Interpretation Report for Geophysical Surveys on the High Rock Lake Property

Claims:
MC00009482, MC00005102, MC00009471

NTS: 74H03

NORTHERN SASKATCHEWAN

Survey Dates: Mar, Apr 2018
By: Discovery Int'l Geophysics Inc.

Report By:
David Bingham, B Sc., P. GEO.,
Bingham Geoscience

May 2018

For GTUanium Energy Inc.

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Summary

Discovery Geophysics International Inc. conducted geophysical DC Resistivity and gravity surveys on the Project during Mar 26- Apr 18, 2018. The survey was conducted using the **DIAS32** Distributed Array Resistivity/IP System and a Scintrex CG5 gravity meter with Spectral Precision SP-80 GNSS receivers.

The objectives of the surveys were to map potential structures and alteration specifically focused for basement mineralization potential. The DC Resistivity surveys consisted of 30.9 km of Pole-Dipole surveys (15 profiles). There were a total of 523 gravity stations occupied.

The interpretation report was supplied by David Bingham, P. Geo. of Saskatoon, Saskatchewan.

The resistivity and gravity surveys were successfully conducted over the survey area. In the Athabasca Basin with competent sandstone cover, an alteration halo is typically observed as a resistivity low in the lower sandstone. In the absence of the sandstone layer (as in this project area), the alteration is expected to take on a different character consisting of a widening and /or increase in intensity of the basement resistivity.

Two high priority anomalies were detected as well as a number of lesser priority anomalies. The anomalies labeled on the interpretation maps and listed in the discussion.

The High Priority Anomaly A is a well-defined sub-vertical basement anomaly parallel to the Key Lake Trend conductors. This anomaly is also co-incident with a gravity anomaly and is proximal to the Roberts Uranium showing at surface. This trend can be weakly traced to anomaly B and maybe anomaly G.

The High Priority Anomaly B is a strong basement resistivity anomaly associated with interpreted N trending structure. This appears to be a widening where the N trending structure is offset. There is also a coincident weak basement gravity anomaly. This anomaly attenuates at depth.

The sub-vertical character and trends of anomalies A, C, D & G suggest there is a possibility these may be basement conductors. While Anomalies A & B may be suitable for immediate drill testing, the possibility of basement conductors might be able to be detected and better resolved with small moving loop Time Domain EM surveys.

1 INTRODUCTION

The GTUranium Inc. Highrock Lake project is situated in the undifferentiated eastern Wollaston Domain in moderately to highly magnetic background materials parallel to the nearby Key Lake trend proximal to the Athabasca Basin in northern Saskatchewan. Field work was done by Discovery Geophysics during Mar 26- Apr 18, 2018. The report and interpretation was supplied by David Bingham, P. Geo. of Saskatoon, Saskatchewan. A total of 30.9 km of DC Resistivity were done and 523 discrete gravity stations were occupied.

1.1 Location and Access

The property is located 135 air miles north-north-west of La Ronge, SK. The Key Lake uranium deposit, connected by an all-weather road, is located 9 miles northwest of the property. The Key Lake road is situated 8 miles west of the property. Present access to the property is by means of ski – or float-equipped air craft.

1.2 Previous Work

Early prospecting and exploration probably took place, although no published records exist. The first mineral evaluation, for which records are available, took place subsequent to the announcement of the Gulf Minerals Ltd. Rabbit Lake discovery in December, 1968.

Exploration programs conducted in 1969 by Goldray Mines Ltd consisted of an airborne radiometric survey and reconnaissance ground follow-up of anomalous areas. In 1969 Dynamic conducted airborne E.M., magnetometer, and radiometric surveys and in 1970 reconnaissance ground follow-up of selected airborne radiometric and E.M, zones.

The area was covered by a joint provincial-federal reconnaissance airborne radiometric survey at 5 km line spacing during 1975.

The area was mapped by the Saskatchewan Department of Mineral Resources during the summer of 1976 at a scale of 1:100,000. A lake bottom sediment sampling program covering Highrock Lake was conducted during the 1976 mapping program.

In 1980 an airborne INPUT and magnetometer survey covering the property was conducted by Norcen Energy Resources Limited.

In 1981 a sluicing and detail geological mapping program was conducted to further evaluate four spot radioactive highs, (herein termed the "Roberts' Showing") that occur within a 5m by 7m drift covered area of outcrop.

The project area has not been explored since the 1980’s.

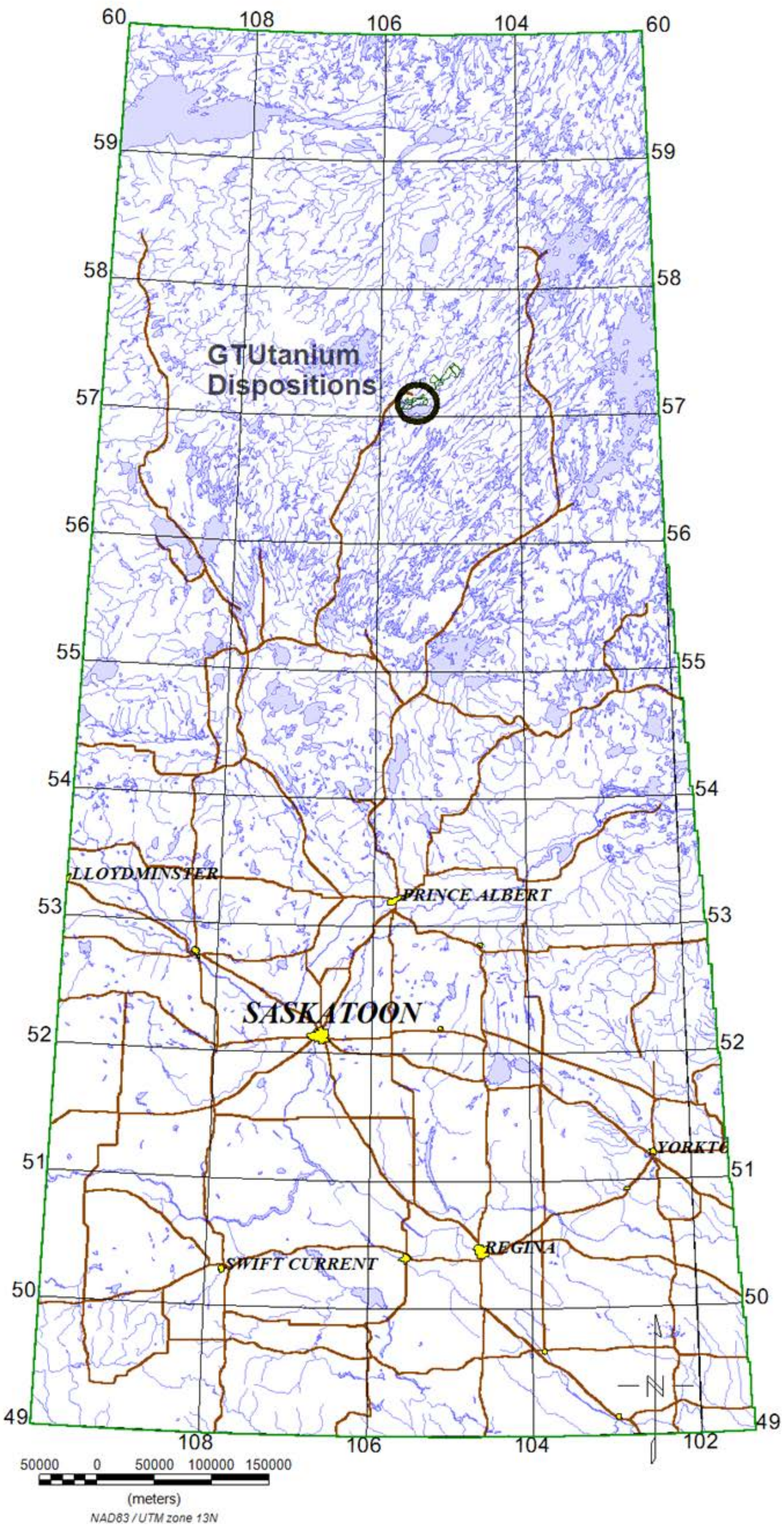

Figure 1: Project Location

1.3 Distribution of work

Table: Distribution of Work

Disposition	DC Resistivity	Gravity
MC00009482	1.35 km	1.20 km (27 stations)
MC00005102"	29.0 km	
MC00009471"	0.55 km	0.20 km (8 stations)
Totals	**30.9 km**	

