PASMINCO EXPLORATION

INTERPRETATION OF DOWN-HOLE ELECTROMAGNETIC DATA ACQUIRED ON TBD2 JUNE 2000

TULLAH EL 22/90

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1. SUMMARY

During June 2000 down-hole electromagnetic data (DHEM) were acquired on diamond drill-hole TBD2. TBD2 was drilled within the Tullah EL 22/90 situated in Western Tasmania. Outer-Rim Exploration Services were commissioned to complete the DHEM survey for Pasminco Exploration who are currently exploring the ground for Rosebery or Hellyer style Zn-Pb-Ag-Au mineralisation.

The DHEM survey was conducted to follow-up a drill-hole targeted at a surface geochemical anomaly. The aim of the survey was to delineate anomalous EM response that could be attributed to massive sulphide mineralisation. It is estimated that the DHEM technique would effectively explore to within 200 metres radius around the drill trace. The region does contain conductive host lithologies (black shales).

DHEM data were acquired in the time-domain using an impulse response (square-wave signal) CRONE PEM system. Three component data were acquired on 18 separate channels (including the "Primary Field" or PP measurement) on a 10 msec timebase. Data were acquired to a depth of 443 m at 10 m station interval. One 430 m x 330 m rectangular transmitter loop was used. The survey took 1 day to complete at a contractor cost of approximately $2100 (including an allocation for mobilisation).

The DHEM data show two main responses. The first is a very weak in-hole response at 300 m coincident with a sulphide intersection. The data do not indicate that this sulphide intersection is part of a larger system and follow-up is not recommended. The second response is observed as a very broad negative in the axial component. This is interpreted to be caused by conductive black shales located approximately 140 m west of the drill collar. This response is also not considered worthy of follow-up.

The usual "electrical geophysical disclaimer" when applying EM for base metals exploration must be pointed out:

"If a sphalerite rich system (high ratio of Zn:Pb) or non-connected sulphides existed on the prospect (eg Hercules) then it is unlikely that the EM survey would have detected it".

Hence the survey is not a sterilisation method.

No drill targets were recommended. No follow-up geophysics has been recommended.

2. INTRODUCTION

The Tullah exploration licence (EL22/90) near the town of Tullah in Western Tasmania (Figure 1) is currently being explored by Pasminco Exploration. The ground is considered to have potential to host Rosebery or Hellyer style Zn-Pb-Ag-Au mineralisation within Cambrian sediments, volcanics and volcaniclastic sediments of the Central Mt Read Volcanic Belt.

This report presents results of a down-hole electromagnetic (DHEM) survey conducted by Outer Rim Exploration Services for Pasminco Exploration during June 2000. The survey was conducted on drill-hole TBD2 which was originally drilled to test a surface geochemical anomaly. The aim of the DHEM survey was to determine whether an anomalous EM response could be detected within a 200 m radius of the drill trace (considered to be the effective exploration limit). Anomalous EM response in the vicinity of a drill-hole targeted at a geochemical anomaly would provide a high priority target for further exploratory drilling.

3. LOCAL GEOLOGY AND PREVIOUS WORK

The Tullah EL comprises lithologies of the Cambrian Mt Read Volcanic Belt. Geology generally strikes N-S and dips steeply to the west. Topography is steep to undulating and vegetation is typically dense.

The main exploration focus is upon the eastern side of the contact between the Farrell Slates (black shales) and the Murchison Volcanics. The Murchison Volcanics typically comprise tuffaceous siltstones/shale, rhyolite epiclastics and rhyolite lavas. These units lie adjacent to the Farrell Slates with the contact defined by the Farrell Fault. The Farrell Fault is postulated as a steep westerly dipping reverse fault. (Derived from Purvis 1995).

