

FINAL REPORT  
RØROS NORDGRUVA CLAIMS 1-13.  
RØROS NORDGRUVA PROJECT

CENTRAL NORWAY

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March 2015

Copies to:     Mining Directorate, Trondheim  
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**Note that the Appendices and all raw data collected by the joint venture during the term of the claims was submitted to the Mining Directorate with this report.**

## EXECUTIVE SUMMARY

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

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The claims cover extensions of the Hersjo Cu Zn Mine (held under extraction licence by Holtålen Kommune with an NGU calculated 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 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 other prospects/mines like Fjellsjo, Christianus Sextus and Mugg contained within the claims, 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 was to discover and develop copper deposits in the area. A target of 5Mt at 2.5% Cu equivalent was used as a working minimum target.

Initially the JV partners were drawn to the Hersjo Mine 3Mt @ 1.7% Cu and 1.4% Zn and the Fjellsjo Mine with about 2Mt at similar grades and the potential for a central mill near Kongens to process ore. There was also the clearly indicated potential to boost tonnage at Hersjø from 3Mt to 6Mt just by downward evaluation of the existing lenses. However the grade at Hersjø, which was clearly demonstrated to be lower than the target grade, the thin ore lenses, the cost of a surface drill program to test this possibility running well above a million dollars and the issue of the deposit being within the national park, on further evaluation all worked against support for the program. Access to the base of the ore lenses at Hersjø by a drive from the bottom of the U shaped valley outside the park was considered but required a multi-million dollar program.

The focus then moved to the discovery of a target sized orebody that would fund a mill into which the Hersjø and Fjellsjø ores could be fed.

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 at Lobekken, Rodalen and Kongens South were recommended for drilling in 2013 in the retained ground and in October 2013 with budget allocated for one hole the drilling of Hole NGKSDDH001 was completed. It failed to intersect significant mineralisation but downhole EM suggested a significant conductor off-hole approximately 50m to the west.



Drill hole NGKSDDH002 was completed in June 2014 and showed that the off-hole conductor was also insignificant.

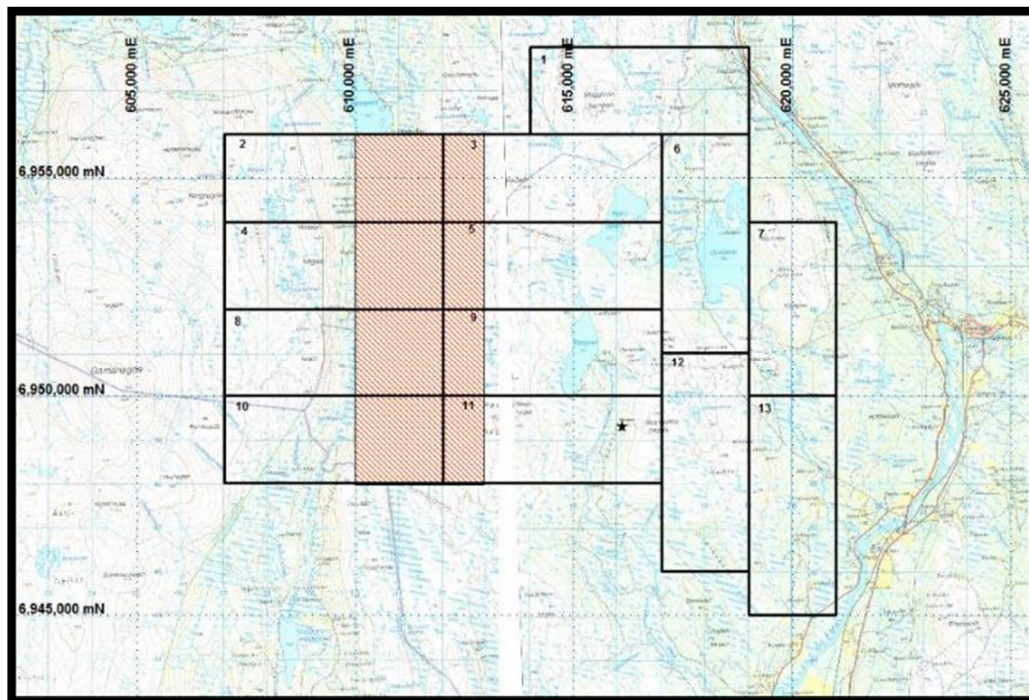
Two other grids were established over the Asvollen and Oyvollen combined VTEM, EM and magnetic anomalies which occurred in or on the flanks of the prospective Fundsjo greenstone belt. Ground EM did not locate anomalies of significance and no further work was recommended. The other anomalies in the relinquished 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.

Upon completion of 3 years of holding the claims and with 3 fold increased rentals imminent, the joint venture decided in January 2015 to relinquish the area.

As a result the area the subject of this report were relinquished in January 2015.

## 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, Lergruvbakken outcropping massive sulphides. The claims were granted to Drake, on 15/03/2011 as 0046-1/2011 to 0058-1/2011.