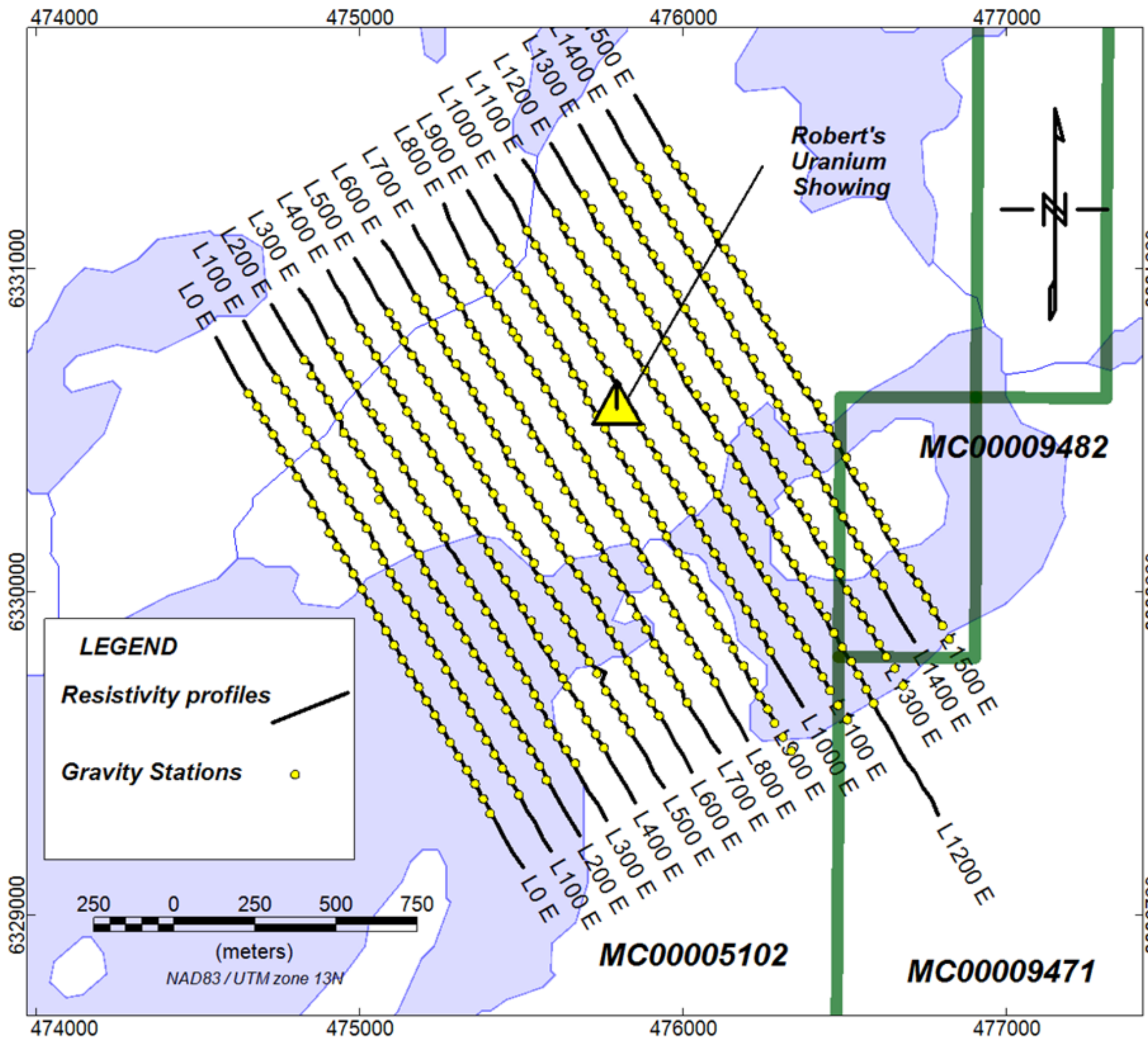

Figure 2: Survey Coverage

2 GEOPHYSICS

Discovery Geophysics International Inc. conducted geophysical DC Resistivity and gravity surveys on the Project during Mar 26- Apr 18, 2018. The survey was conducted using the **DIAS32** Distributed Array Resistivity/IP System and a Scintrex CG5 gravity meter with Spectral Precision SP-80 GNSS receivers.

The objectives of the surveys were to map potential structures and alteration specifically focused for basement mineralization potential. The DC Resistivity surveys consisted of 30.9 km of Pole-Dipole surveys (15 profiles). There were a total of 523 gravity stations occupied.

2.1 DC Resistivity Surveys

DC Resistivity surveys are done by injecting a current (I) into the ground. The current is measured at the transmitter and usually consists of a modified square wave. For this survey, a modified pulse was used to try to reduce long transients due to the long infinite wire used for the potential readings (1 sec on, 1 sec off, 1 sec on reversed & 1 sec off). The receiver voltage (V) measurements are taken in line at an ‘a’ spacing at ‘n a’ distances from the current source. The current electrodes are usually moved along the profile at ½ of the “a-spacing” used for Pole-pole and Pole-Dipole surveys to double the data density at almost no extra cost. This results in an excellent spatial sampling of data along the line.

For **DIAS32** surveys, traditional line cutting is not required. Where the vegetation is too dense to pass, the lines will need to be brushed out, but no picketing or flagging is required. For the **DIAS32** Distributed Array System, each receiver is a single-channel recorder, so there are no restrictions for array layout. With a **DIAS32** recorder at each receiver electrode, any survey method or array can be measured. Both forward (Pole-Dipole) and reverse (Dipole-Pole) measurements were recovered.

The Pole-Dipole Array is an asymmetrical array with the center point defined as the mid-point between the Current and leading Potential electrodes. The Pole Dipole Array is maintains good signal strength and is well suited to depths of up to 400m. The pole-dipole array shows a theoretical depth penetration equivalent to ~0.43 times the largest separation measured.

An ‘a’-spacing of 50m was used for the Pole-Dipole survey grid with current injections at 25m intervals. The survey has both Pole-Pole and Pole Dipole data sets which can be combined and inverted together to provide superior resolution.

Data Inversion is crucial for Resistivity arrays. The inversion compensates for and removes geometrical effects such as “pant-leg” type responses and enables a more direct geological correlation of the resistivity data and the geology. The inversion process is also important for distinguishing the source of any anomalies (i.e. deep or shallow). RES2DINV and RES3DINV are Windows based computer programs which will automatically determine a resistivity model for the subsurface using the data obtained from electrical imaging surveys.

