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FINAL REPORT
ON PARTS OF RØROS NORDGRUVA CLAIMS 2, 3, 4, 5, 8, 9, 10, 11.
RELINQUISHED IN JANUARY 2014
RØROS NORDGRUVA PROJECT

CENTRAL NORWAY

David Borton
May 2014

Copies to: Mining Directorate, Trondheim
Panoramic Resources Ltd, Perth Office
Drake Resources Ltd, Perth Office
Drake Resources Ltd, Melbourne Office

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Apppendix 1 Raw Data sent as separate folder.

EXECUTIVE SUMMARY

Drake applied for 13 exploration claims in 2010 and all were granted in March 2011. [redacted]

The claims cover extensions of the Hersjo Cu Zn Mine (held by Holtålen Kommune with an NGU resource of 3Mt @ 1.7% Cu and 1.4% Zn in a number of steep dipping lenses which are open at depth), the Kongens Mine area with 1.75Mt at 2.3% Cu and 4% Zn mines and under separate claims held by Intex the Lergruvbakken Mine area with 0.4Mt mined at a grade of 0.74% Cu and 7.8% Zn. With prospects/mines like Fjellsjo, Christianus Sextus and Mugg the area was deemed to be highly prospective

Drake and its joint venture partner saw opportunity to bring all historical data into modern GIS and 3D visualisation software to assess exploration potential as well as to apply modern airborne geophysical techniques such as VTEM to test deeper than previously possible to generate new targets for drilling and hopefully a new orebody.

The joint venture's primary objective is to discover and develop copper deposits in the area.

Drake conducted extensive work in recovering and scanning all exploration reports in the area and then bringing this data into a GIS, which was reviewed together with reports to build a view of the areas potential. As a result of the review Drake recommended a heliborne VTEM and associated magnetic survey of the most prospective area. The survey was flown in mid-2011, and 5 anomalies were followed up with ground EM (and some limited gravity surveying in the retained area) in 2012 to generate targets. The 3 most significant targets were recommended for drilling in 2013 in the retained ground and in August 2013 drilling of Hole NGKSDDH001 was completed.

Two grids were established over the Asvollen and Oyvollen combined VTEM, EM and magnetic anomalies which occurred in or on the flanks of the prospective Fundsjo greenstone belt. Ground EM did not locate anomalies of significance and no further work was recommended. The other anomalies in the relinquished areas occurred in the graphitic phyllites and wackes of the Dalsbygda Group and were likely caused by graphite and so no follow up or field work was conducted in these areas.

Very limited prior exploration (Turam EM surveying) appears to have been conducted on these relinquished areas and Drake could not justify retaining the ground which appears non prospective.

Upon completion of 2 years of holding the claims and with 3 fold increased rentals imminent, the joint venture decided in January 2014 to relinquish those areas deemed to be non-prospective. [redacted]

As a result the areas the subject of this report were relinquished in January 2014.

Title

The Røros Nordgruva claim application 1-13 were submitted in November 2010 to cover the on strike extensions of the Hersjo Mine and the area around the Kongens, Fjellsjo, Lergruvbakkken outcropping massive sulphides. The claims were granted to Drake, on 15/03/2011 as 0046-1/2011 to 0058-1/2011.

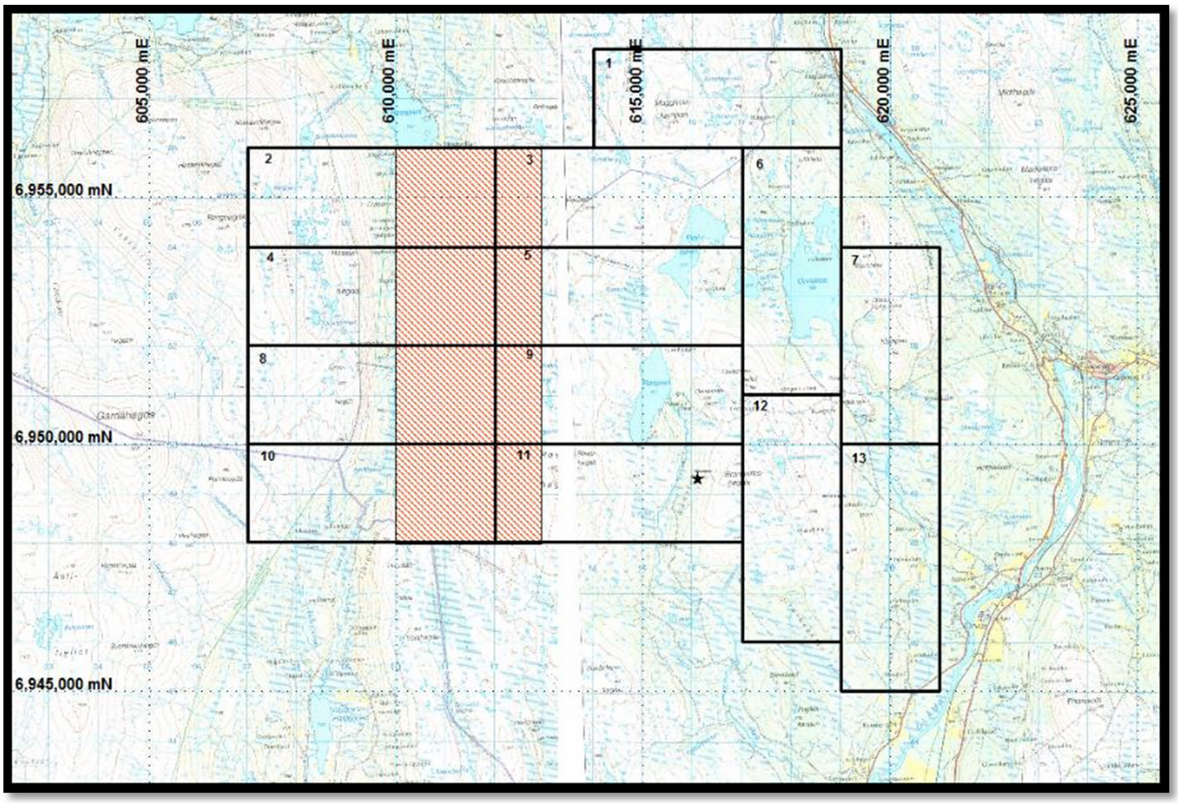

Fig 1. Plan showing Drake claims 1-13 outlined in black, and areas partially relinquished in January 2014 in orange cross hatching. There are small claims over the Hersjo mine and the Lergruvbakken Mine not shown in this image.

[redacted] In January 2014 Drake reduced the area held on behalf of the JV as shown in the above plan. Details of the remaining claims are presented in the following table.

Number	Company	Name	Grant date	Area
0046-1/2011	DRAKE RESOURCES LTD.	RØROS 1	2011.03.15	30000
0055-1/2011	DRAKE RESOURCES LTD.	RØROS 10	2011.03.15	6000000
0056-1/2011	DRAKE RESOURCES LTD.	RØROS 11	2011.03.15	8000000
0057-1/2011	DRAKE RESOURCES LTD.	RØROS 12	2011.03.15	30000
0058-1/2011	DRAKE RESOURCES LTD.	RØROS 13	2011.03.15	30000
0047-1/2011	DRAKE RESOURCES LTD.	RØROS 2	2011.03.15	6000000
0048-1/2011	DRAKE RESOURCES LTD.	RØROS 3	2011.03.15	8000000
0049-1/2011	DRAKE RESOURCES LTD.	RØROS 4	2011.03.15	6000000
0050-1/2011	DRAKE RESOURCES LTD.	RØROS 5	2011.03.15	8000000
0051-1/2011	DRAKE RESOURCES LTD.	RØROS 6	2011.03.15	30000
0052-1/2011	DRAKE RESOURCES LTD.	RØROS 7	2011.03.15	24000
0053-1/2011	DRAKE RESOURCES LTD.	RØROS 8	2011.03.15	6000000
0054-1/2011	DRAKE RESOURCES LTD.	RØROS 9	2011.03.15	8000000

Having reviewed available literature on the project and with rentals increasing in year 3 of the project, Drake recommended to the joint venture that portions of the claims be relinquished as the heliborne VTEM / magnetic survey had been flown and there appeared to be very limited prospectivity as a result of review of the VTEM survey data and other prior exploration data. In the case of the Oyvollen and Asvollen VTEM anomalies ground EM follow up generated little excitement and there appeared to be limited potential.