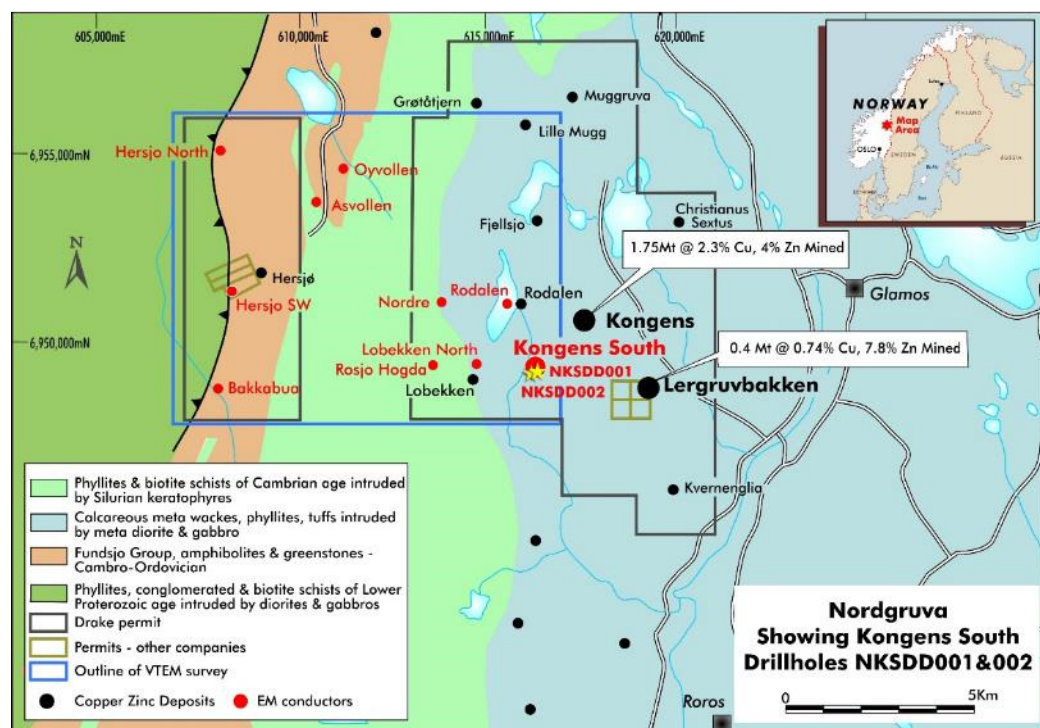
**Fig 1. Plan showing Drake claims 1-13 outlined in black, and areas subsequently partially relinquished in January 2014 in orange cross hatching. There are small claims over the Hersjo mine and the Lergruvbakken Mine not shown in this image.**



January 2014 Drake reduced the area held on behalf of the JV as shown in the above plan. Details of the remaining claims in Jan 2015 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 the drilling results being negative Drake recommended to the joint venture that 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 drill data and other prior exploration data.



**Fig 2. Plan showing outline of Drake's 2014 claims, the VTEM survey, geology, copper zinc deposits and EM conductors identified by the VTEM survey.**



## 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 and Holtålen Kommune.

## Objectives

The Drake / Panoramic Joint Venture had 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.

## VTEM

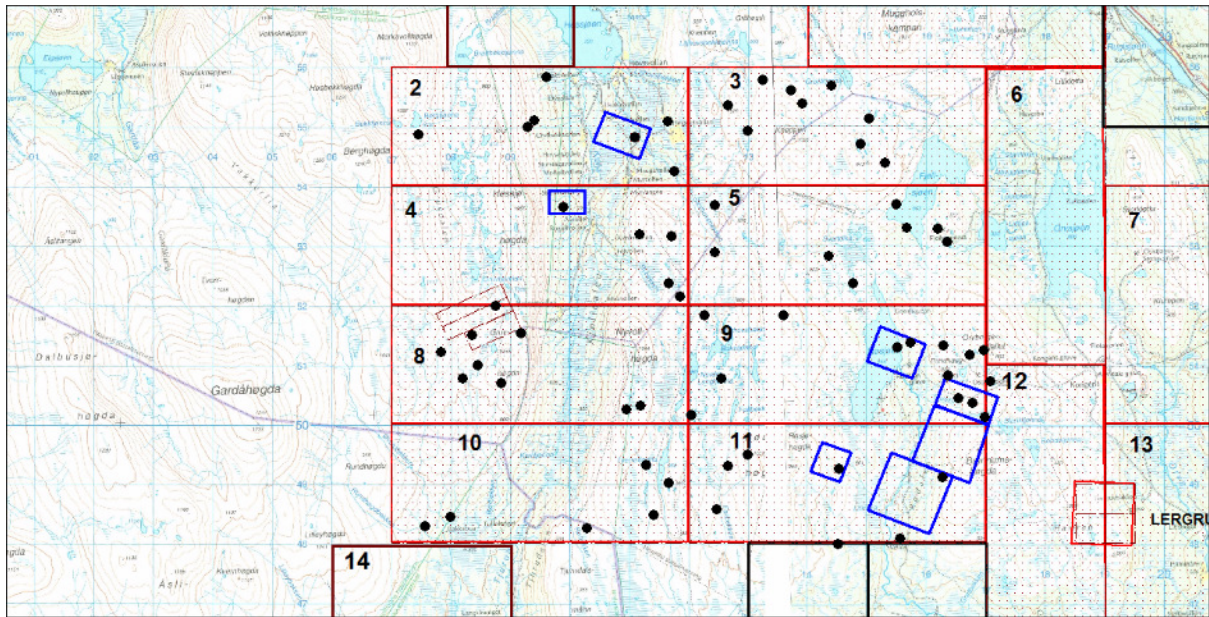
In 2012 Drake flew a heliborne VTEM survey the outline of which is shown in Fig 2. The survey was initially intended to cover the Fundsjo group which hosts the Hersjø Cu Zn deposit shown in brown on Fig2, however it was considered important to see how much more effective the VTEM system was if at all, 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 Fjellsjo 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.