In February 2000 a large partial leach geochemical anomaly was detected within the Tullah EL. The anomaly covers an area of 800m by 500m and is defined by elevated Cu, Pb, Zn, As, Ag and Au. The anomaly appears to be associated with dacite to rhyolite lavas and intrusions and shows strong potassic and chloritic alteration coinciding with an intense magnetic low. The western edge of the anomaly is considered to be highly prospective as it appears to be bounded by the Farrell fault or the base of the Farrell Slates (transcript taken directly from the Pasminco Mining Districts February 2000 Monthly Report). This geochemical anomaly was drill tested by TBD2 in May-June 2000 with a 443 m diamond drill-hole. TBD2 intersected units of the Murchison Volcanics with a minor mineralised interval (<0.2m) at 300 m.

Although TBD2 did not intersect conductive host lithologies (eg black shales) it is well understood that relatively conductive black shales (Farrell Slate) exist within 140 m to the west of the drill collar. Physical property measurements taken from the shales (Purvis 1995) indicate that elevated conductivities are observed in mineralised and pyritic parts of the Farrell Slates. It is likely that the bulk effect of these shales would introduce a background EM response not consistent of a homogenous half-space.

4. SURVEY SPECIFICATIONS

The survey was conducted by Outer Rim Exploration Services using the CRONE PEM system.

The survey specifications are tabulated below:

Date of Survey:	June 29 2000
Contractor:	Outer Rim Exploration Services
Survey Type:	DHEM
System:	CRONE PEM
Drill-hole:	TBD2
Station Spacing:	10 m
Components:	Axial (A) and cross-components (U and V)
Station Spacing:	25 m
Time Base:	10 msec
Channels:	18 including the PP field
Ramp Time:	500 μsec
Synchronisation:	Crystal clock
Transmitter Size:	430m x 330m
Current:	11A Amps

The method of data noise and repeatability control was as follows:

- One to three readings were taken at every station. Up to 4096 stacks were recorded particularly on the southern end of each survey line where powerline noise interference was extreme. A high tension and voltage powerline passes within 2000m of the survey site. Previous experience in this region showed a late-time ringing in the response. This survey similarly showed a similar response. This is regarded as some form of noise.

The drill-hole and transmitter loop details are listed below:

DDH TBD2

Collar:
East: 384721m
North: 5373596m
RL: 208m ASL
Depth: 443m
All coordinates in AMG (AGD66 Zone 55)

Hole	Depth	Mag Azi	AMG Azi	Dip	Point
TBD2	0	78	90	-60	1
TBD2	14	76	88	-59	2
TBD2	29	78	90	-56.5	3
TBD2	46	79	91	-55.5	4
TBD2	74	80	92	-54	5
TBD2	89.3	80	92	-53	6
TBD2	98.3	81	93	-52	7
TBD2	119.4	81	93	-51	8
TBD2	134	81	93	-51	9
TBD2	149	81	93	-50	10
TBD2	167	82	94	-49	11
TBD2	182	82	94	-48	12
TBD2	212	83	95	-46	13
TBD2	242	84	96	-43.5	14
TBD2	272	84	96	-40	15
TBD2	308	86	98	-38	16
TBD2	338	84	96	-36	17
TBD2	368	85	97	-35	18
TBD2	398	84.5	96.5	-35	19

Note: Hole is cased to 119m with HQ casing; open from 119m to EOH (443m)

Loop coordinates for the T1 loop are given below:

NW corner: 5373810mN, 384476mE, 185m ASL
NE corner: 5373814mN, 384792mE, 200m ASL
SW Corner: 5373407mN, 384352mE, 185m ASL
SE corner: 5373399mN, 384683mE, 215m ASL

The location of drill trace and the transmitter loop is presented in Figure 2.

The survey took one day to complete with the survey crew based out of the town of Rosebery. Total contractor costs (including mobilisation and lodging) should be approximately $2100.