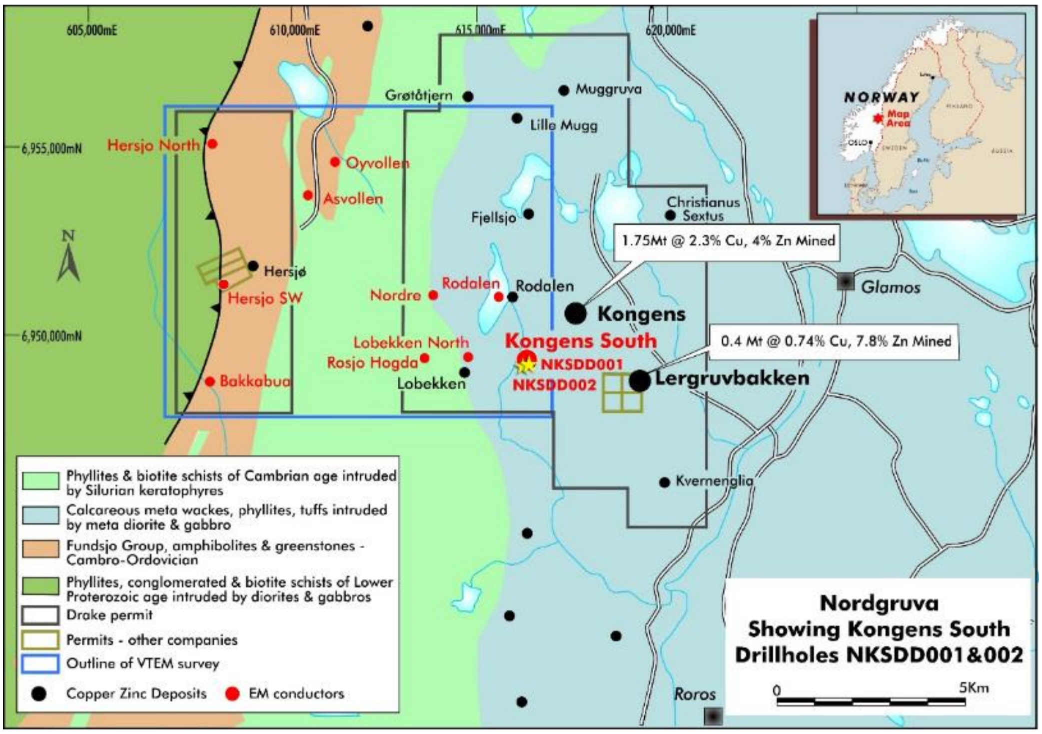

Fig 2. Plan showing outline of Drakes current claims, the VTEM survey, geology, copper zinc deposits and EM conductors identified by the VTEM survey. The plan shows the area relinquished between Hersjo and Kongens and the Asvollen and Oyvollen anomalies that were followed up within the relinquished area the subject of this report.

Location

The Kongens Mine and the claim applications covering it, are located approximately 12kms north west of the regional centre of Røros and 150 kms south east of the city of Trondheim in Central Western Norway. Fig 2. The claims are located within the Røros Kommune.

Objectives

The Drake / Panoramic Joint Venture has as its primary objective the discovery and development of copper deposits.

The JV initially was interested in the potential of the Hersjø mine and its strike extensions and the possibility of further resources around Fjellsjø.
The JV decided that following a compilation of all data and the development of a GIS, the exploration strategy would be the flying of a heliborne VTEM survey with anomalies to be followed up by ground EM/geophysics and then drilling.

Work Conducted

During the first two years of the project Drake, on behalf of the joint venture, has had all prior exploration and mining reports at the NGU and Mining Directorate and a number of plans, scanned to pdf at considerable expense, for compilation into a GIS reference and review. NGU geophysics such as magnetics and Hummingbird EM were also acquired and brought into the GIS with topo-cadastral data. Prior ground geophysical surveys and geological maps were registered and brought into the GIS. All available exploration drill hole data was digitised and assay, and where available survey data, was brought in.

In 2012 Drake flew a heliborne VTEM survey the outline of which is shown in Fig 2. The survey was initially intended to cover the Fundsjo group which hosts the Hersjø Cu Zn deposit shown in brown on Fig2, however it was considered important to see how much more effective the VTEM system was if at all, than the Hummingbird System used by the NGU in flying of the Røros, Killingdal area in 1999 for the Noranda/ Intex Joint Venture. It was eventually agreed to fly over the Kongens, and Fjellsjo deposits where a comparison could be made.
The areas of primary importance were therefore the Fundsjo group rocks (brown in Fig 2) hosting Hersjø and the calcareous wackes and phyllites (light blue grey in Fig 2) intruded by gabbro and dolerites that hosted the Kongens and Fjellso deposits. The former were complicated by the National Park and exploration restrictions there.
Intermediate between these two rock types were a belt of graphitic phyllites and biotite schists (light green in Fig 2) intruded by keratophyres in which no known mineralisation occurred.

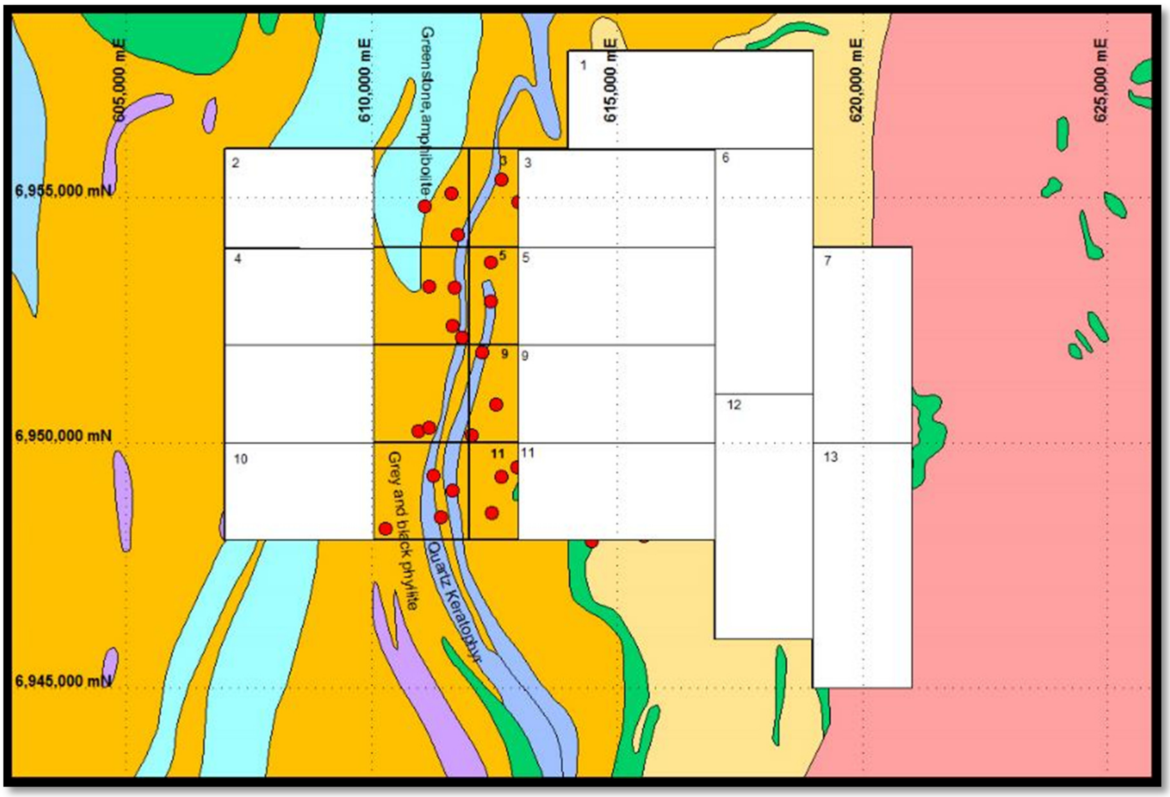

Fig 3. Plan showing the retained areas in white and the plot of all EM conductors (red dots) over geology in the areas relinquished

Newexco Services were contracted to process, model and interpret the VTEM data and to recommend follow up.