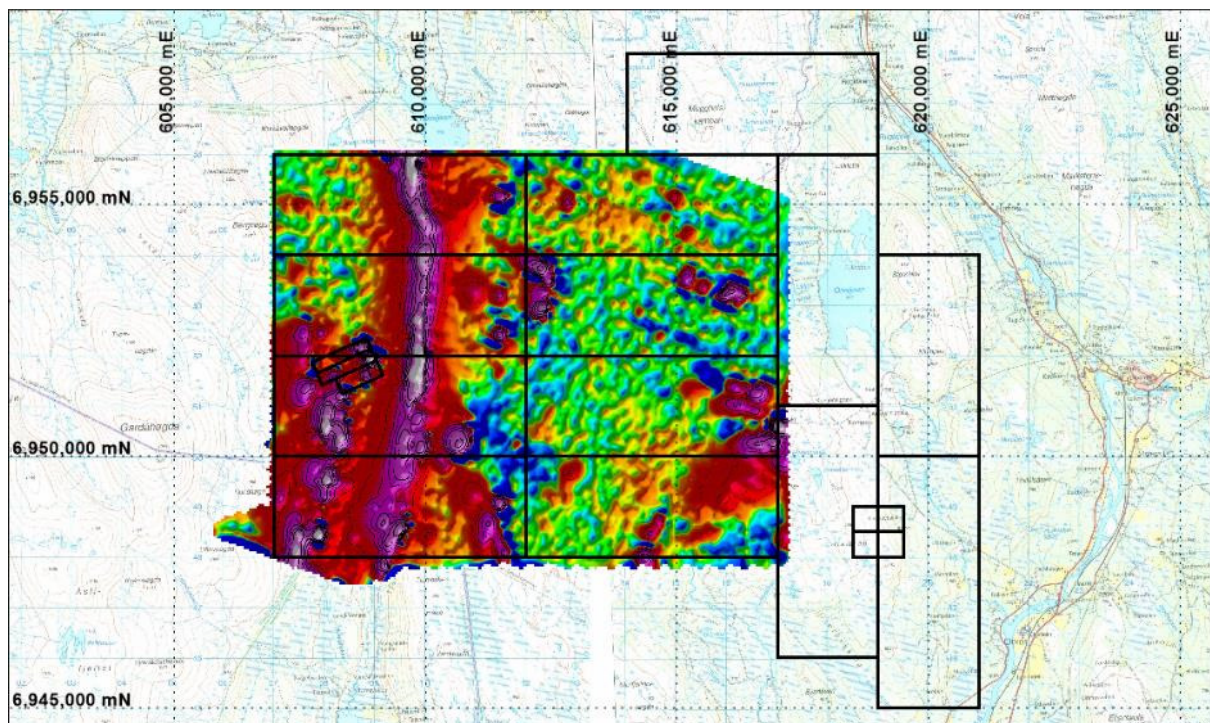
Newexco Services were contracted to process, model and interpret the VTEM data and to recommend follow up. Their report is attached as Appendix 1





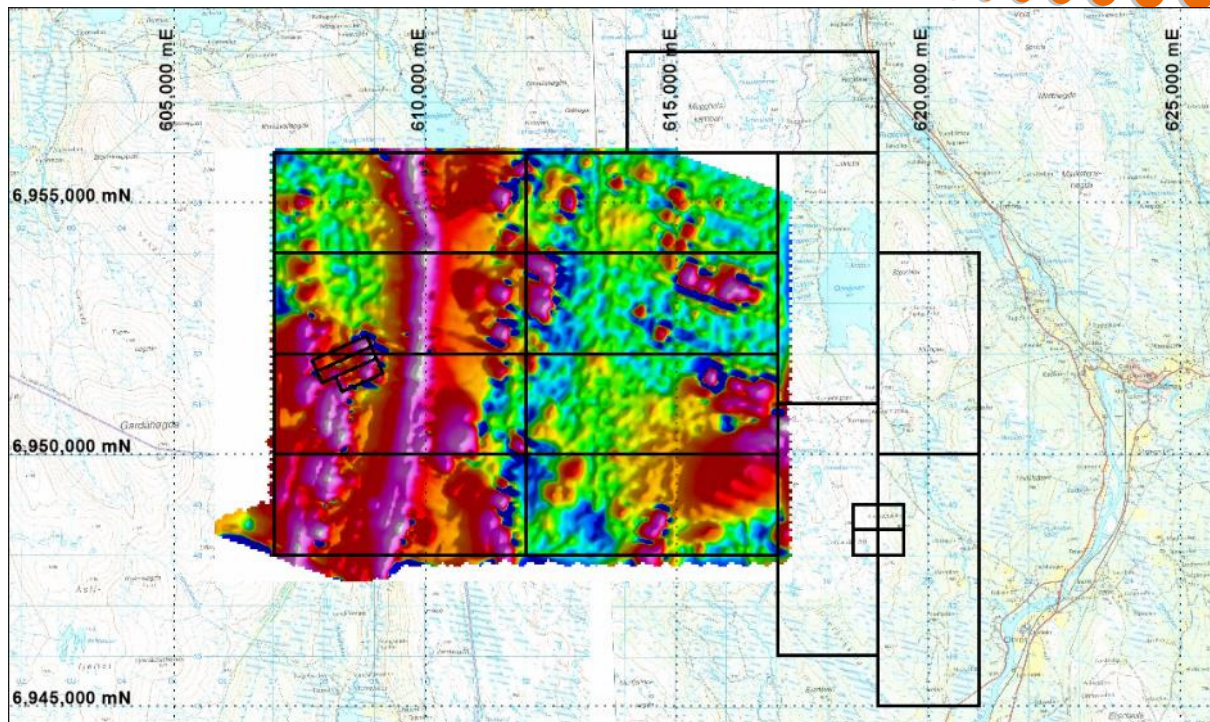
**Fig 3. Plan showing the Drake Claims and the plot of all VTEM conductors (black dots) and Fixed Loop ground EM survey areas (blue) over topography in the areas relinquished**

Figures 4,5,6 and 7 show the EM and magnetic responses for the area surveyed.