Electricity goes where it wants not necessarily where you want it to go. A 2D Resistivity profile often measures anomalies to as far to the side of the profile as the depth of investigation. So, any IP/Resistivity survey is 3D. To overcome the pitfalls in 2D inversions and to map large areas, multiple 2D profiles are inverted with the RES3DINV algorithms.

The resistivity survey consisted of 15 2D profiles, with both forward and reverse pole-dipole measurements The resistivity data was inverted in 3D with RES3DINV using the arbitrary array format. An HP Z820 Workstation configured with 256 GB of RAM was used for the final 3D inversion. A 25m x 25m cell size with 14 layers was used in the inversion. A total of 27269 discrete data points were used in the 3D inversion.

2.2 Gravity Survey

By measuring Earth’s gravity field, we are able to map variations in the mass distribution of Earth’s crust. These variations are due to differences in the density of the underlying material. The Density of a material is its mass per unit volume measured in g/cc. Unlike other physical properties, the densities of the commonest rock forming minerals are remarkably close together. In practice, bulk densities are often controlled more by the porosity, the degree of cementation, and the mixing of materials, than by the mineral composition.

The variations in gravity are miniscule, so we use smaller units. In honor of Galileo, because he was just an all-around cool guy, 1 cm/s2 is called a gal. Gravity units in exploration are milligals. The Earth's gravity is approximately 9.8 m/sec-squared or 32 ft/sec-squared. 1g = approximately 980,000 milligals).

The magnitude of the gravity value depends on the latitude, elevation above sea level (the geoid), geology, isostasy, the earth tide caused by the moon and sun’s gravitation, as well as the topography. Geophysicists and geologists are interested in the part of the gravity value that is affected by the mass distribution of Earth's crust, i.e. the geology. The gravity value is therefore reduced by these other factors in order to obtain only those gravity deviations which are related to the geology. These deviations are called terrain corrected Bouguer anomalies, which illustrate the mass distribution (density variation) of the subsurface down to great depths in Earth's crust.

Once the corrections have been made, the Bouguer anomaly should contain information about the subsurface density. A map of the Bouguer anomaly gives an impression of the subsurface density. Low (negative) values indicate lower density beneath the measurement point and high values of Bouguer anomaly indicate higher density beneath the measurement point.

2.3 Results

2.3.1 3D Resistivity

The inverted results are displayed in the following figures. The sections and plans are extracted from the 3D voxel of the 3D inverted resistivity. Areas beyond measured results have been masked out in the inverted resistivity to remove edge effects from extrapolated results. The color bar is based on M.H. Loke's RES2DINV software display to highlight significant resistivity anomalies, with low resistivity as blue (cooler colors) and high resistivity as magenta (warm colors) at a logarithmic scale ranging from 200 ohm-meters to 20,000 ohm-meters.