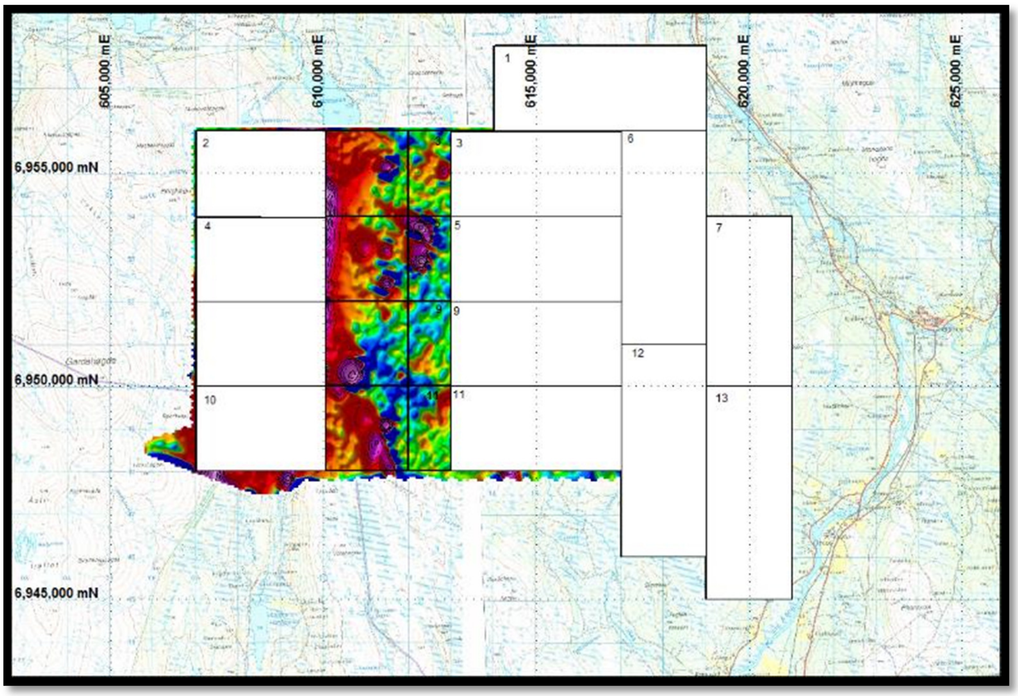

Fig 4. Plan showing VTEM B field Channel 28 image for the relinquished area.

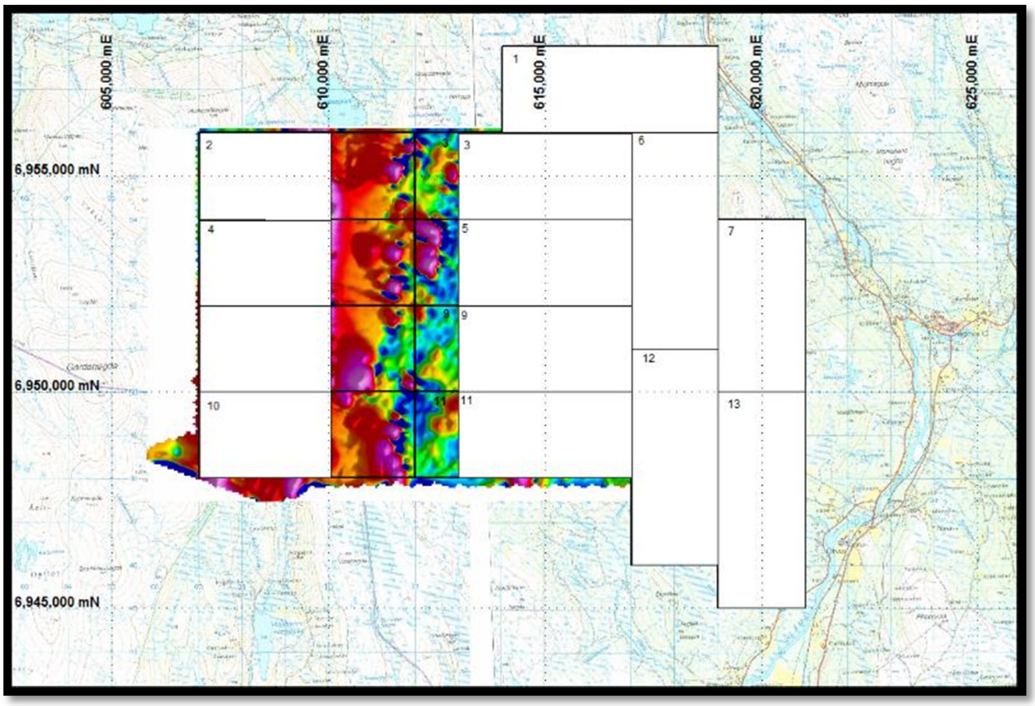

Fig 5. Plan showing B Field Channel 20 image for the relinquished area.

It is clear from the above images that there are significant conductors within the relinquished area summarised as red dots in Fig 3. Most of them are believed to be associated with graphitic conductors in the host rock and were neither field checked or followed up.

There were two anomalies however that appeared prospective which were located in or very close to the Fundsjo Group greenstones. Because they could not be modelled from the VTEM data two ground EM surveys were contracted to define them better and to model targets for drilling if the conductors warranted. Both anomalies had associated magnetic anomalies evident in Figures 6 and 7. The underlying Fig 8 shows the outlines of the ground EM surveys conducted as grey lined rectangles and squares. The Asvollen and Oyvollen anomalies and grids are shown. The other anomalies fall in ground retained and are not discussed.

Asvollen sits on a linear feature that has been mapped as a graphitic shear but where there was a magnetic anomaly. Oyvollen looked more interesting as it was a more isolated EM conductor and magnetic anomaly.

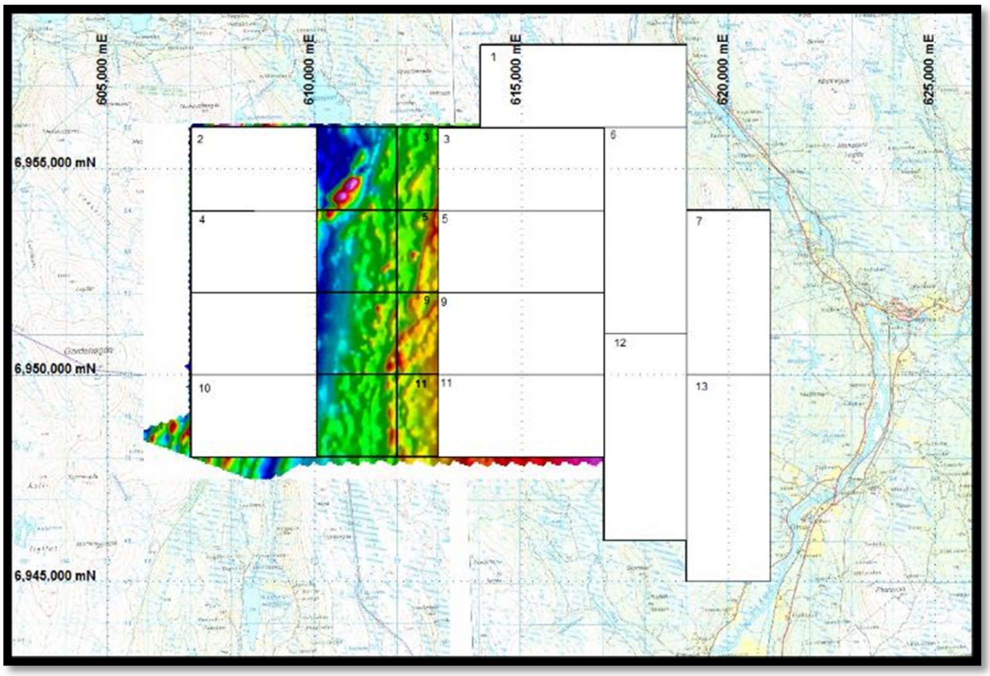

Fig 6.Plan showing the VTEM total magnetic intensity reduced to pole (TMIRTP)

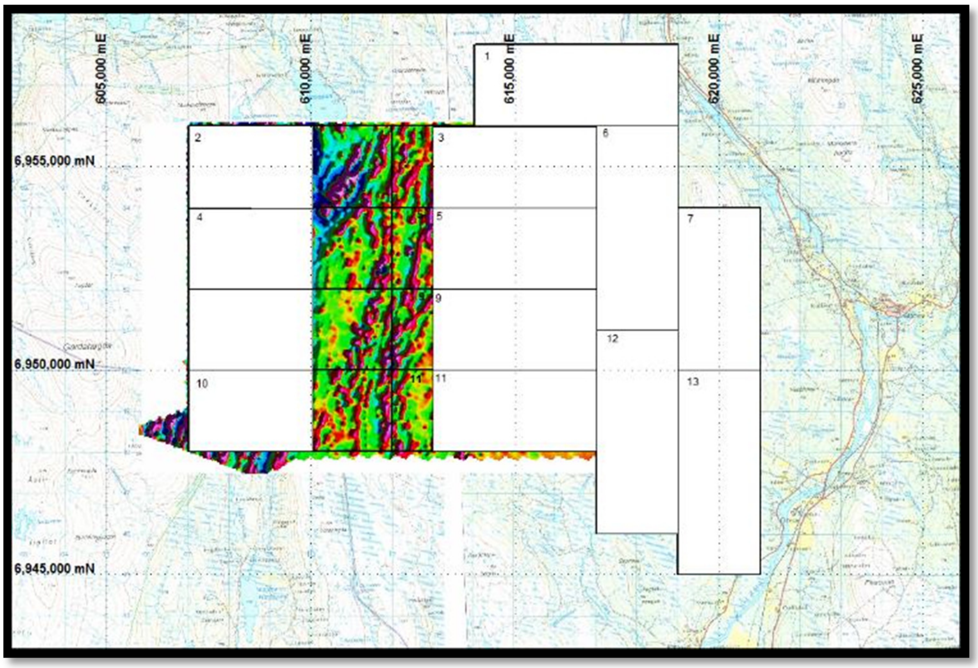

Fig 7. Plan showing the magnetic 1st vertical derivative reduced to pole (1vdrtp)

Suomen Malmi Oy were contracted to follow up those significant anomalies that could not be directly drill targeted from the VTEM data and where more detailed ground data was required for modelling conductors and drill targets.