**Fig 4. Plan showing VTEM B field Channel 28 image for the claims.**





**Fig 5. Plan showing B Field Channel 20 image.**

It is clear from these images that there are significant conductors summarised as black 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.

A number of anomalies relate to mineralisation in the Fundsjo Group at the Hersjø Mine and with known drilled mineralisation to its south. One anomaly appears to have not been tested by any form of drilling at Hersjø. It was located on the boundary of the claims held by the Holtålen kommune. Another significant anomaly occurred at Hersjo North and was not tested.

The problem with these latter anomalies was that they are located in the National Park and therefore the follow up programs are more restrictive with environmental controls.

### Fixed Loop EM Surveys

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. Newexco were contracted to process and model the data and recommend drill targets.

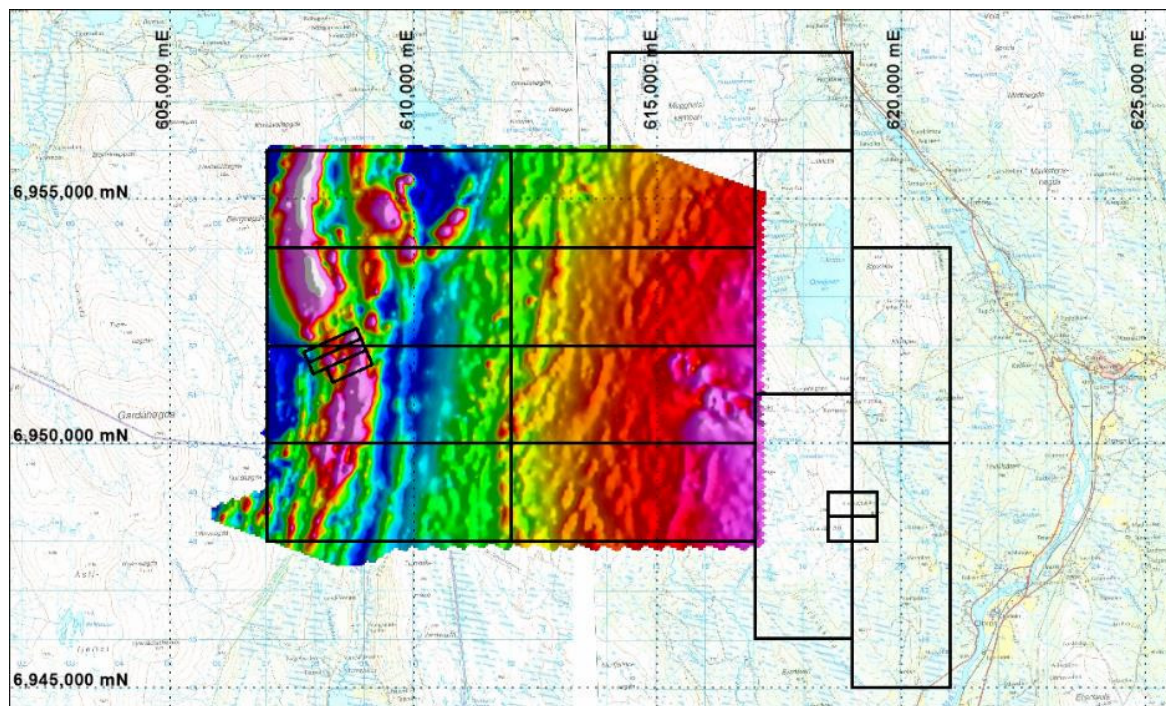
There were two anomalies that appeared prospective shown in Fig 8, which were located in or very close to the Hersjø Mine hosting Fundsjo Group greenstones. Because they could not be modelled from the VTEM data two ground EM surveys were contracted to define them better and to model targets for drilling if the conductors warranted. Both anomalies had associated magnetic anomalies evident in Figures 6 and 7. The underlying Fig 9 shows the outlines of the ground EM surveys conducted as grey lined rectangles and squares. The Asvollen and Oyvollen anomalies and grids are shown.