Time gates utilised by the CRONE PEM system are tabulated below (msec after ramp cessation):

CHANNEL	DELAY	WIDTH
1	0.05625	0.01349
2	0.07425	0.02251
3	0.09900	0.02700
4	0.13280	0.04060
5	0.17790	0.04960
6	0.23635	0.06730
7	0.31500	0.09000
8	0.42075	0.12150
9	0.56020	0.15740
10	0.74470	0.21160
11	0.98975	0.27850
12	1.31350	0.36900
13	1.74550	0.49500
14	2.31950	0.65300
15	3.08000	0.86800
16	4.09000	1.15200
17	5.42900	1.52600

5. MODELLING PARAMETERS

Data were modelled using the Leroi modeling algorithm invoked through the EMVISION EM modelling and visualisation package. The Leroi algorithm allows for modelling a thin plate within a background response. EM modelling does not allow for changing the background response laterally, nor does it allow for topographic effects or varied conductivity within a conductive plate. Modelling results are not presented within this report since the results were only used to confirm background response and to determine the effective radius of exploration to be 200 m.

6. DISCUSSION AND RESULTS

Stacked profiles of the DHEM responses are presented in Figure 3 to Figure 5. Results are discussed below:

All channels in the axial data show a broad negative response that is not characteristic of a homogenous half-space. The data indicate a very large poorly conductive source situated to the west of the drill-hole. Analysis of the DHEM data from a nearby drill-hole SR2 (Purvis 1995) and Leroi modelling strongly suggests that the response is due to the Farrell Slates situated 140 m to the west.

A very narrow and early-time response is detected at a depth of 300 m coincident with a small in-hole intersection of sulphide (sphalerite, pyrrhotite, pyrite). The DHEM data suggest that this intersection does not have a large accompanying off-hole component.

No anomalous EM responses were detected that are considered worthy of further investigation.

It is conceptually possible that a sphalerite rich deposit does exist within the vicinity of the drill-hole that has not been able to be detected by the EM system. This factor must be kept in mind and hence the DHEM survey is not a sterilisation exploration method.

7. CONCLUSIONS & RECOMMENDATIONS

No drill targets have been recommended as a result of interpretation of TBD2 DHEM data. All responses are considered to be too small or related to the Farrell Slates.

No additional geophysical surveys have been recommended.

8. KEYWORDS AND LOCALITY

Keywords

black shale, conductivity, DHEM, electromagnetics, orebody, sulphides, Tullah

Locality

1:100K Sophia 8014

1:250K SK\55-SW Sheet

9. REFERENCES

Pasminco Exploration, 2000, February 2000 Mining Districts Monthly Report, Pasminco Technical Library, Internal Report

Purvis, J. G., 1995, Tullah EL22/90 and Sterling River EL 24/91 Annual Report September 1994 – September 1995, Pasminco Exploration Report No. T95-13