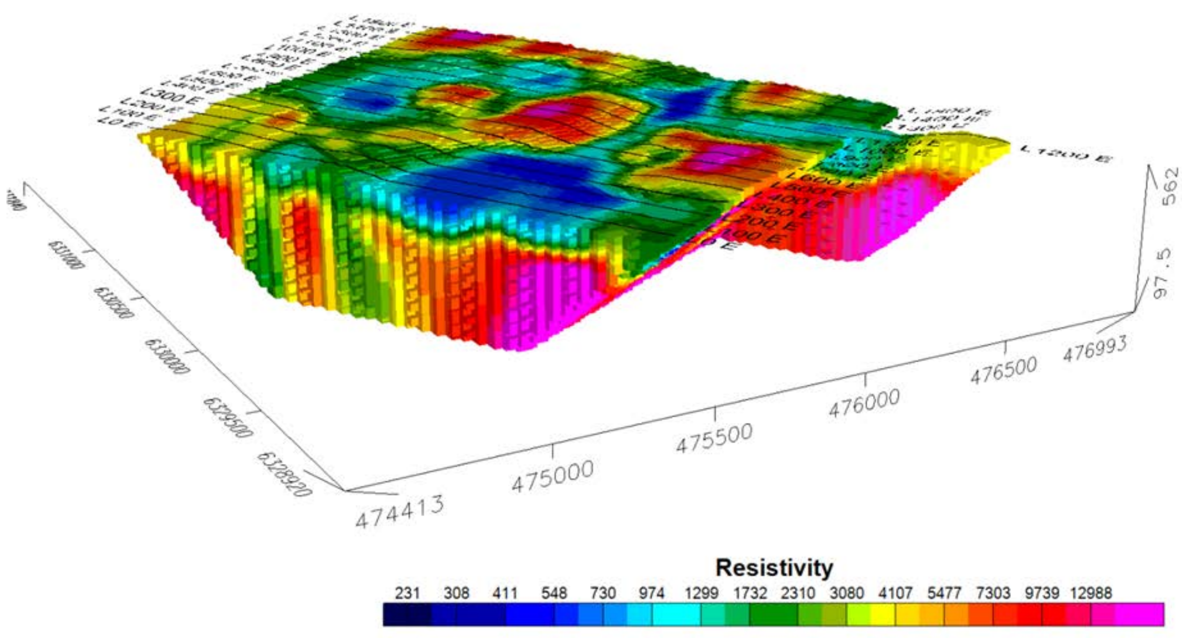

Figure 3: 3D Resistivity Voxel

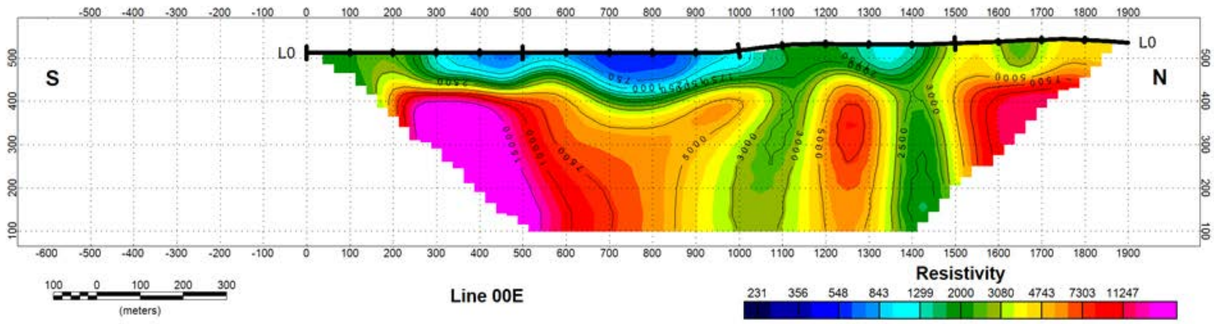

Figure 4: Resistivity Line 00E

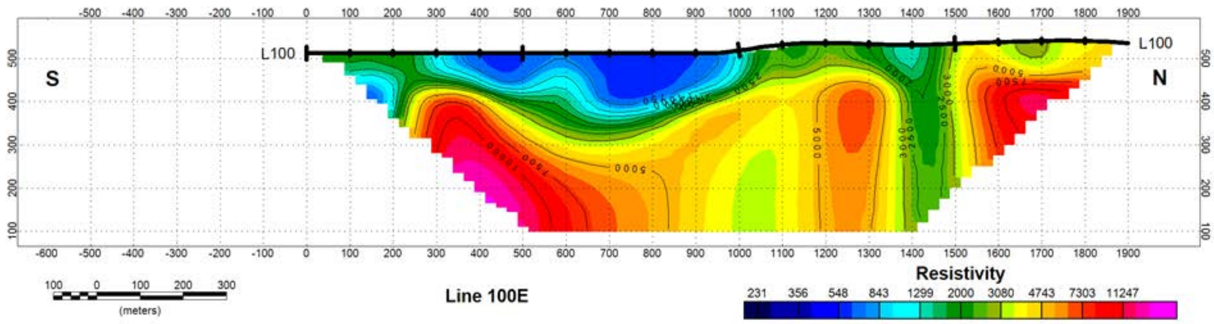

Figure 5: Resistivity Line 100E

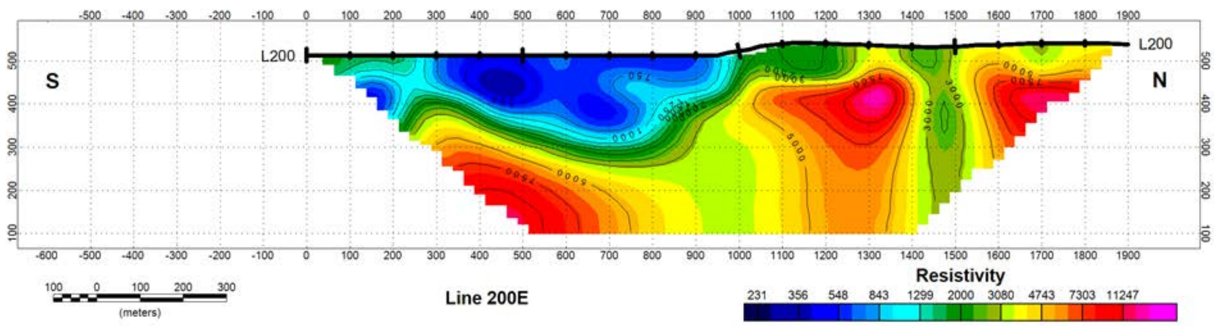

Figure 6: Resistivity Line 200E

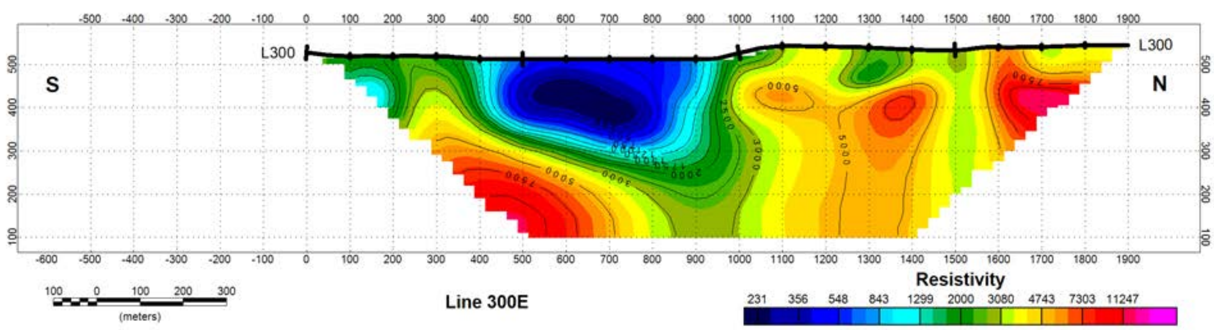

Figure 7: Resistivity Line 300E

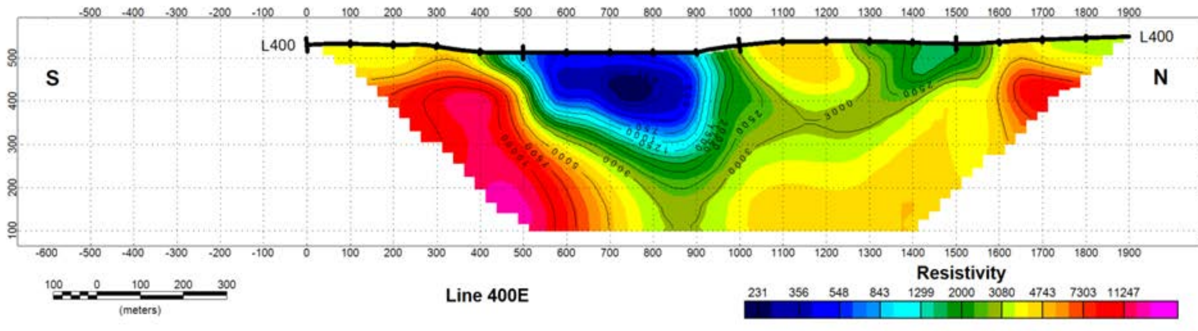

Figure 8: Resistivity Line 400E

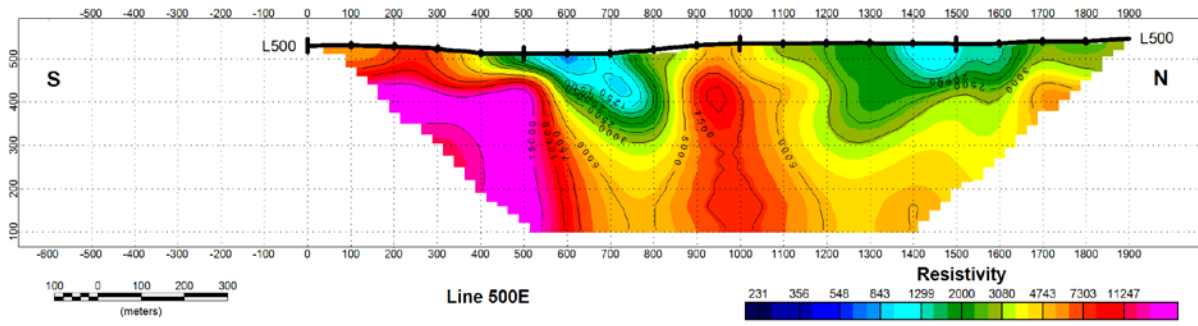

Figure 9: Resistivity Line 500E