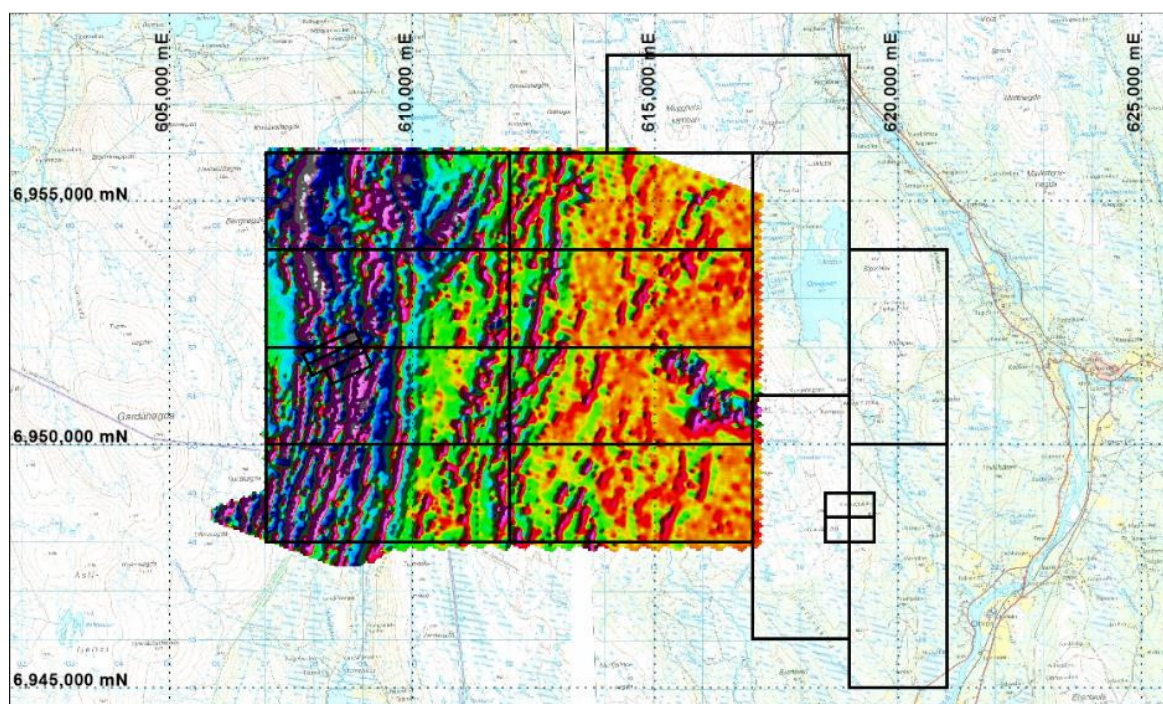


Asvollen sits on a linear feature that has been mapped as a graphitic shear but where there was a magnetic anomaly. Oyvollen looked more interesting as it was a more isolated EM conductor and magnetic anomaly.

The follow up program on these two anomalies is described in detail in the Newexco geophysicists report relating to these anomalies in Appendix 2.



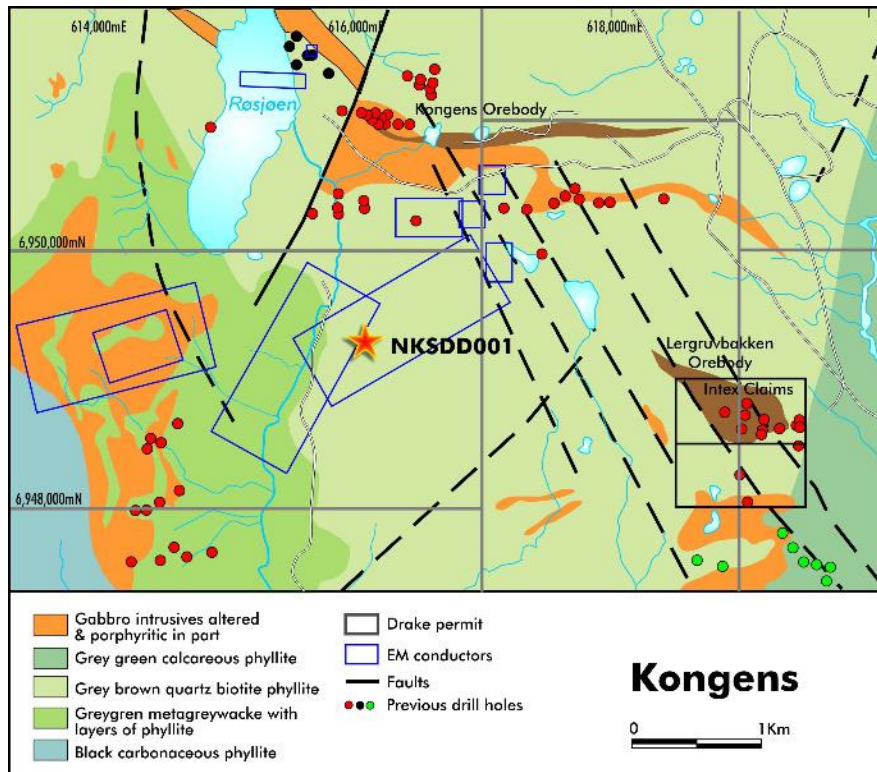
**Fig 6. Plan showing the VTEM total magnetic intensity reduced to pole (TMIRTP)**



**Fig 7. Plan showing the magnetic 1<sup>st</sup> vertical derivative reduced to pole (1vdrtp)**



The other 5 Fixed Loop EM grids were laid out in the Kongens area over significant deeper seated anomalies at Lobekken, Rodalen and Kongens and to the south of Kongens apparently associated with the intrusive amphibolitic/gabbroic sills which intrude calcareous wackes, phyllites and tuffs of the Aursund Group in the Røros formation.



**Fig 8. Plan showing location of modelled conductors in the Kongens area and prior drilling activity.**

The follow up program on these five anomalies is described in detail in the Newexco geophysicists report relating to these anomalies in Appendix 2.

At **Lobekken** the conductor was estimated to be extensive having dimensions of approximately 1500m by 1000 m at a depth of +500m.

This conductor was prioritised relatively lower because of its depth and was not drilled.

At **Rodalen**, a strong linear conductor having the same orientation as the rod of high grade mineralisation at the Kongens mine but displaced approximately 400m to the north and about 150m deeper had dimensions of approximately 500m by 100m at a depth of 350m.

