7650, 7649 & 10128 7 September 1996 GEOTEM : DJ-009 DJ-010 Line : 3261 3261 Easting : 330447E 331505E Northing : 7627198N 7627206N X-Tau : 1.26 1.44 Z-Tau : 1.45 1.28 Priority 2 2 COMMENTS AND RECOMMENDATIONS The GEOTEM response over anomaly 10 indicates a conductor dipping to the east (Figures 10a & 10b). Its conductance is around 20 (S) with a depth between 80m and 250m. Anomaly 9 (Figures 10a & 10b) is not well defined in the conductance or conductivity pseudo-sections but has a high amplitude response in both the X and Z profile data. Decay calculations for both anomalies is around the 1.5 value which is quite low. It was decided that further work on anomalies 9 and 10 should proceed as both anomalies sit in the Wavely basin in Mt Isa formation not far from known mineralisation (Blue Hills Mine). Three lines of ground electromagnetic PROTEM was collected over anomalies 9 and 10 to help refine their electromagnetic response. Figures 10e, 10f & 10g show the Z-amplitude moving loop data for lines 9100N, 9300N and 9500N respectively. The line profiles indicate 2 high amplitude responses in the early channels which are likely to represent the responses seen in the GEOTEM. In the late channels a wide conductor is defined on the western side of the lines, towards the western end of the lines the late channels become negative which may indicate an IP response. All inversions over the western section of each line give incorrect results. Conductance and conductivity inversion sections (Figures 10h and 10m) from these lines show a deep synformal conductor shallowing towards the centre of each line. This conductor seems quite deep, its shallowest point is on line 9300N at station 11300E with a depth of 300m. More analysis of these results is required before any further work on these anomalies is planned. 328000E 329000E 330000E 331000E 332000E 7628000N 7628000N 7627600N 7627400N ANOMALIES 7627200N DJEM 009 & 7627000N 7627000N 7627000N DJEM 010 7626800N 7626600N 7626400N 7626000N 7626000N 7625600N 7625400N N 7625200N A 7625000N 7625000N 7625000N 7624800N Scale 1 : 25,000 ANOMALIES 7624600N 0 500 1000 m DJEM 011 & 7624400N DJEM 012 Transverse Mercator Projection. AMG Zone 54. 7624000N 7624000N 328000E 329000E 330000E 331000E 332000E

9100n62fen 62 12

DAJARRA AREA - WAVERELY BASIN: Line 39100N: Rx=Z: G=5 : F=P6.25 CH- 1-20 1000 100 x- X XE 10 1 E-E 5-eB- B B 0 8s 10300 10500 10700 10900 11100 11300 1 1 1500 1 5 11700 11900 12 100 2300 -1 -10 Easting (m) FIGURE 10e Moving Loop Profile Line 9100N C 184 4 1300n62 DAJARRA AREA - WAVERELY BASIN: Loop 2: Line 39300N Rx=Z: G=5: F=P6.25 CH 1000 A 100 A A A A X 10 X X 1 8 0 10300 10500 10700 10900 1 1100 11300 1 1500 11700 11900 12100 12300 -1 -10 Easting (m) FIGURE 10f Moving Loop Profile Line 9300N Jconbl.t we DAJARRA AREA - WAVERELY BASIN: Line 39500N: Rx=Z: F=P6.25 CH= 1-20 1000 X X 100 10 XX X 1 0 t 10300 10500 10700 10900 11100 11300 11500 11700 11900 12100 1 12300 -1 --10 Easting (m) FIGURE 10g Moving Loop Profile Line 9500N EPMs 7650, 7649 & 10128 8 September 1996 GEOTEM I DJ-011 DJ-012 Line 3201 3163 Easting : 328820E 330040E Northing I 7625408N 7624184N X-Tau : 1.92 1.93 Z-Tau : 2.27 3.74 Priority I 2 2 COMMENTS AND RECOMMENDATIONS GEOTEM line 3201 shows two anomalies both anomalies are present in the Z &X data (Figures 1la and 11b). The western