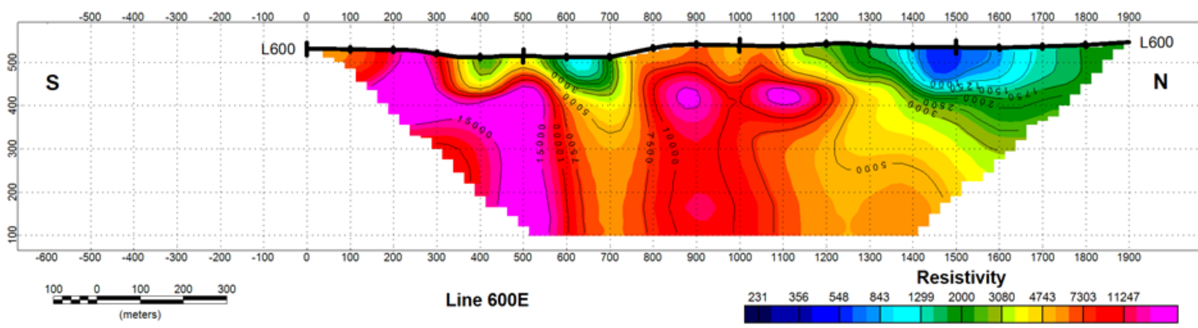

Figure 10: Resistivity Line 600E

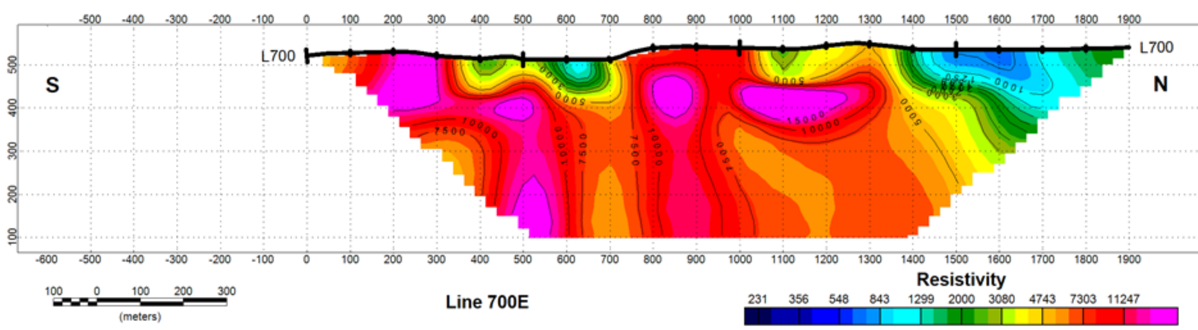

Figure 11: Resistivity Line 700E

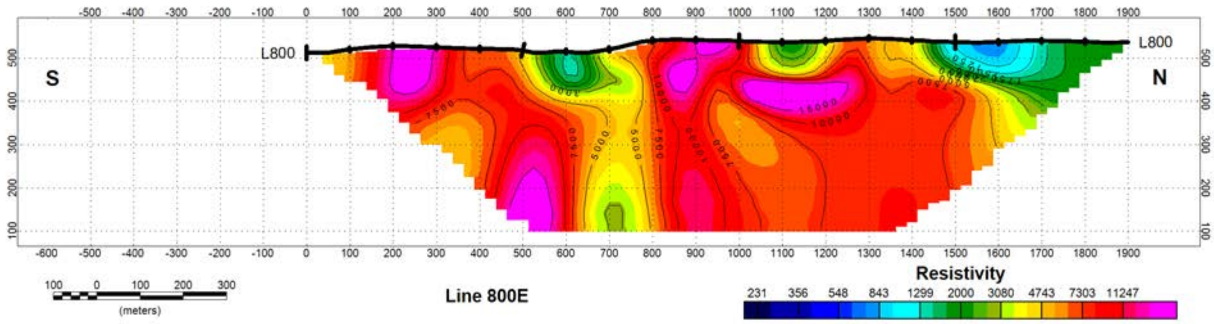

Figure 12: Resistivity Line 800E

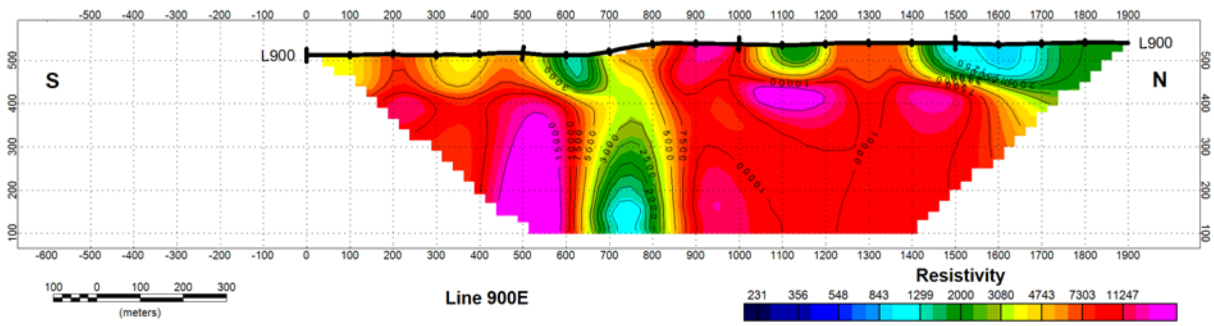

Figure 13: Resistivity Line 900E

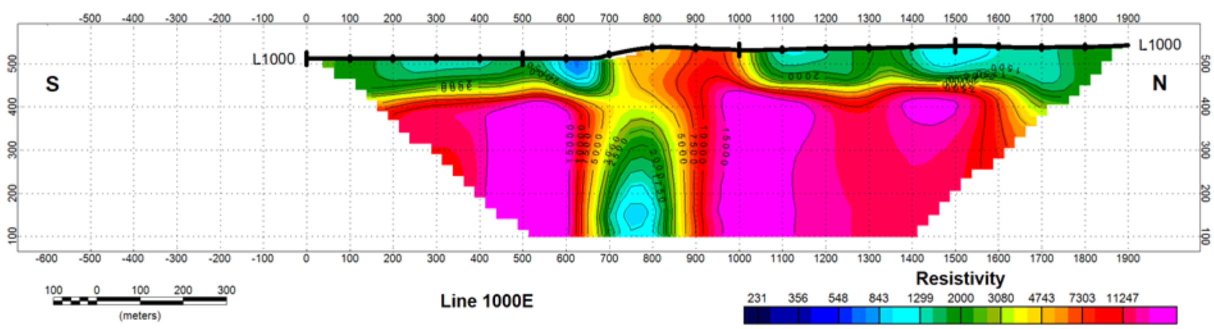

Figure 14: Resistivity Line 1000E

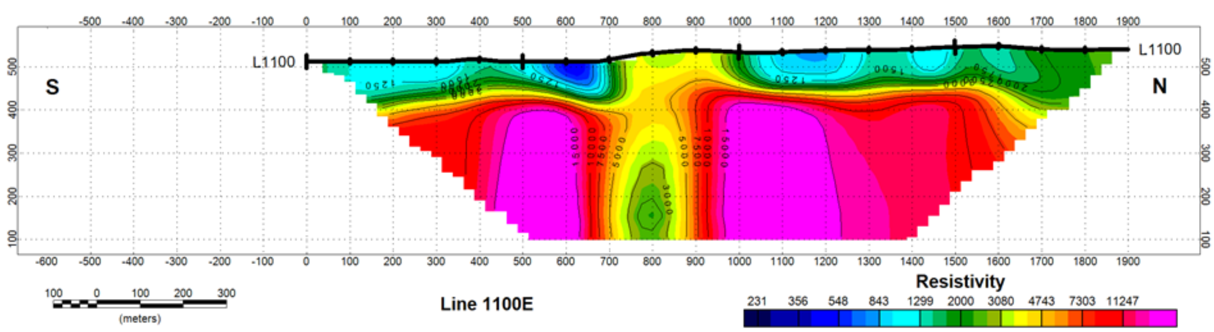

Figure 15: Resistivity Line 1100E

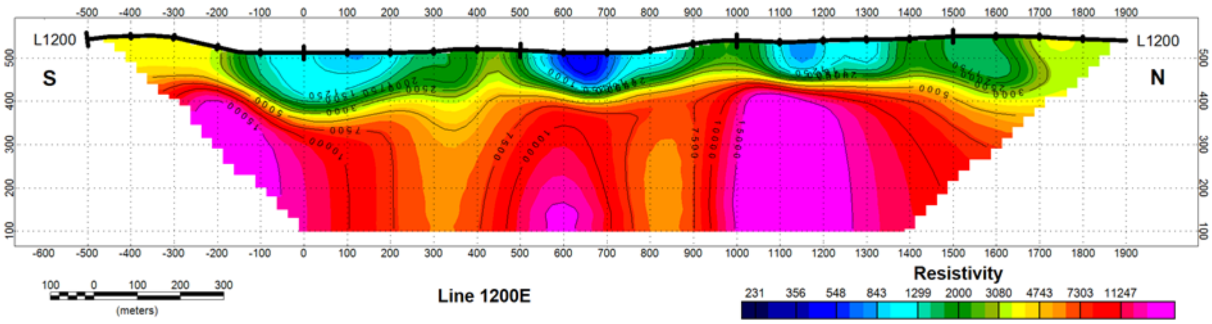