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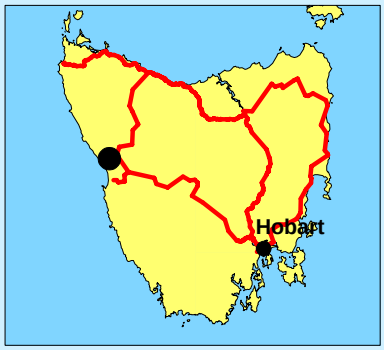
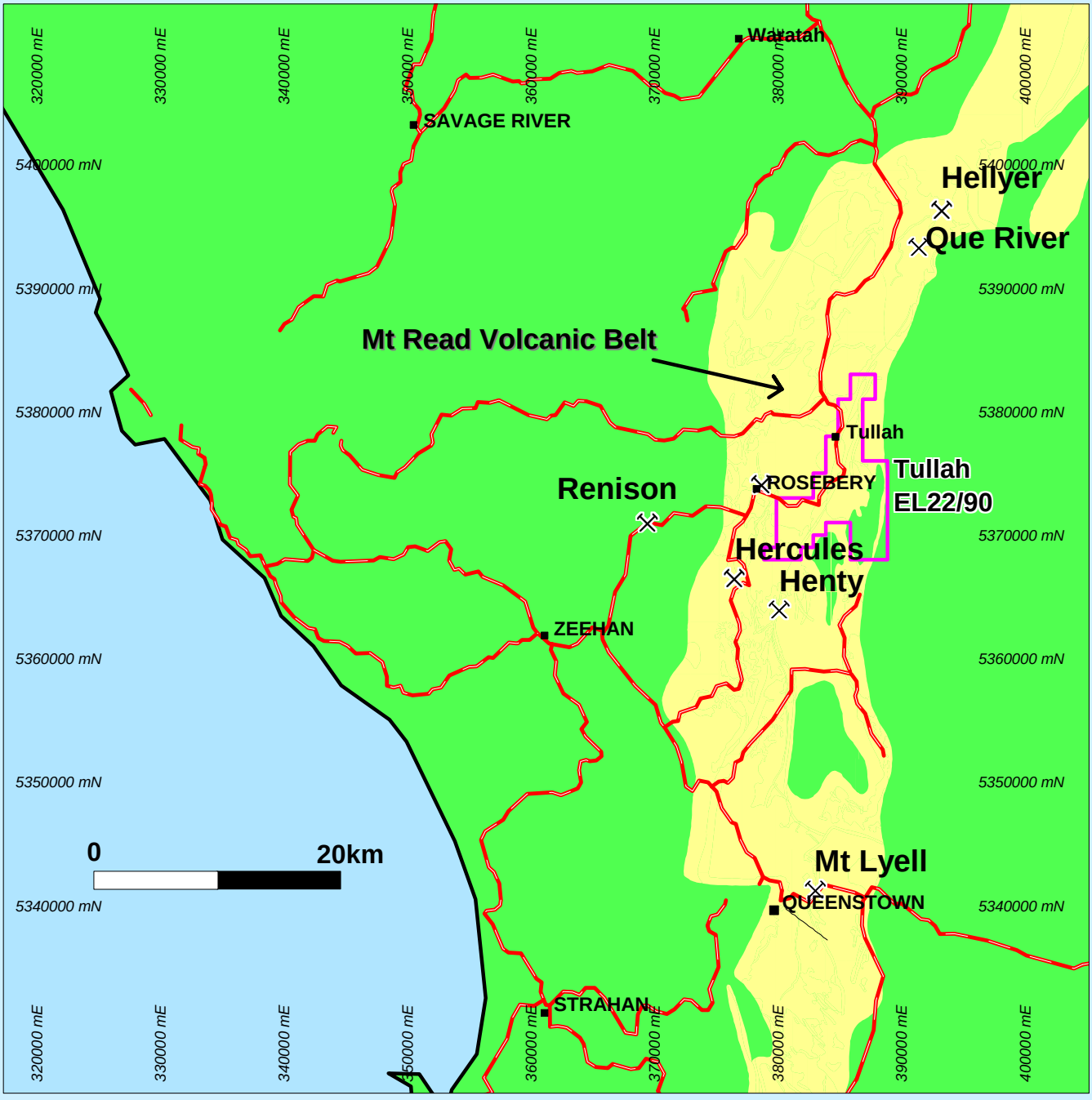
Figure 1.
Tullah EL 22/90
Location Diagram





Scale 1:500,000

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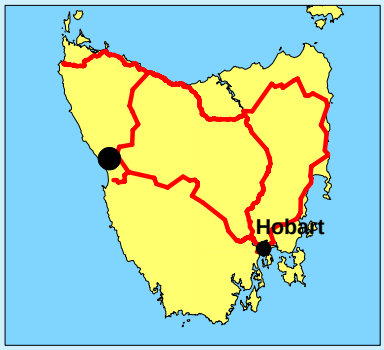