anomaly DJ-011 is wider than anomaly DJ-012 to the east. The GEOTEM line 3163 (figures 11c & 11d), which is further south, shows only anomaly DJ-012. The conductance of anomaly DJ-011 is around 20 (S) with a depth between 50m and 80m. Tau calculations give a better result in the Z component suggestion better coupling on this axis. Anomaly DJ-011 is quite discrete, sitting adjacent to the Wonomo fault. DJ-012 has a conductance of 25 (S) and a good decay in the Z component. Although this anomaly has a long strike length and could be conductive stratigraphy its Z component decay constant (Tau) is excellent. Four lines of ground EM PROTEM were collected over these anomalies to help refine their electromagnetic response. Figure 9e shows a plan image of the lines and grided channel 11 response, Z-amplitude moving loop profiles for lines 9100N, 9500N, 9300N and 9700N are shown in figures 11g to 11j respectively The earlier time/channels from profiles clearly define the two GEOTEM anomalies these responses can also bee seen in the conductance and conductivity sections (Figures 11k and 1lr) calculated from the line data. The geology in this area is quite steep. This can be seen in some of the M shaped anomalies in the late times of the profile data. Unfortunately inversions do not adequately model such responses. Anomaly DJ-011 seems to be wide and shallow in the profiles and the inversions confirm this. Anomaly DJ-012 seems to become M shaped in the late channels on line 9500N indicating a steeper dip. Inversions suggest that the conductor is shallow with a complex structure. An additional steeply dipping anomaly has been discovered to the east of DJ-011. This anomaly can be seen as M shaped responses in the profile data from lines 9300N and 9500N at eastings 11300E and 11250E respectively. This anomaly does not seem to be present in the additional lines to the north and south. I think this new anomaly is an interesting target which may require further investigation. Additional plate modelling and a review of geochemistry is required before any drilling is planned 328000E 329000E 330000E 331000E 332000E 7628000N 7628000N 7627600N 7627400N ANOMALIES 7627200N DJEM 009 & 7627000N 7627000N 7627000N DJEM 010 7626800N 7626600N 7626400N 7626000N 7626000N 7625600N 7625400N N 7625200N A 7625000N 7625000N 7625000N 7624800N 7624600N ANOMALIES Scale 1 : 25,000 0 500 1000 m DJEM 011 & 7624400N DJEM 012 Transverse Mercator Projection. AMG Zone 54. at 7624000N 7624000N 328000E 329000E 330000E 331000E 332000E DAJARRA AREA - WAVERELY BASIN: Line 9100N Rx=Z: F=P6.25 CH= 1-20 1000 A 100 X X 10 a 8 8 B 8 1 1 0 11900 12100 12300 12500 -1 -10 Easting (m) FIGURE 11g Moving Loop Profile Line 9100N DAJARRA AREA - WAVERELY BASIN: Line 9300N: Rx=Z: F-P6.25 CH= 1-20 1000 XxX 100 ask XX 10 X 1 0 10300 0 1 0 0 1 0 2 0 0 1 0 9 0 0 1 1 1 0 0 1 1 3 0 0 1 1 5 0 0 1 1 7 0 0 1 1 9 0 0 12 1 0 01230012500 0 1 2300 2 3 0 0 1 2 5 00 0 -1 -10 Easting (m) FIGURE 11h Moving Loop Profile Line 9300N C - DAJARRA AREA - WAVERELY BASIN : Line 9500N: Rx=Z: F=P6.25 CH= 1-20 1000 XX-E 100 10 e8 1 Eea 0 10250 1 0 4 5 0 1 0 E 5 0 1 0 8 5 0 1 1 0 5 0 1 1 2 5 0 1 1 45 4 5 0 1 1 5 0 1 1 8 5 0 1 1205 2 0 S 0 1 2 2 5 0 1 2 4 150 -1 -- -10 Easting (m) FIGURE 11i Moving Loop Profile Line 9500N CR - DAJARRA AREA - WAVERELY BASIN: Line 9700N: Rx=Z: F=P6.25 CH= 1-20 1000 X X A 100 X 10 1 E 0 10300 10500 10700 10900 11100 11300 11500 11700 11900 -1 -10 Easting (m) FIGURE 11j Moving Loop Profile Line 9700N CR EPMs 7650, 7649 & 10128 9 September 1996 GEOTEM I DJ-021 DJ-031 Line : 1891 1871 Easting : 343500E 344750E Northing 7586105N 7585500N X-Tau : 2.53 1.58 Z-Tau : 2.96 1.87 Priority : 2 2 COMMENTS AND RECOMMENDATIONS The Temper sections from line 1891 (Figures 12a & 12b) show anomaly DJ-021 as a deep conductor with a depth around 200m and a conductance of 20 (S). Anomaly DJ-031 (Figures 12c & 12d) is not as well defined in the conductance or conductivity pseudo-sections but has a high amplitude response in both the X and Z profile data. Decay calculations for anomaly DJ-031 are around 1.7 which is quite low. While the decay constant for anomaly DJ-021 is better at approximately 2.7 It was decided that a grid over DJ-021 should be extended to cover DJ-031 which represents a different style of GEOTEM response. Two lines of ground electromagnetic PROTEM was collected over anomalies DJ-021 and DJ-031 to help refine their electromagnetic response. Figures 12e shows a plan of the two PROTEM lines. Figures 11g & 12h show the Z-amplitude moving loop data for lines 9700N and 9900N respectively. In the early channels the line profiles show two responses similar to those seen in the GEOTEM, but in the late channels the response over anomaly DJ-021 becomes M shaped and wide. In the late channels the response over anomaly DJ-031 becomes negative indicating an IP effect. Because of this IP effect the inversions on data over anomaly DJ-031 are incorrect. The inversions for the each profile over DJ-021 (Figures 121 to 121) indicate a surface conductor and a deeper conductor probably dipping to the west. DJ-021 may be a stratigraphic response, geochemistry and geology are needed to confirm this. The IP effect from DJ-031 is interesting and represents a good target, the wavelength of the response on line profiles indicate the anomaly is fairly shallow. Geochemistry will be needed to confirm anomaly as a target. An additional response in the moving loop data with a lower amplitude early channel response and a good late channel decay is seen at 11200E on both lines. This anomaly represents an excellent target, with a depth around 200m, once again geochemistry is required to screen this target. 344000E 345000E 346000E EPM 7649 DAJARRA JV 7587000N 7587000N ANOMALIES DJEM 021 & DJEM 031 7586000N 7586000N 7585900N 7585700N 7585500N 7585300N 7585100N 7585000N 7585000N 7584900N 7584700N 7584000N 7584000N 344000E 345000E 346000E Scale 1 : 25.000 0 500 1000 1500 2000 metres Transverse Mercator Projection. AMG Zone 54. BHP Minerels Ply ud., A.C.N. 008694782 Prepared : BHP Exploration - BHP MInerals Centre: Brisbane Drawn : Drawing No.: Date : Anomalies DJEM 021 & 031 FIGURE 12e Revised : - Dajarra - Dajarra JV: Line 39700N: Rx=Z: F=P6.25 CH= 1-20 1000 100 X-xX 10 1 56 6 (E 8-8 8 0 10300 10500 10700 10900 11100 11300 11500 11700 1 1900 12 100 12300 -1 Easting (m) FIGURE 12g Moving Loop Profile Line 9700N Dajorra - Dajarra JV: Line 39900N: Rx=Z: F=P6.25 CH= 1-20 1000 100 X-x X Xg X X X-X 10 1 8 0 10300 10500 10700 10900 11100 11300 11500 11700 11900 12100 12300 -1 Easting (m) FIGURE 12h Moving Loop Profile Line 9900N CI EPMs 7650, 7649 & 10128 10 September 1996