This conductor was believed to be prospective for a relatively small but potentially high grade orebody of Kongens type. It was not drilled initially because of its limited size.

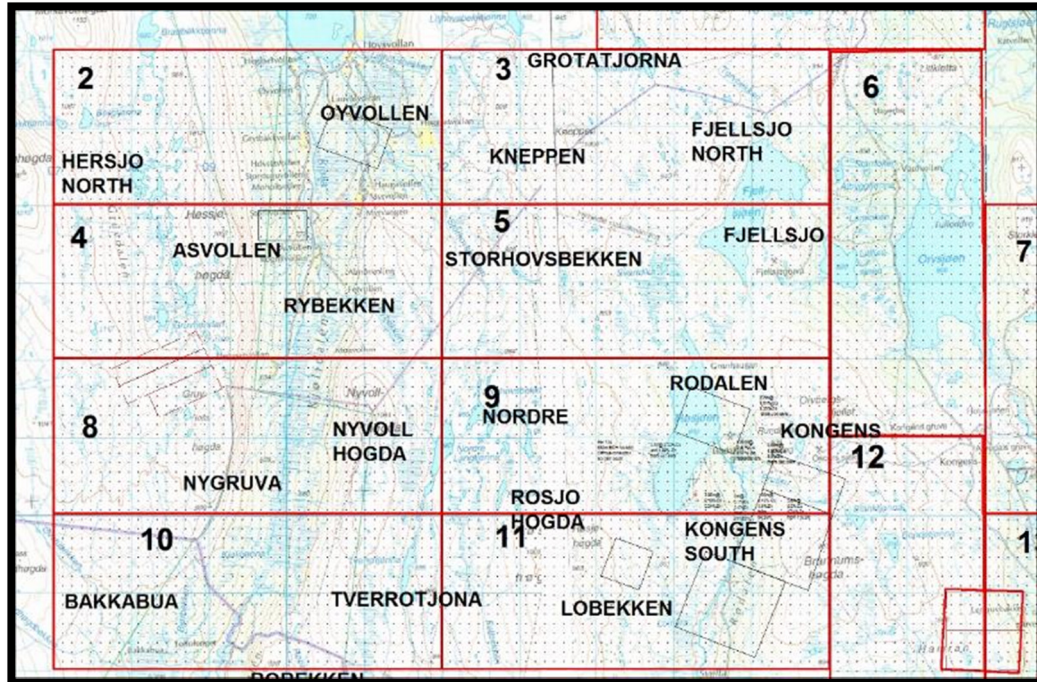
At **Kongens South**, two large conductors with dimensions of 1500m and 1000m one at a depth of about 450m and the other 550m were considered to be the highest priority because of their potential to host a multi-million tonne orebody.

Data and reporting on the Fixed Loop EM surveys are provided in Appendix 2 Report No 596.





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. The anomalies did not rank against other anomalies located in the areas retained and so the ground was relinquished in 2013 without field inspection or drilling



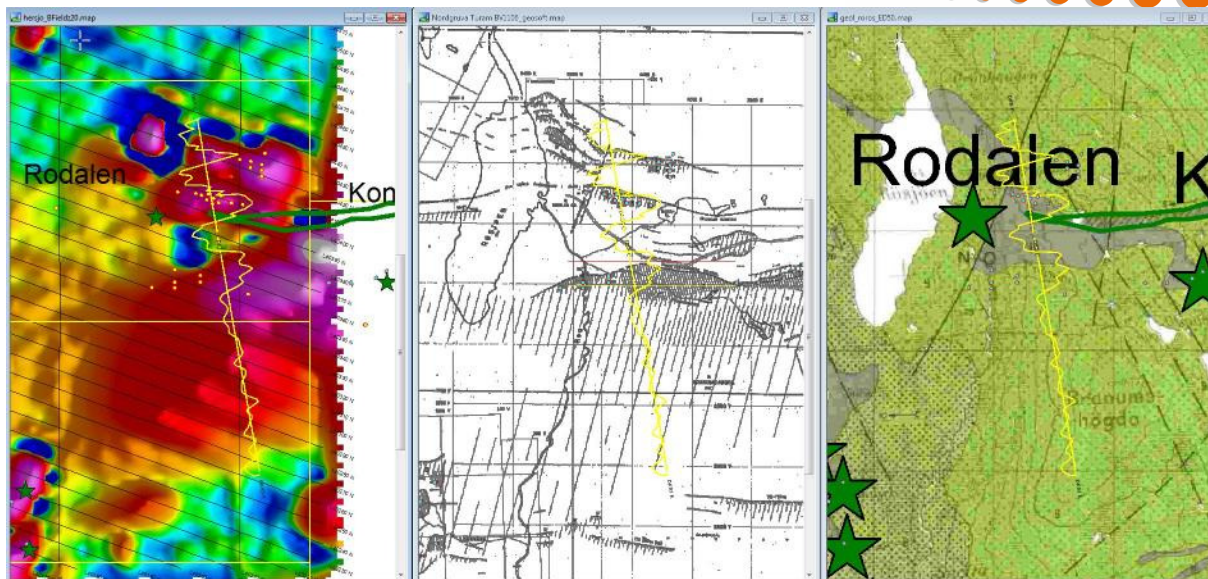
**Fig 9. Plan showing the location of the Asvollen and Oyvollen grids on a topocadastral image.**

## Gravity

A line of gravity surveying was conducted with northerly orientation over the Kongens Mine and then south over the Kongens South anomaly. While it suggested a response to the Kongens orebody it clearly did not identify the deeper seated mineralisation suggested by the VTEM and ground EM.