Figure 2.
TBD2 DHEM Survey
Loop T1 Location Diagram

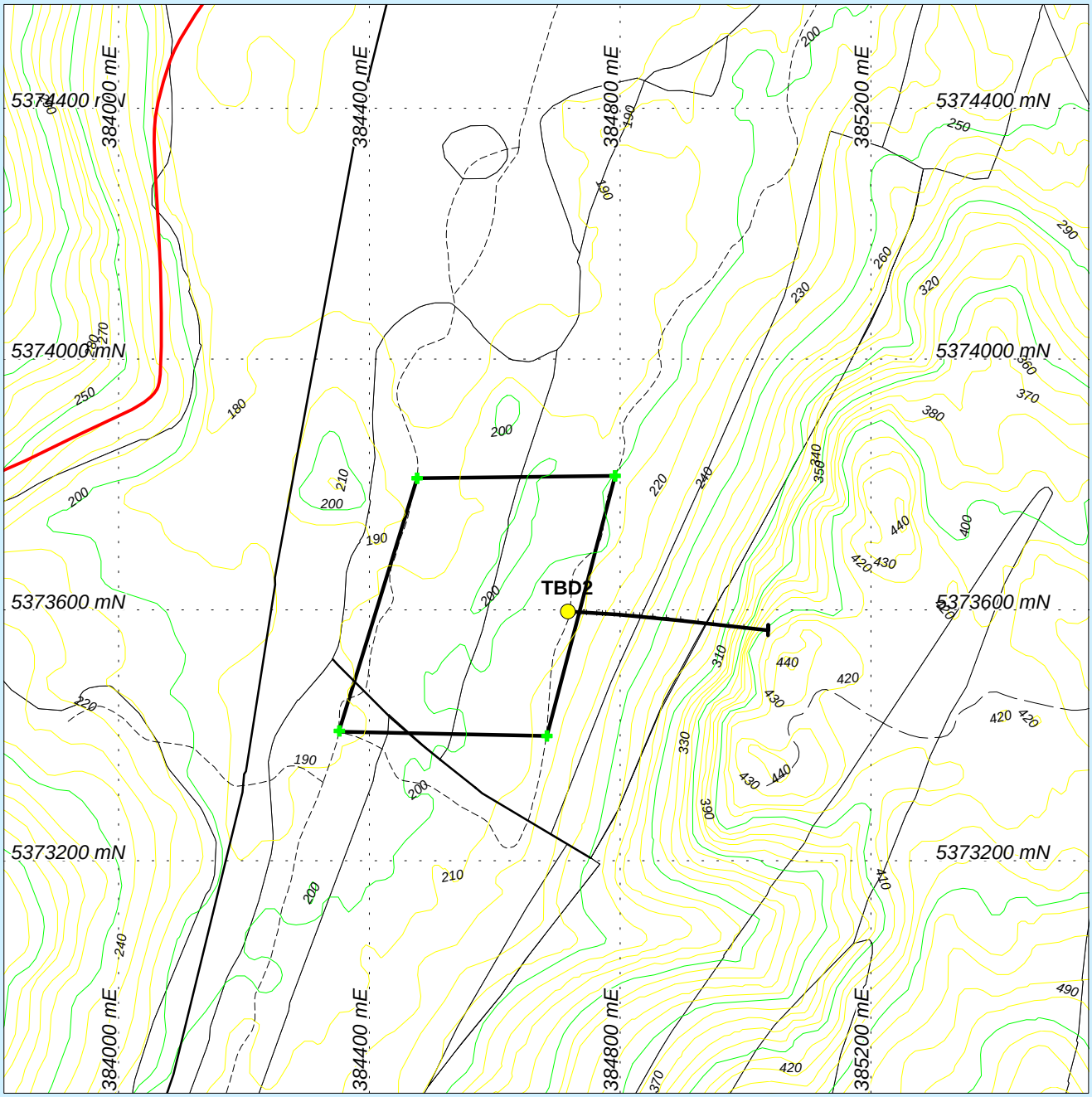

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Figure 3. Line TBD2 TEM Data, A Component nV/Am2