Because of the presence of graphitic phyllites and wackes in this central portion of the claims and the lack of known mineralisation the area was lowest on the priority list of anomalies to be followed up and when budget pressures and increased rentals became due, resulted in the decision to relinquish.

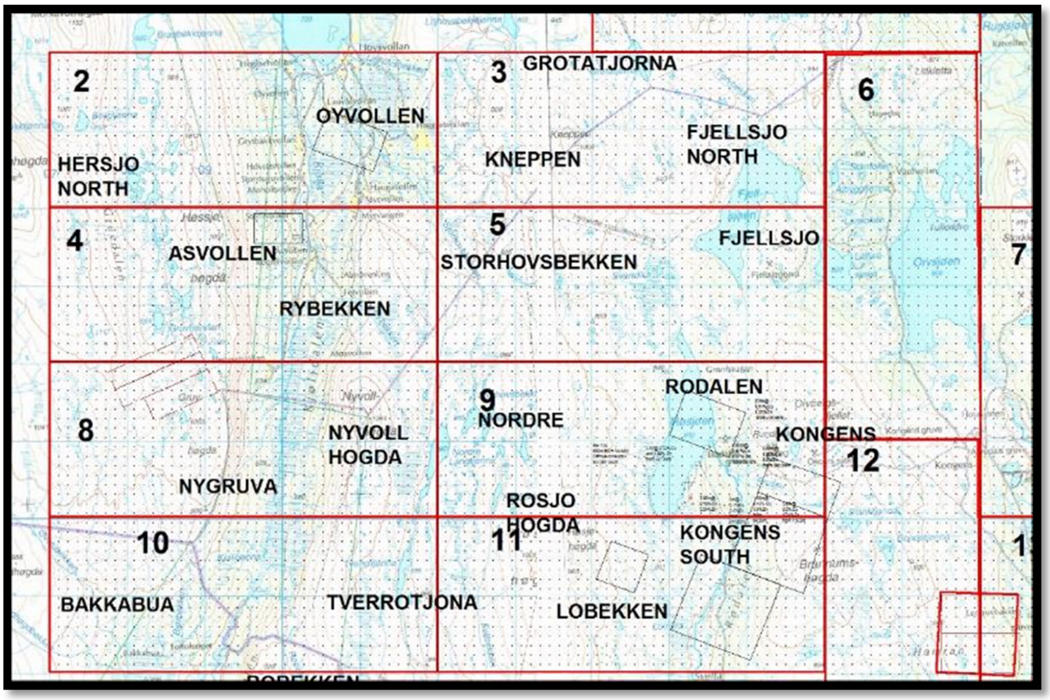

Fig 8. Plan showing the location of the Asvollen and Oyvollen grids on a topocadastral image.

The follow up program on these two anomalies is described in detail in extracts from the Newexco geophysicists report relating to these anomalies which follows.

The anomalies did not rank against other anomalies located in the areas retained and so the ground was relinquished without field inspection or drilling.

In Jan 2014 Drake relinquished the areas the subject of this report.

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HERSJØ PROJECT
An Interpretation of the
Fixed-Loop Electromagnetic Surveys
May 2012
REPORT NO: 596
FOR: Drake Resources Pty Ltd
AUTHOR: Nicholas Ebner
DATE: June 2012
APPROVED:

Distribution List: Drake Resources Pty Ltd Newexco Services Pty Ltd

MAP SHEET: N/A

COMMODITY: Cu, Pb, Zn
PROJECTION: WGS84

1. INTRODUCTION

From March through May 2012, Fixed-Loop Electromagnetic surveys (FLEM) were completed for Drake Resources Pty Ltd over the Hersjø project, Figure 1. The surveys were initiated by Drake Resources; Soumen Malmi OY (SMOY) was contracted to undertake the acquisition. Newexco Services Pty Ltd (Newexco) was commissioned to design, supervise and subsequently process and interpret the FLEM data.

Five areas were identified for surveying based on previous interpretations of the VTEM[1] data (Geotech survey AM1044) acquired in August 2011. The purpose of the follow up work is to confirm the presence of conductive anomalies which may be associated with copper and zinc mineralisation of the paleoproterozoic volcano-sedimentary sequences of central Norway.

Raw data was provided by SMOY in the form of Protem system raw data output.

Interpretation of the results was facilitated by thin-plate modelling, inversion and conductivity - depth imaging utilising the software Maxwell, Grendl and EMax respectively.

This report documents the processing and interpretation of the geophysical survey at Hersjø, including recommendations for drill targeting and planning of further geophysics.

2. PREVIOUS WORK

A comprehensive interpretation of the VTEM surveys at Hersjø, which led to the proposal of the FLEM, is provided in Newexco Report 595[2]. The interpretation of the VTEM data is thoroughly documented in the spreadsheets, also provided in Appendix 3 of this report.

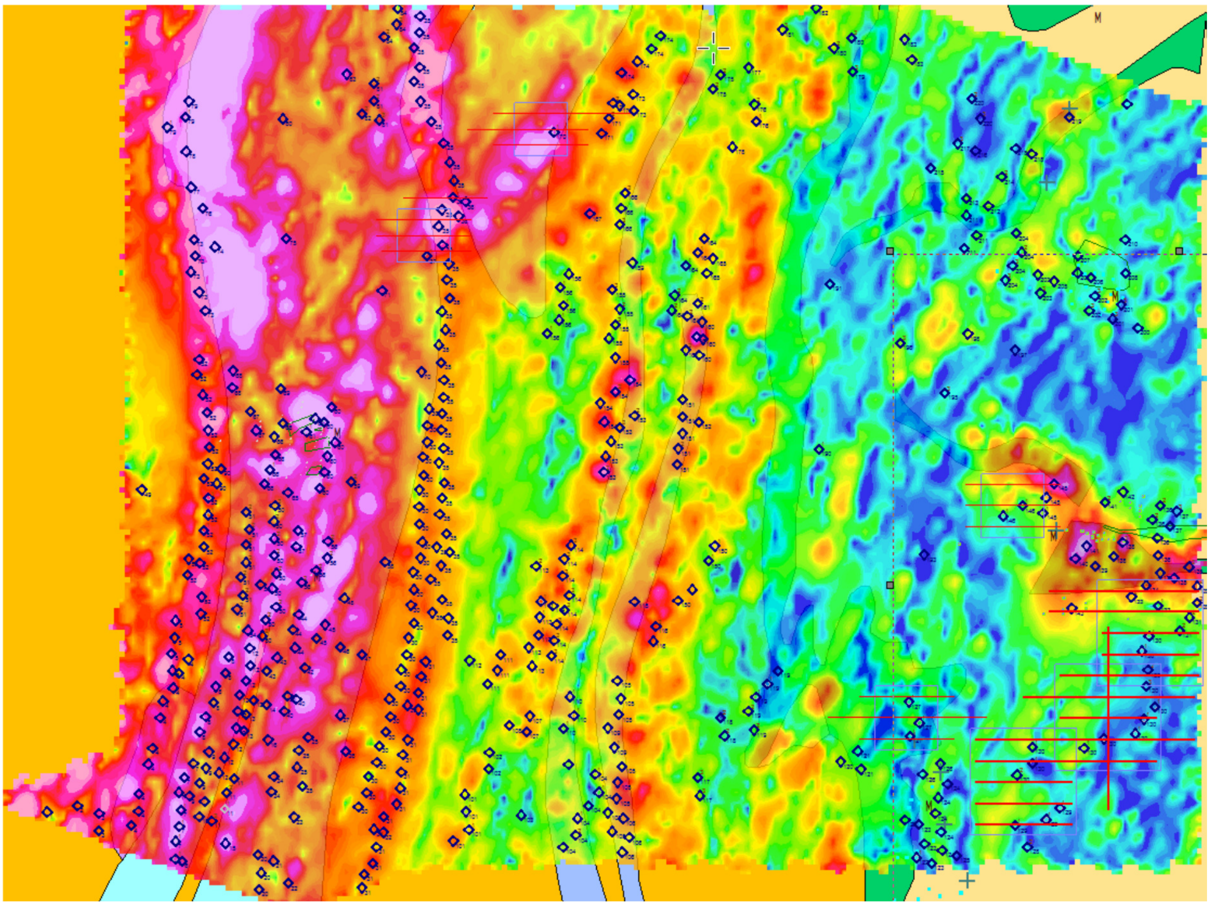

Figure 2: Hersjø VTEM survey, grid of TMI analytical signal and regional geology, overlaid by anomaly picks and FLEM status.