Figure 16: Resistivity Line 1200E

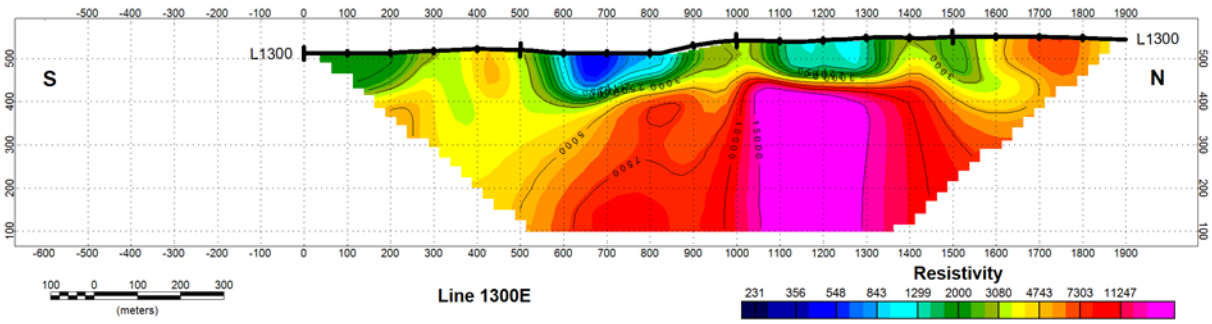

Figure 17: Resistivity Line 1300E

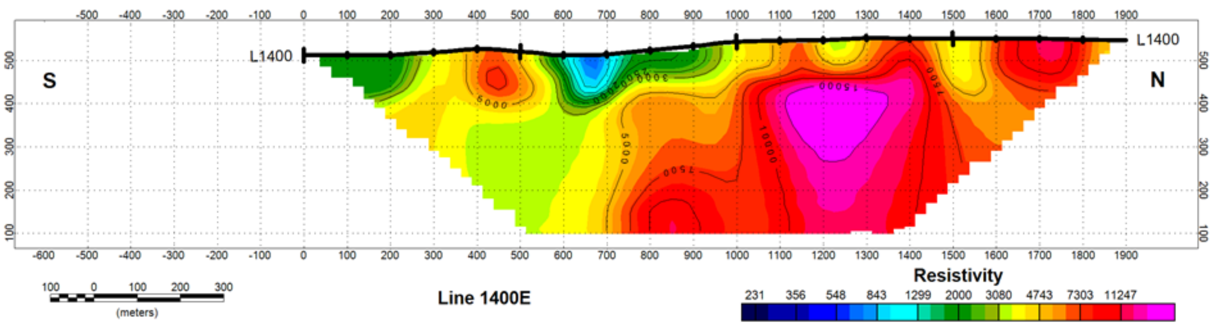

Figure 18: Resistivity Line 1400E

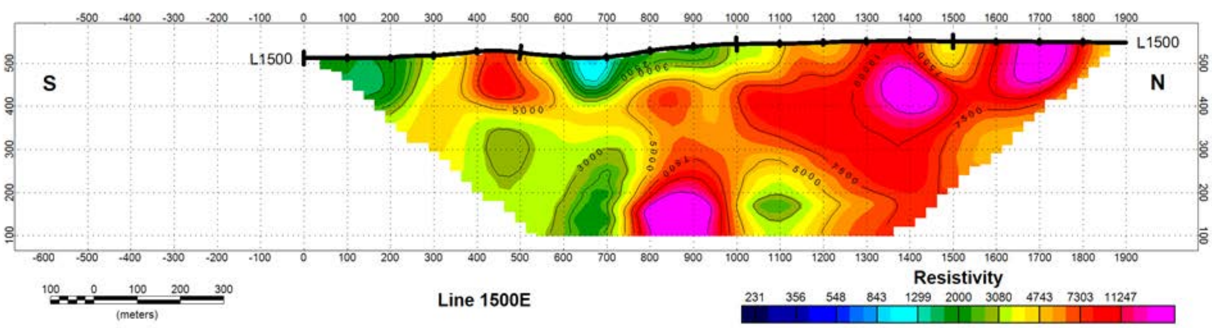

Figure 19: Resistivity Line 1500E

Three (3) resistivity benches are extracted from the RES3DINV Inversion (surface, basement and deep basement).

- The surface bench is from surface to 50m deep.
- The basement bench is from 150 to 200 m deep.
- The deep basement bench is from 350 t0 400m deep.