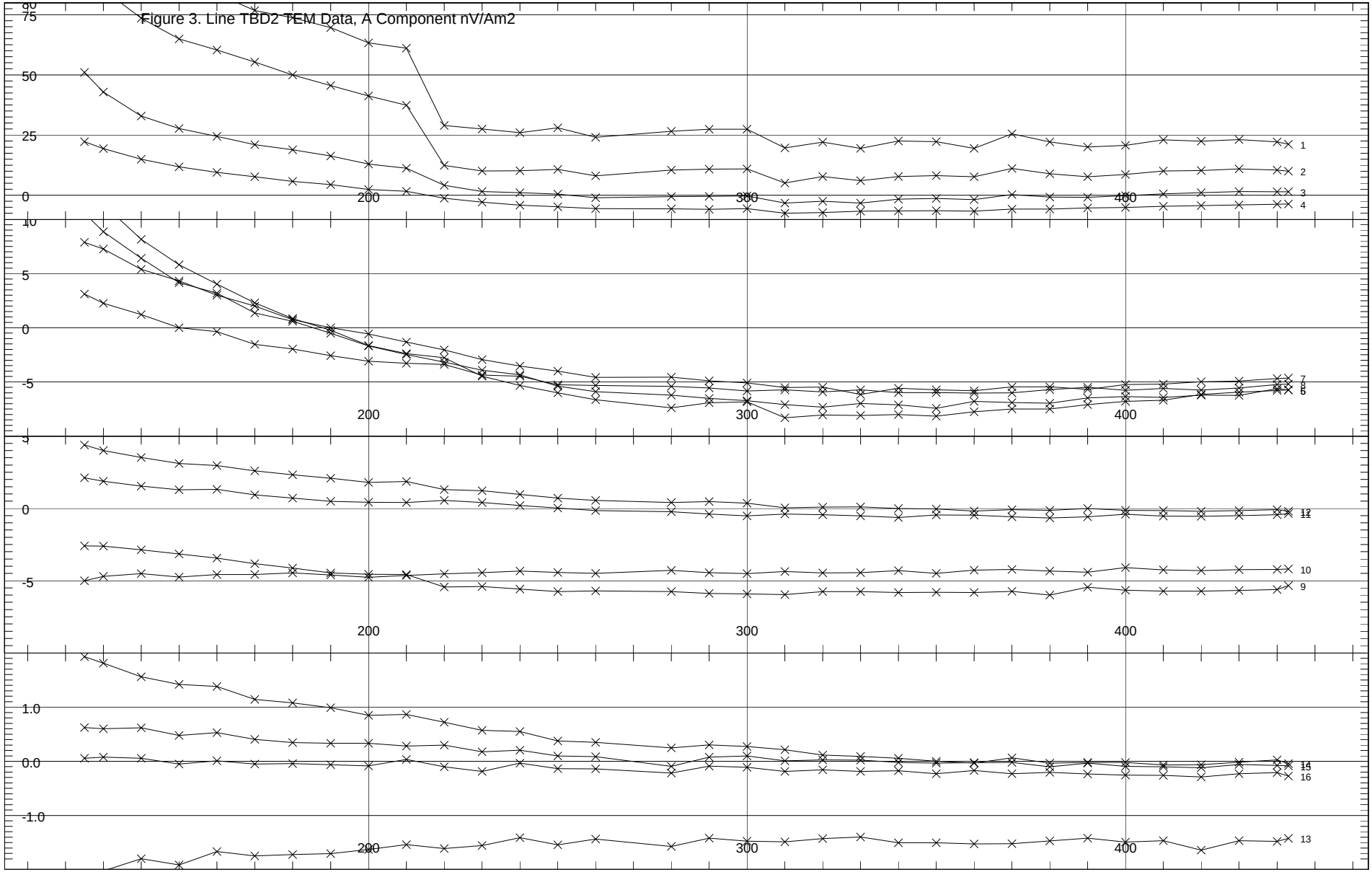

Figure 4. Line TBD2 TEM Data, U Component nV/Am2