3. SURVEY DETAILS

3.1 Personnel

Supervising Geologist: David Borton
Supervising Geophysicists: Nicholas Ebner, Nigel Hungerford
Contractor: Suomi Malmi OY
Contractor Job #: N/A
Contractor Supervisor / Geophysicist: Antti Kivinen
Crew Chief: Henri
Field Hand #1: Pekka

3.2 Survey Specifications

Configuration: In-Loop, Slingram, Fixed Loop
Line spacing: Varied
Line direction: Varied
Number Turns: 1
Components: Z, X, Y
Base Frequency: 2.5Hz
Typical Current: 20 A
Coordinate System: WGS84, UTM Zone 32 N

3.3 Equipment

Transmitter: Protem
Motor Generator: Honda 7 kVA
Receiver: RVR
Receiver Coil: Protem
Sample Rate:
Window Channel File: Protem Standard
Stacked Data Recorded: Yes
Time series Recorded: No
GPS used: Yes

3.3.1 RECEIVER SYSTEM

Data acquisition was achieved using a Protem Digital Geophysical Receiver built by Geonics. The receiver has the following specifications:
Model: Protem
Dynamic Range 29 bits (175 dB)
Time channels: 20 or 30, preset
Frequency Range: 6 to 800 μs
Integration Time: 0.25 – 120 sec.
Sensor: 3D-3, orthogonal simultaneous operation
Temperature range: -40°C to 50°C

3.3.2 TRANSMITTER

A Protem EM System, TEM57 – MK2 Transmitter was used in conjunction with a TEM67 Power Module, both manufactured by Geonics, to power the loop. The transmitter has the following specifications:
Model: TEM57 – MK2
Input voltage: 18V to 60V DC
Maximum output current: 25 A, 50 A (pp)
Duty cycle: 50%, bipolar rectangular current.
The power module has the following specifications:
Model: TEM67
Output: 18 – 90 VCD continuous control

3.4 Coverage

Table 1 – Part Hersjø Survey Coverage 2012

Line	B_Freq	East_min	East_max	North_min	North_max	Stations	Distance
Survey HJ37							
37100	2.5	609450	610300	6953700	6953700	24	850
37250	2.5	609400	610300	6953850	6953850	25	900
37400	2.5	609400	610300	6954000	6954000	25	900
37600	2.5	609650	610450	6954200	6954200	23	800
Survey HJ170							
170100	2.5	610500	611400	6954700	6954700	17	900
170300	2.5	610500	611400	6954850	6954850	17	900
170500	2.5	610500	611400	6955000	6955000	17	900

4. DATA PRESENTATION AND PROCESSING

Digital data were supplied by SMOY. The recorded response (uV) was reduced according to the following formula and normalised by transmitter current (A).
*dB/dt(nV/Am^2) = V(mV) * 192 / (I*2^n * RxArea/100)*

Field data were inspected for repeatability and consistent decays. Where multiple recordings were made and differed significantly, the outlying record was deleted using Maxwell and other proprietary software.
Windowed survey data are located in Appendix 1. Windows use the standard Protem window widths and are specified in the data header. Raw and stacked data are held by Newexco for three months after the survey completion.
*Selected window times have been contoured and imaged and are displayed within the text. Provided to aid interpretation are MapInfo *.tab files of the coverage and selected time channels in addition to a 3D *.dxf file of all modelled plates for use with mining packages such as Surpac, MapInfo and Micromine: see Appendix 3. Plates must be viewed in conjunction with the interpretation to avoid the misuse of poorly constrained conductors.*
The roving vector receiver measures three orthogonal dB/dt field components where dBz is positive upwards, dBx is along line positive east and dBy is across line positive north.
The subroutine Emax is executed from Maxwell to transform the magnetic decay from pT/A to conductivity versus depth images (CDI). This assumes a 1D layered earth and can provide misleading depths and positions for steeply dipping sources. CDI's are used as an interpretation guide and visual aid for presentation where applicable.

5. INTERPRETATION CRITERIA

Interpretation was carried out with the objective of identifying anomalies that may be sourced by confined bedrock conductors such as massive sulphide accumulations. These anomalies were then modelled to determine the source position and conductivity. Each modelled anomaly source was then classified by the following scheme and where possible on high category anomalies, drill holes were designed to test the position of the modelled source conductor.
Interpretation was done on 1:10,000 scale profile plots produced by Maxwell, Appendix 2.
Modelling was carried out using Maxwell Version 5.3.8.10787.
The primary criteria used for anomaly selection and prioritisation were:
a) Good spatial definition. Coherent response over several stations along a line.
b) Good decay shape. A clear exponential decay evident in the presence of the host response power-law decay.
c) Estimated time constant from decay rate. Calculated over several late time channels.
d) Corroborating spatial response from orthogonal components where recorded e.g. Fluxgate Bx and By.
e) Supporting evidence from neighbouring lines where appropriate line spacing was recorded.
Anomalies are ranked as follows.
Category 1: Highest priority. A well-defined anomaly demonstrating all of the primary criteria. Anomalies ranked as 1 warrant immediate consideration as a drill target.
Category 2: Moderate priority. Displays good TEM characteristics overall but has some detractive quality, possibly 2 of the 3 primary criteria or, geological knowledge such as a proximity to a conductive black shale or several drill holes in the area. Category 2 anomalies may warrant drill testing where supported by encouraging additional information such as geochemical anomalism, or geological favourable position.
Category 3: Low priority. A poorly defined anomaly displaying just one of the three primary criteria. Category 3 anomalies do not warrant drill testing without additional (better quality) EM data to confirm the response, regardless of other encouraging information.
A further two surveys were completed to the west in the Fundsjo Group;

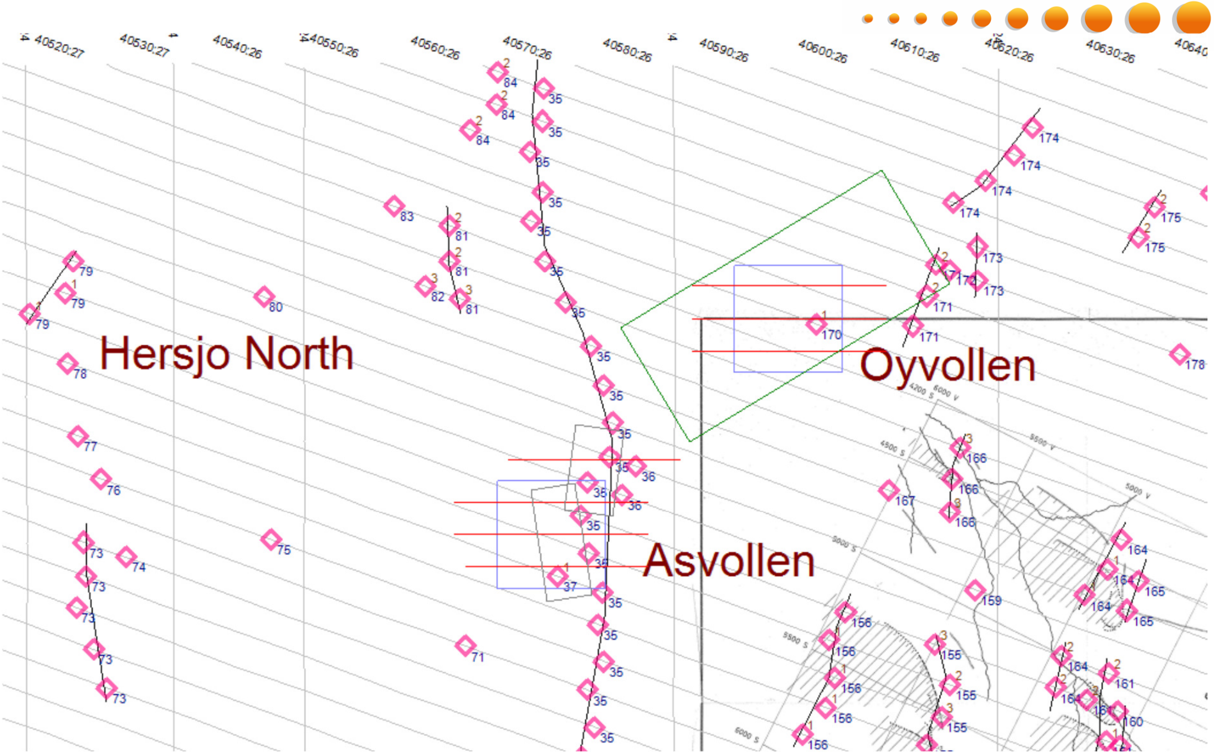

Figure 5: North Fundsjo area VTEM anomalies followed-up with FLEM. VTEM anomalies presented as pink diamonds beside the # and priority below and above right respectively. FLEM loops in blue; coverage in red and Maxwell plates in green. VTEM path is presented in grey.