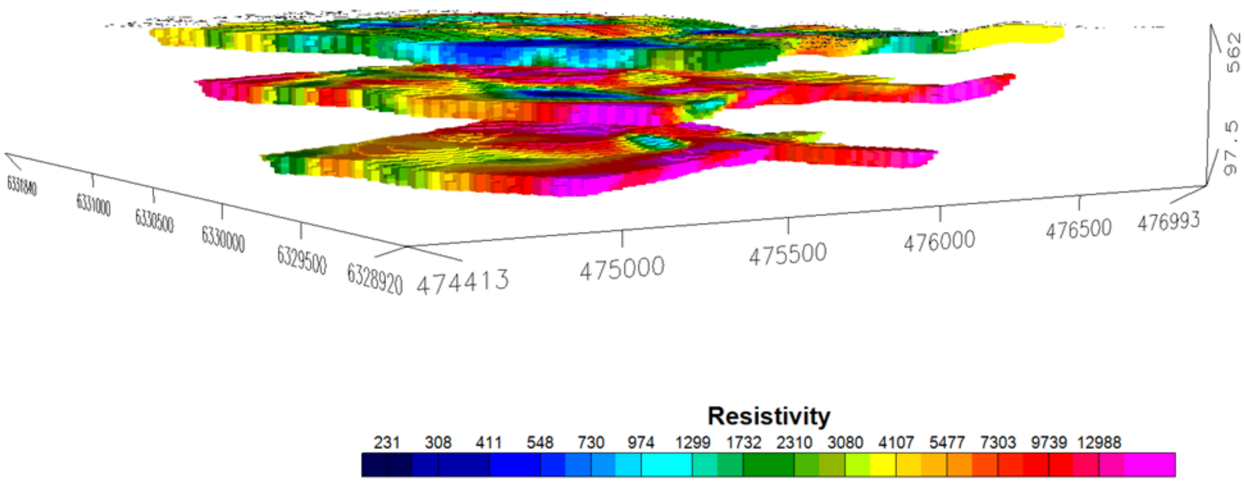

Figure 20: South Resistivity Benches

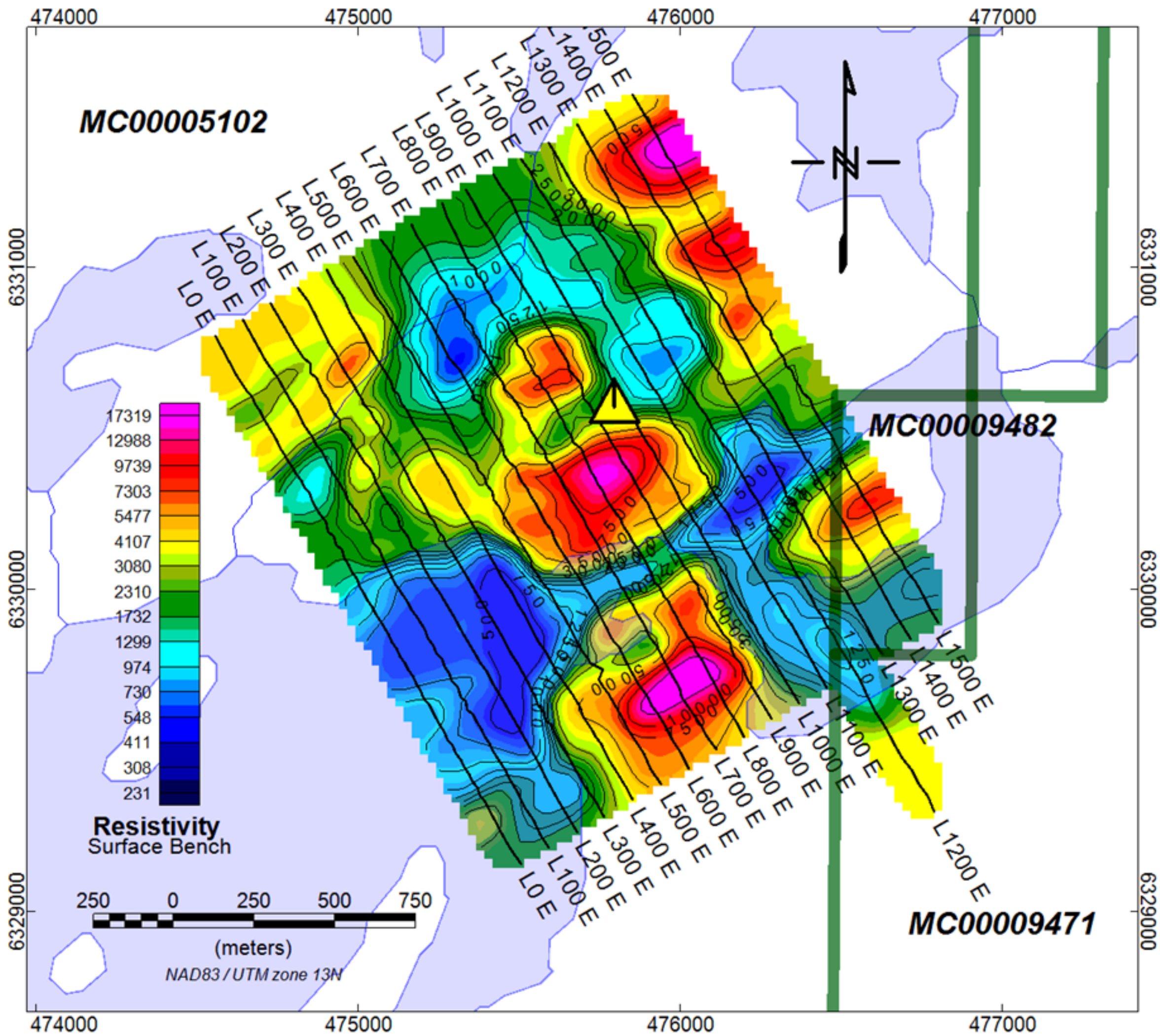

Figure 21: Resistivity - Near Surface Bench

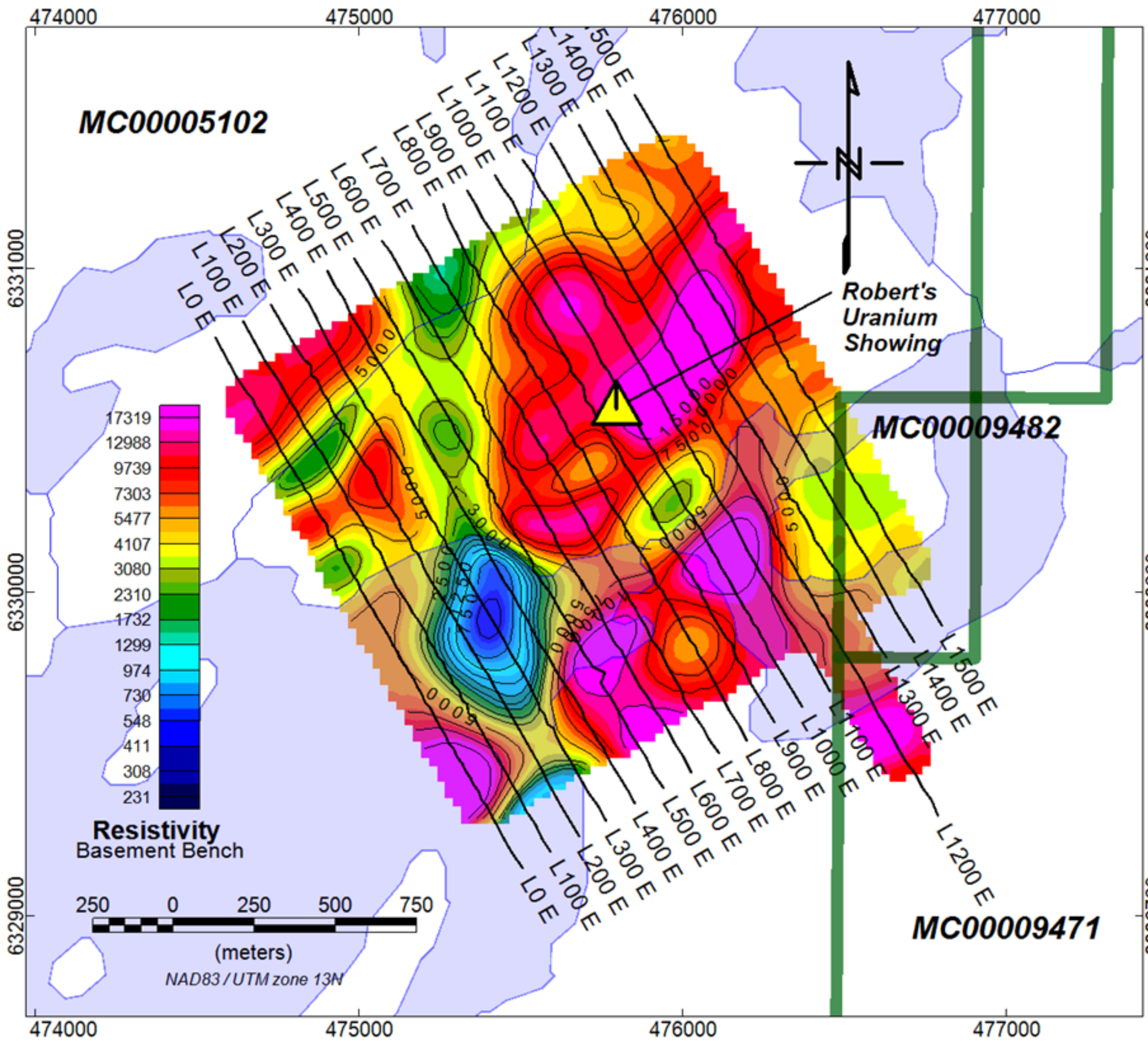

Figure 22: Resistivity - Basement Bench

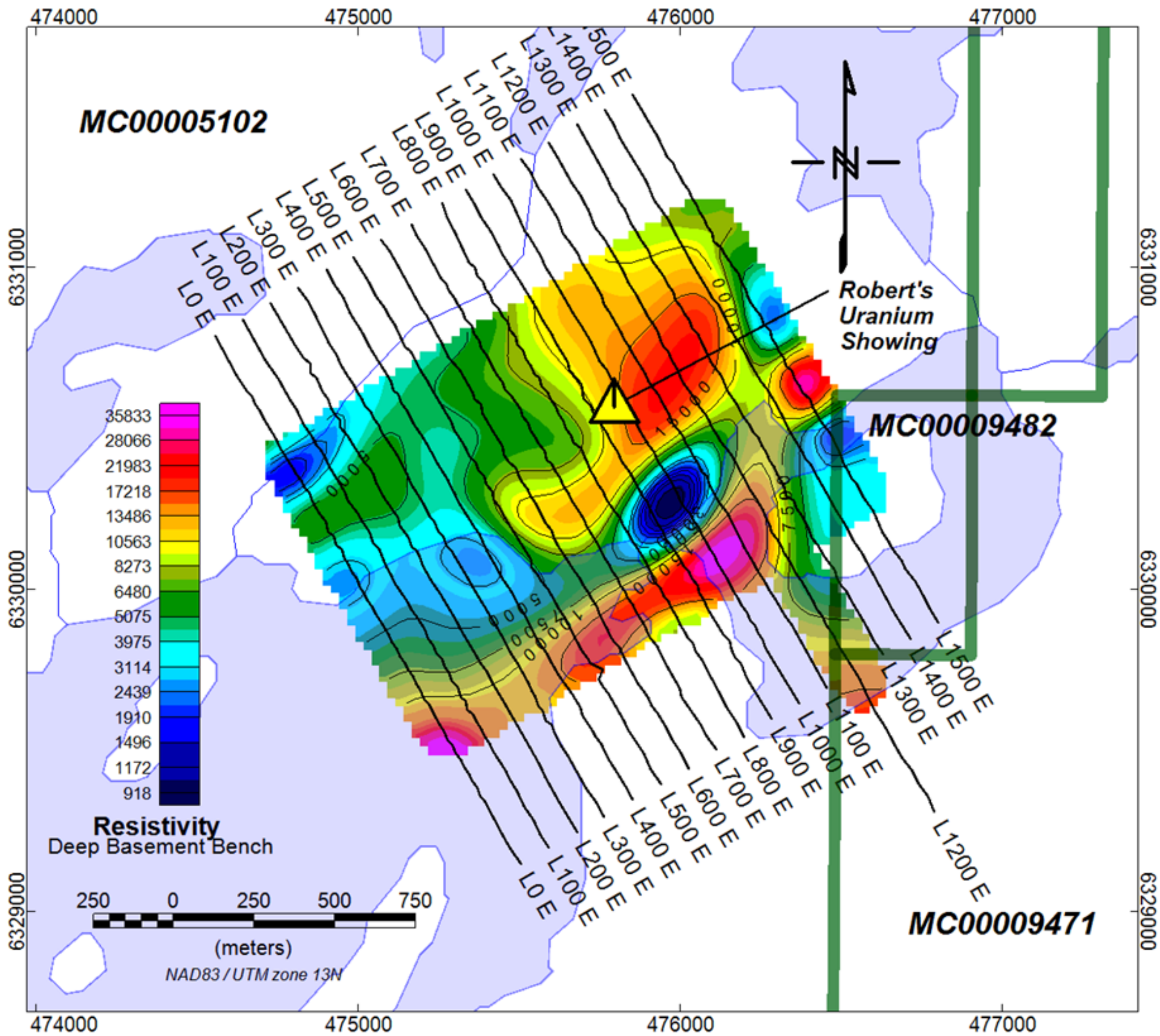

Figure 23: Resistivity - Deep Basement Bench

2.3.2 Gravity

There are a number of techniques used for interpret Bouguer Gravity. The area of the survey is rather small for full potential field analysis using Euler deconvolution and source edge detection methods. Instead, a