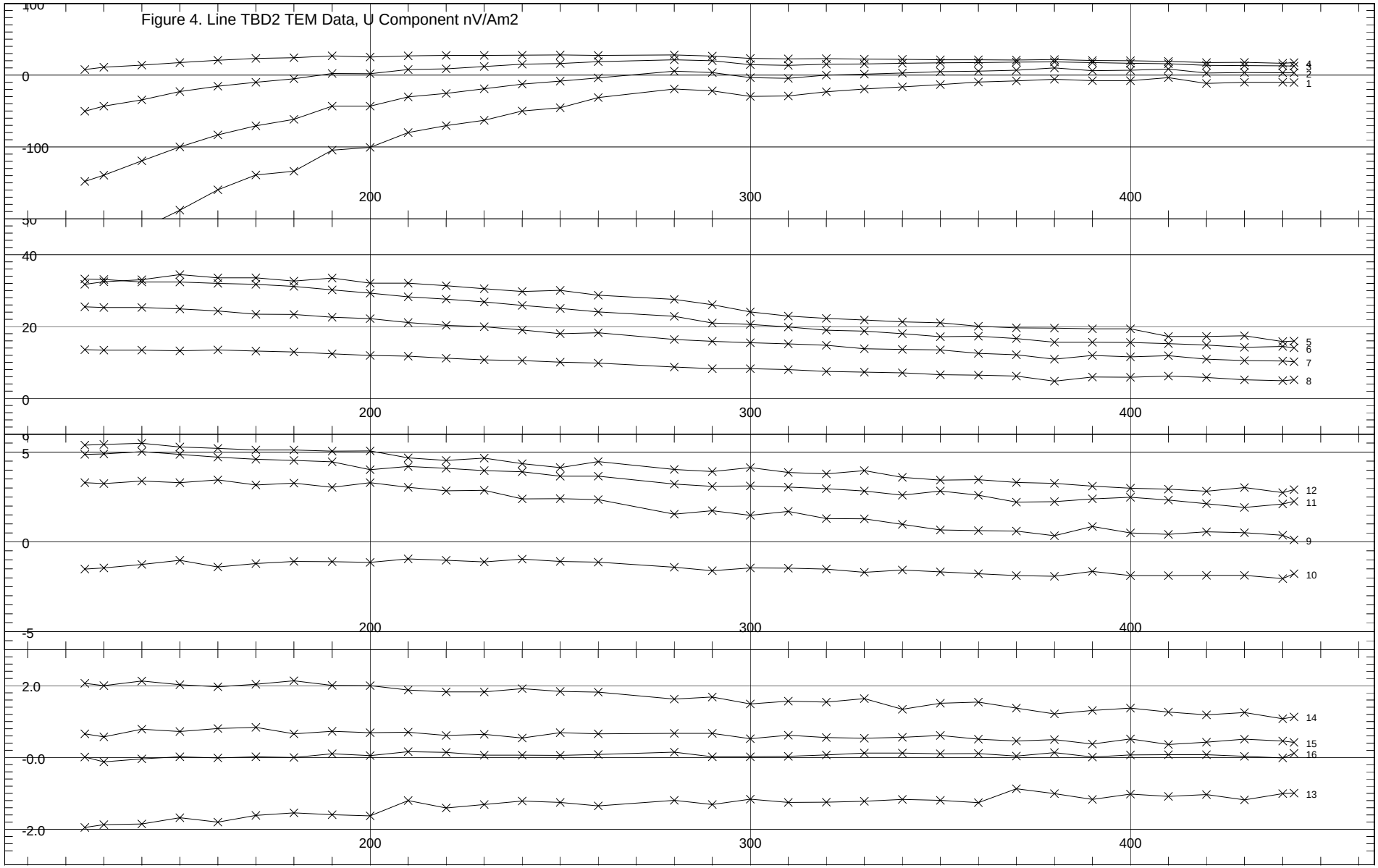

Figure 5. Line TBD2 TEM Data, V Component nV/Am2