6. INTERPRETATION
6.1 to 6.3 Confidential and removed.

6.4 HJ37 – ÅSVOLLEN

A very strong regional conductor traverses the survey area in a north-south direction at the approximate boundary between the Fundsjo and Dalbygda Groups; Figure 30. Bisecting the conductor in an oblique northeast direction is an interpreted structure which coincides with the Hersjø mineralisation. It is also at this intersection where an anomalous magnetic feature is visible, as well as a complexity in the electromagnetic response – which otherwise suggests a consistent conductive horizon; Figure 30 and Figure 31. To test the possibility of a second source, offset from the regional conductor and hosted in a strongly magnetic rock similar to Hersjø, a FLEM survey has been undertaken. A single 500x500 m fixed-loop was surveyed with three lines inside the loop and a further line to the north to clarify the local strike of the regional conductor. The response shows two clear anomalous responses on the central line; however, a more complex response on line 400 suggests the presence of a short strike length third horizon that is only weakly visible on line 600. See Appendix 3 for logarithmic profiles of the observed data.

Modelling was able to constrain three isolates plates which roughly match the geometry suggested the VTEM response; Figure 33. The plates are offset east-west and are interpreted to demonstrate the repeated nature of conductive bands within sedimentary sequence; Figure 32. Decay curve analysis reveals that all three horizons exhibit a similar time-constant of approximately 20 ms.

A conclusive decision to drill cannot be reached based on the geophysical response alone. The northern plate, which appears to be an isolated response, shows a similar time-constant and models in parallel with the plates to the east. This plate is also shallow, at 15 m below surface; consequently, a ground truth of the area should be the first step in following-up on this anomaly.

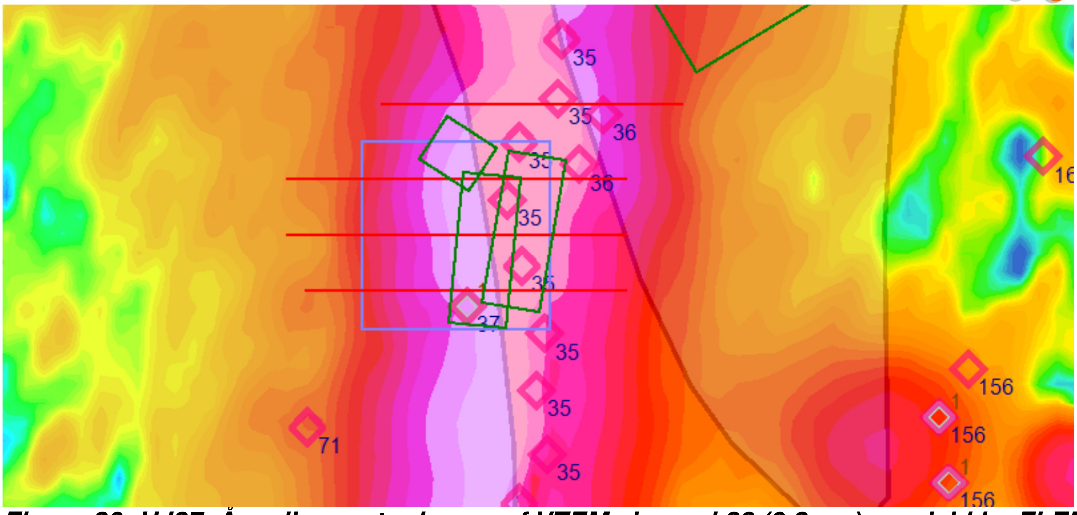

Figure 30: HJ37. Åsvollen raster image of VTEM channel 28 (9.2 ms) overlaid by FLEM status (red lines), modelled plates (green) and VTEM anomaly picks.

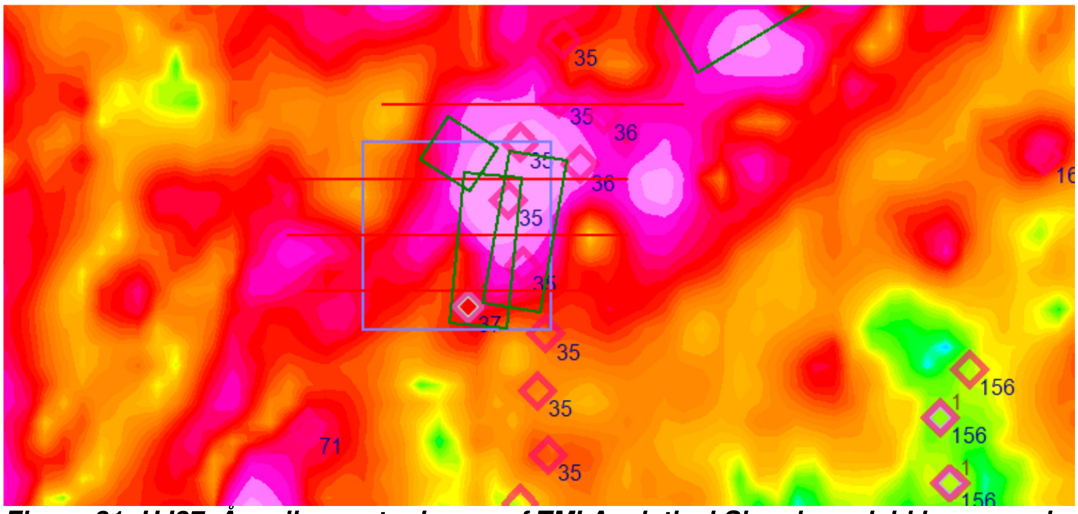

Figure 31: HJ37. Åsvollen raster image of TMI Analytical Signal overlaid by anomaly picks, FLEM status (red lines) and modelled plates (green).

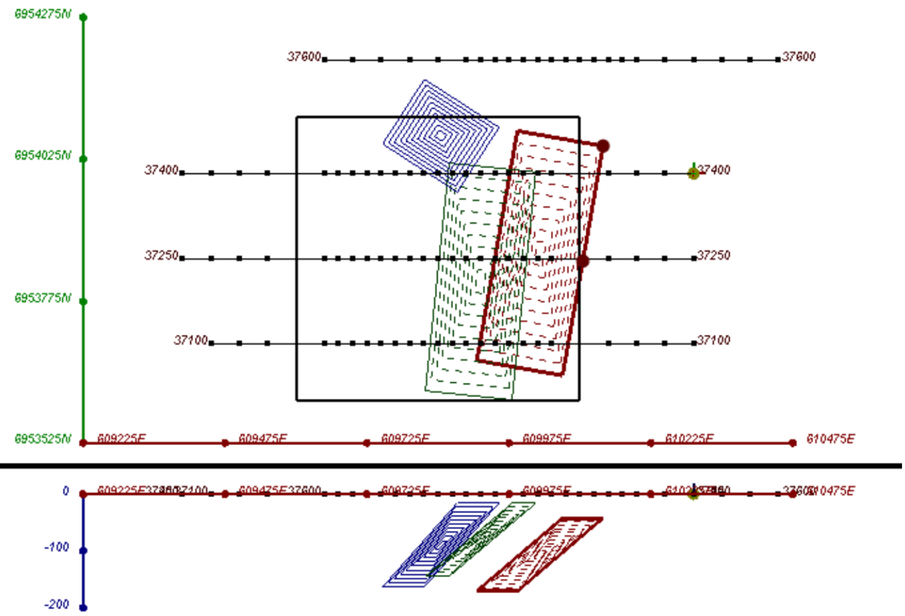

Figure 32: HJ37. Åsvollen FLEM modelled plates indicating the presence of three horizons.