Gravity data is presented as an attachment to the report.





**Fig 10. Plan showing the location of the gravity line and response in yellow over VTEM, prior ground EM and geology.**

## Drilling

As a result of the VTEM and ground EM and gravity follow up a proposal to drill 3 holes at Lobekken, Rodalen and Kongens South was submitted for funding but initially only the drilling of the Kongens South hole was supported because of its large tonnage potential.

### Hole 13NKSD01

The hole was drilled in October 2013.

Drilled to test the modelled FLEM conductor at a depth of about 450m the hole intersected weak pyrite, pyrrhotite and chalcopryite mineralisation within and along the contacts of the gabbro/amphibolite sill with calcareous wackes. Best intersections were 1m @ 0.16% Cu and 4m @ 0.5% Zn.

Drill logs, and sample and assay data are presented as the data component of this report.

Downhole EM was conducted and while it confirmed the conductor had been intersected indicated that a significantly better conductor was present about 50m to the west.

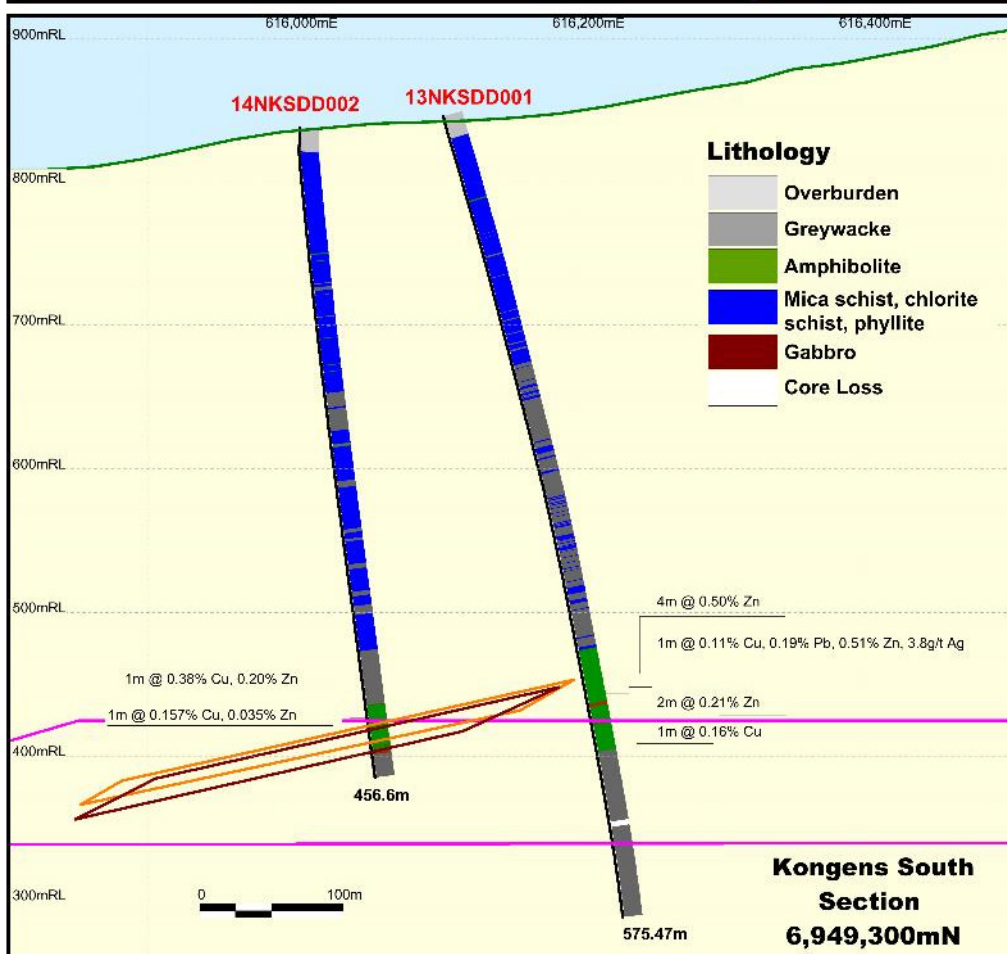
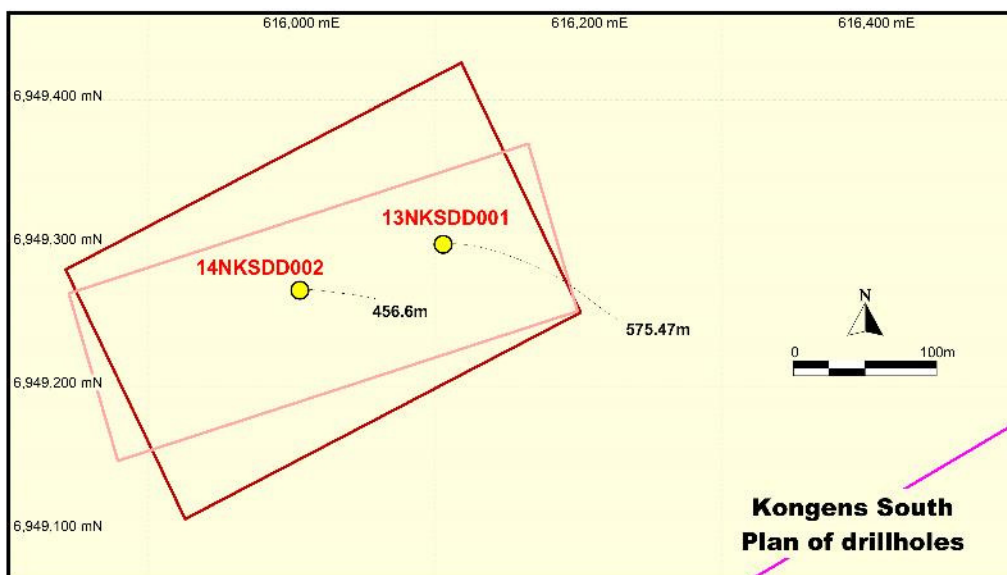
The DHEM was conducted by Suomen Malmi Oy and the data processing, modelling and interpretation was conducted by Newexco from Perth. Newexco's report is presented in Appendix 3.