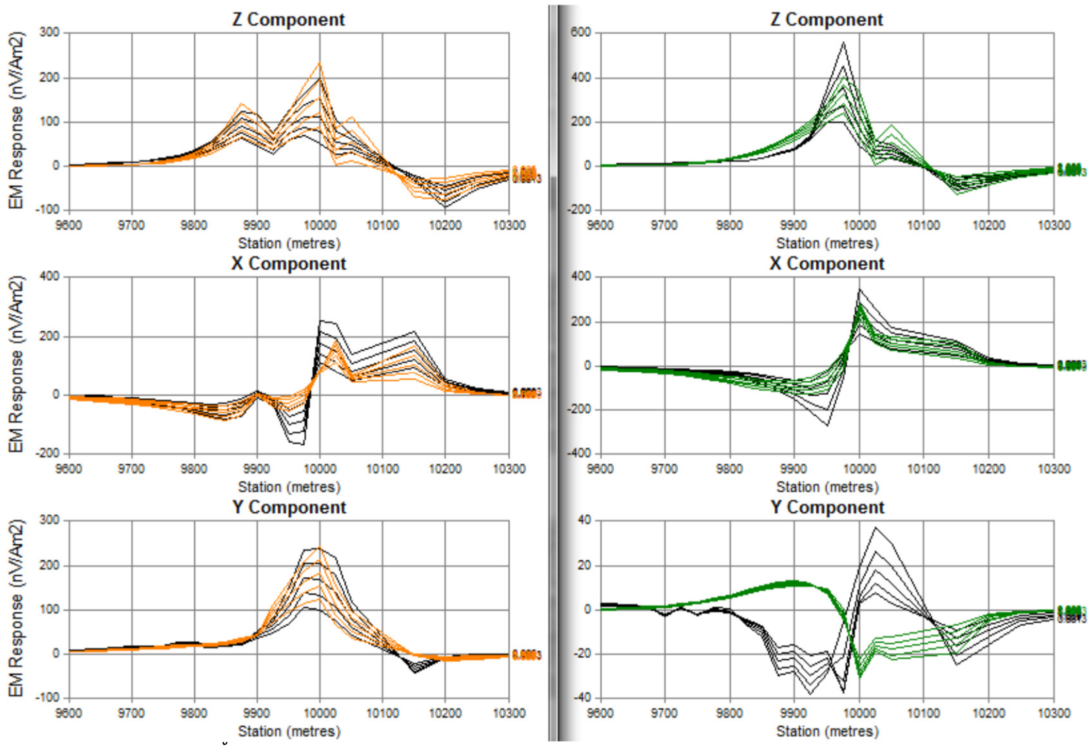

Figure 33: HJ37. Åsvollen lines 250 and 400 FLEM modelling of channels 1 – 5 (0.9 – 2 ms). These profiles correspond to the modelled plates, Figure 32Figure 27. A good fit to line 400 dBy could not be achieved.

6.5 HJ170 – ØyVOLLEN

The Øyvollen prospect sits within the Fundsjo Group and provides an analogous target to the Hersjø mineralisation, with an interpreted VTEM anomaly coincident with a magnetic source, Figure 36. Similar to Asvollen and Hersjo, HJ170 also sits on the interpreted shear. The VTEM response manifests itself as a long-wavelength anomaly with a low timeconstant, Figure 34 and Figure 35. The indications of some late-time signal provided encouragement that a FLEM survey may identify stronger conductive domains within the interpreted source. A 500x500 m loop was subsequently recorded over three lines which revealed a strong single peak response in dBz centred over the loop with a corresponding positive-negative response in dBx; Figure 38. This indicates the presence of a deep flat lying source. A further weak high frequency source is also present on the end of line 400 to the east coincident with a known conductive horizon in the historically un-prospective Dalbygda Group.

Modelling was straight-forward, with a very good fit achieved to all lines simultaneously, Figure 38. This defined a broad conductive horizon at 400 m below surface, Figure 37. Decay-curve analysis indicates a 2 ms time-constant with an excellent fit to an exponential. The depth and weak nature of the response precludes any follow-up drilling being undertaken.

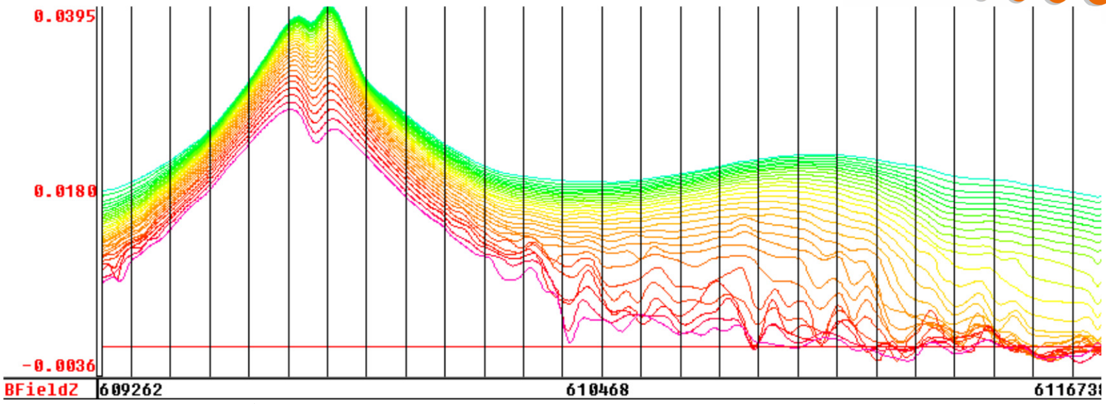

Figure 34: HJ170. Øyvollen logarithmic VTEM response and neighbouring regional sediment. Vertical lines present 100 m intervals.

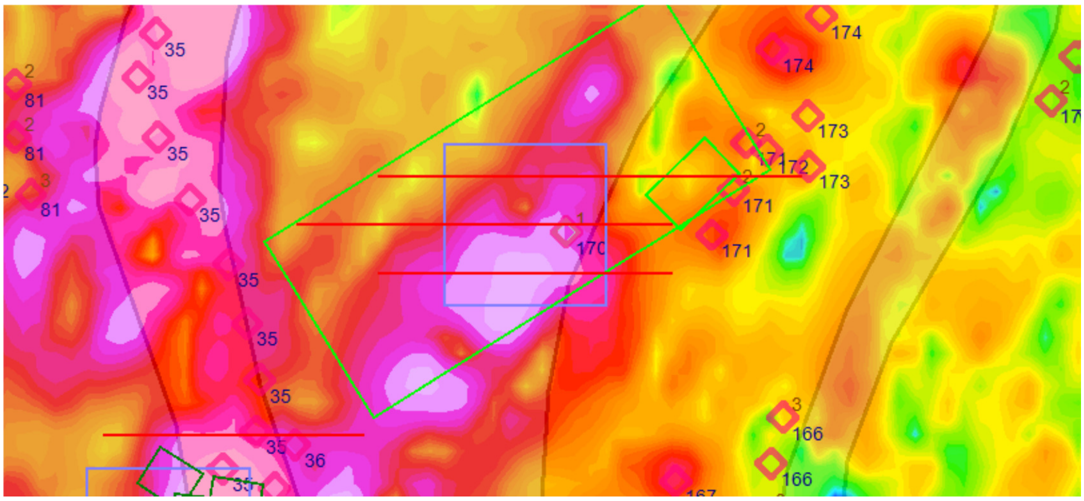

Figure 35: HJ170. Øyvollen raster image of VTEM channel 28 (9.2 ms) overlaid by FLEM status (red lines), modelled plates (green) and VTEM anomaly picks.

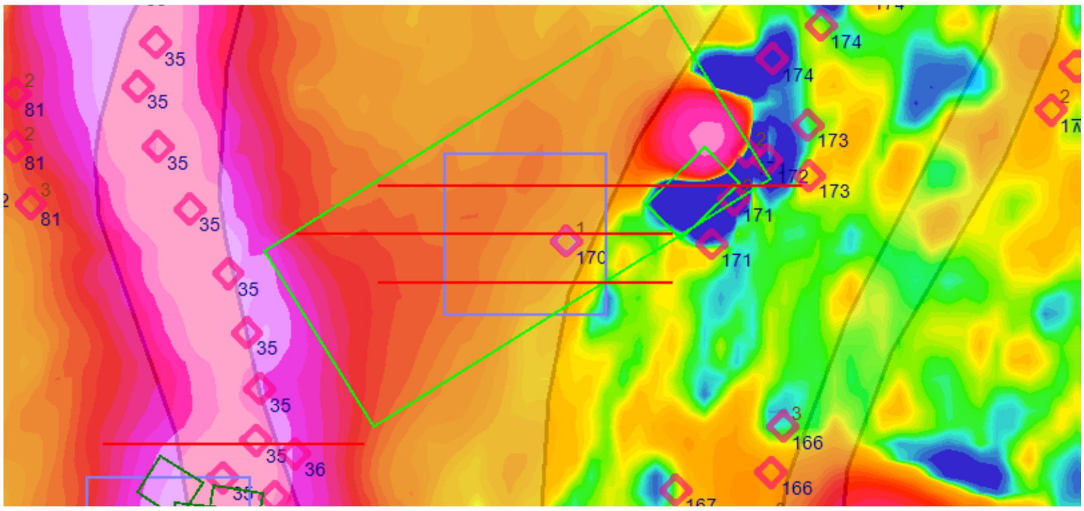

Figure 36: HJ170. Øyvollen raster image of TMI Analytical Signal overlaid by anomaly picks, FLEM status (red lines) and modelled plates (green).