### Hole 14NKSD02

The hole was drilled in June 2014.

Drilled to test the off-hole conductor modelled from the DHEM in hole 1 it intersected the gabbro/amphibolite around 400m below surface. As with hole 1 grades for copper and zinc were low with maxima being 1m @ 0.38% Cu and 0.20%Zn. The strong conductor was identified as a narrow massive pyrrhotite band.

Drill logs and sample and assay data, are presented as the data component of this report.







drake resources

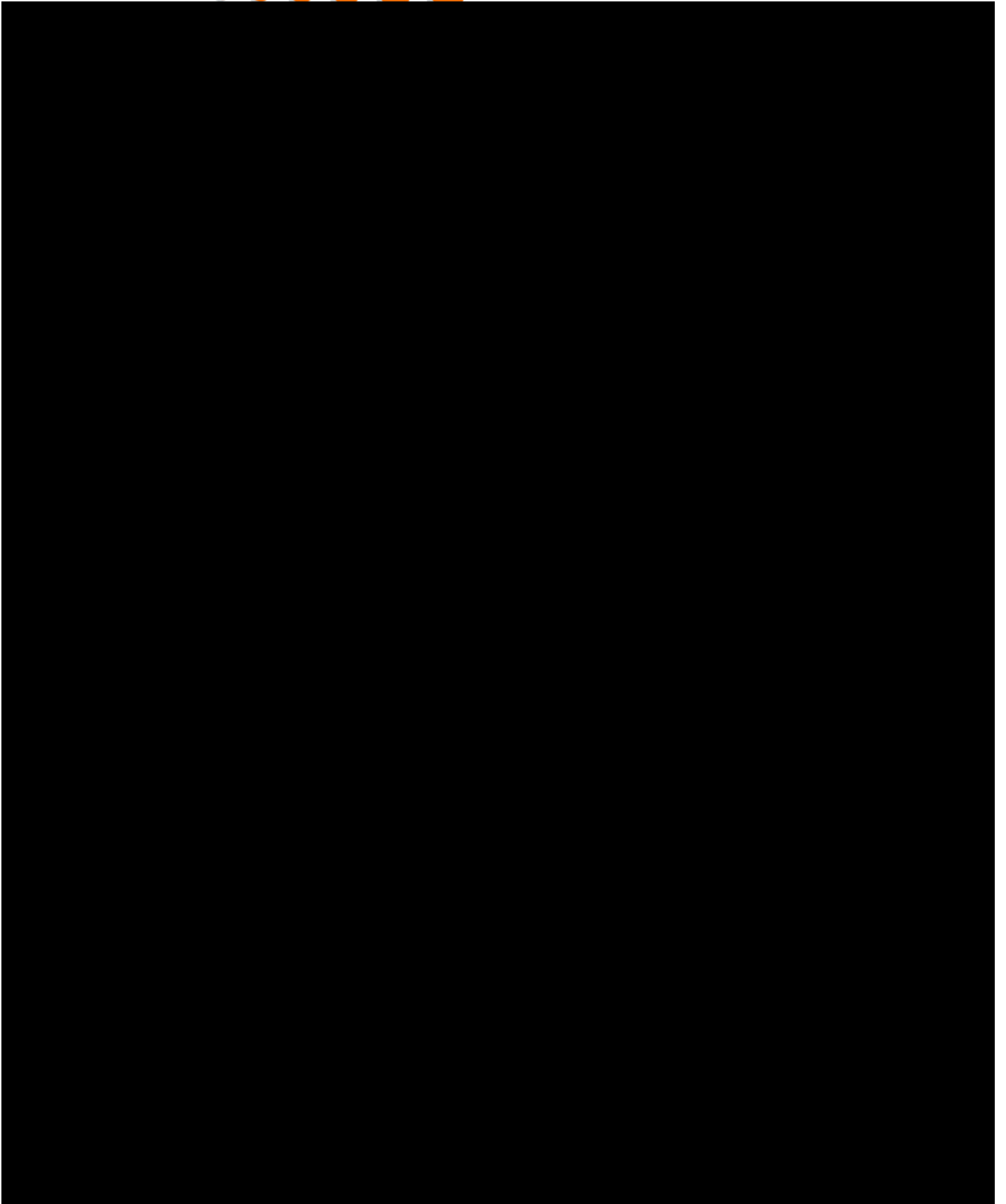


drake resources



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## Appendices

### Appendix 1.

Newexco Services P/L. Hersjo project. Report 597. An Interpretation of the VTEM Airborne Electromagnetic Surveys. August 2011.

### Appendix 2.

Newexco Services P/L. Hersjo project. Report 596. An interpretation of the Fixed Loop Electromagnetic Surveys. May 2012.

### Appendix 3.

Borehole TEM Survey in Kongens, Roros Norway, Oct 2013. Logistics Report and TEM Modelling Notes 13 DDNG001.