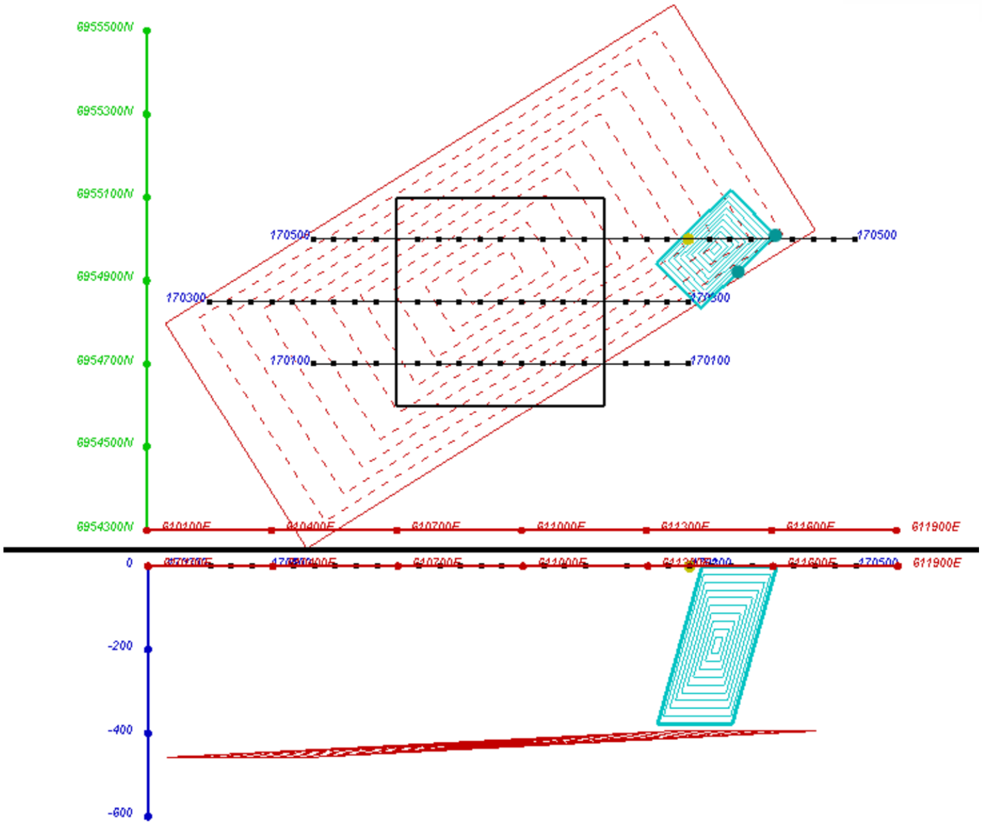

Figure 37: HJ170. Øyvollen FLEM modelled plates demonstrating a broad, deep weak conductor (red plate) and weak linear conductive horizon bisected by line 500 (blue plate).

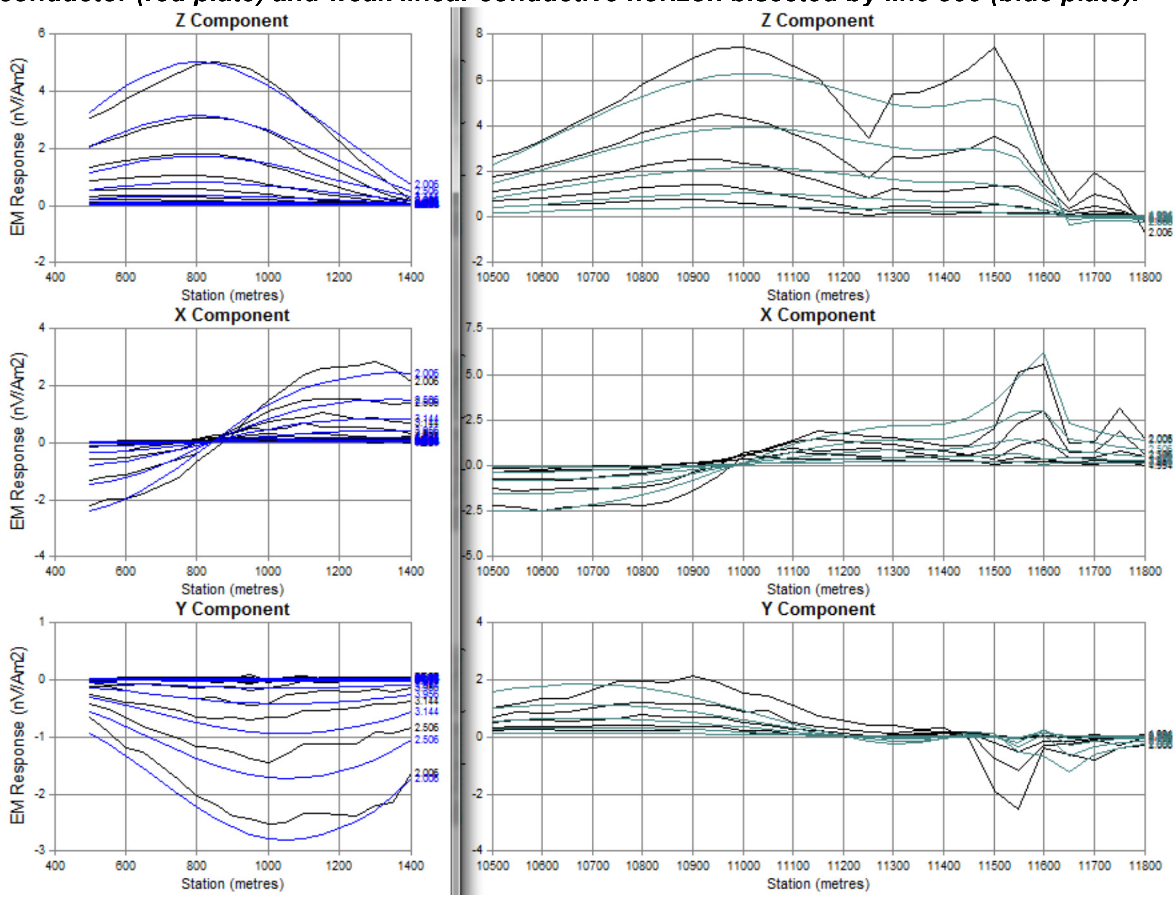

Figure 38: HJ170. Øyvollen lines 100 and 500 FLEM modelling of channels 5 – 9 (2 – 5 ms).

These profiles correspond to the modelled plates, Figure 32, Figure 27.

7. CONCLUSION AND RECOMMENDATIONS
7.1 to 7.3 Confidential and removed

7.4 HJ37 – Åsvollen

A complex sequence of conductive horizons have been interpreted as part of a regional conductor which is locally coincident with an anomalous mag feature and interpreted shearzone.
All are parallel with similar time-constants suggesting they are sedimentary sources.
A ground-truth of the area is recommended since the most interesting eastern source is shallow.

7.5 HJ170 – Øyvollen

A Category 3 deep conductive horizon has been well constrained but lacks a sufficient time constant to be recommended for drilling.

Conclusions and Recommendations

Following the gathering and review of all available literature on the Hersjo Roros Nordgruva mine area, Drake and it's JV partner Panoramic Resources Ltd, flew a VTEM survey over part of the group of claims in 2011. As a result ground EM follow up work was conducted in 2012 on two anomalies, Asvollen and Oyvollen, generated within the area and the subject of this report have been relinquished.

The work conducted however did not suggest anomalism related to mineralisation or any reason to retain the areas relinquished and so with rentals increasing threefold in January 2014 Drake recommended to the Joint Venture to relinquish un-prospective ground on which no further work was planned.

Expenditure

Drake's accounting system works on a project basis and it is not possible to breakdown expenditure that may have been incurred on those parts of the individual claims recently relinquished on which this report is based.

Expenditure is therefore reported on a percentage basis where 20% is deemed to be closest to actual expenditure as a proportion of the total expended on the claims until Dec 31st 2012.