regional –residual separation was done as well as a 3D inversion with the UBC GRAV3D software. A number of lake observations were manually edited on line 300E as they appear to be solely from incorrect corrections (probably due to low density lake bottom). To create a smoother map and suppress very shallow till features, the gravity was upward continued 25 m before applying a 2km wavelength Gaussian Residual filter. The residual gravity was used for a UBC GRAC3D inversion.

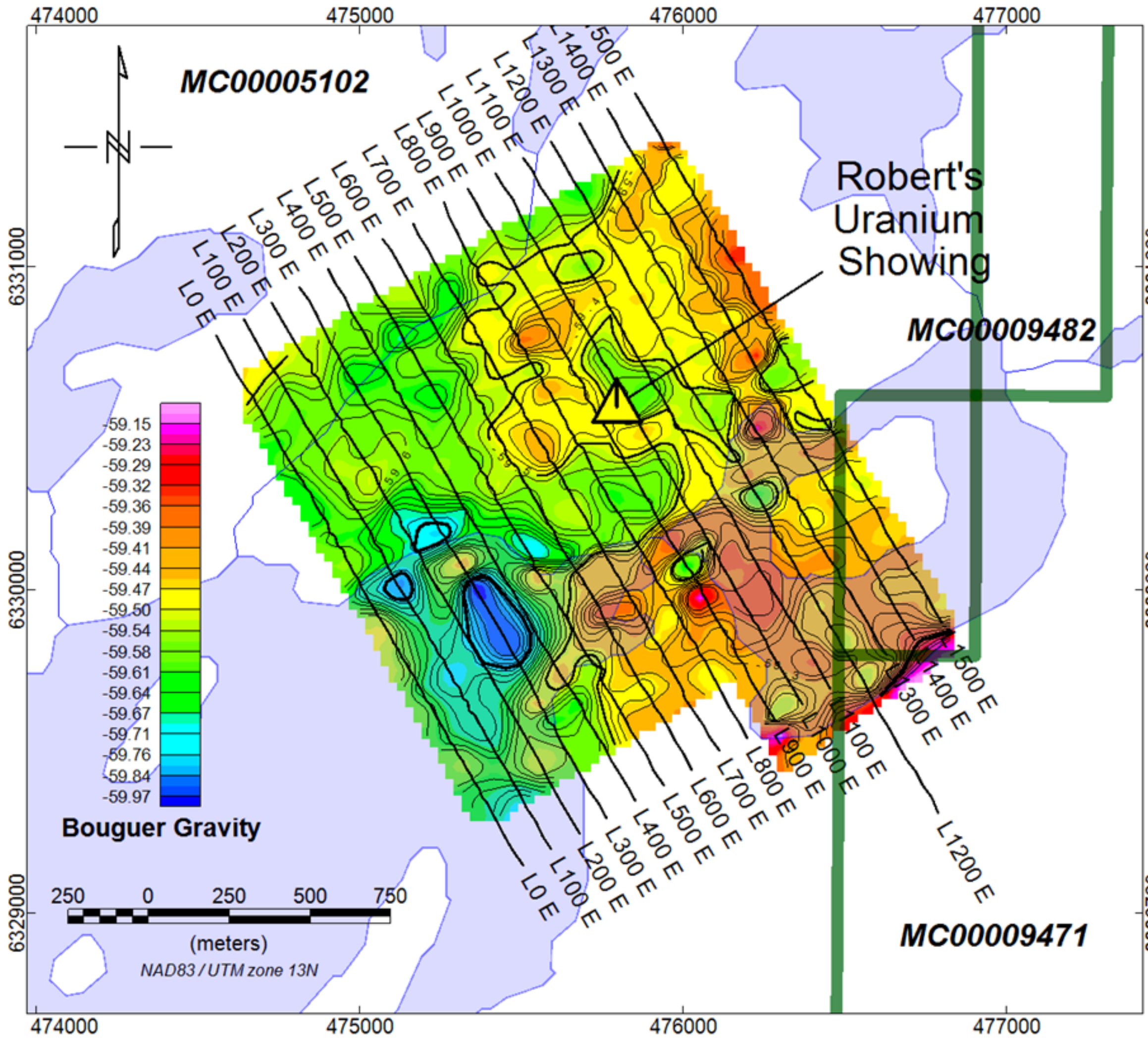

Figure 24: Bouguer Gravity

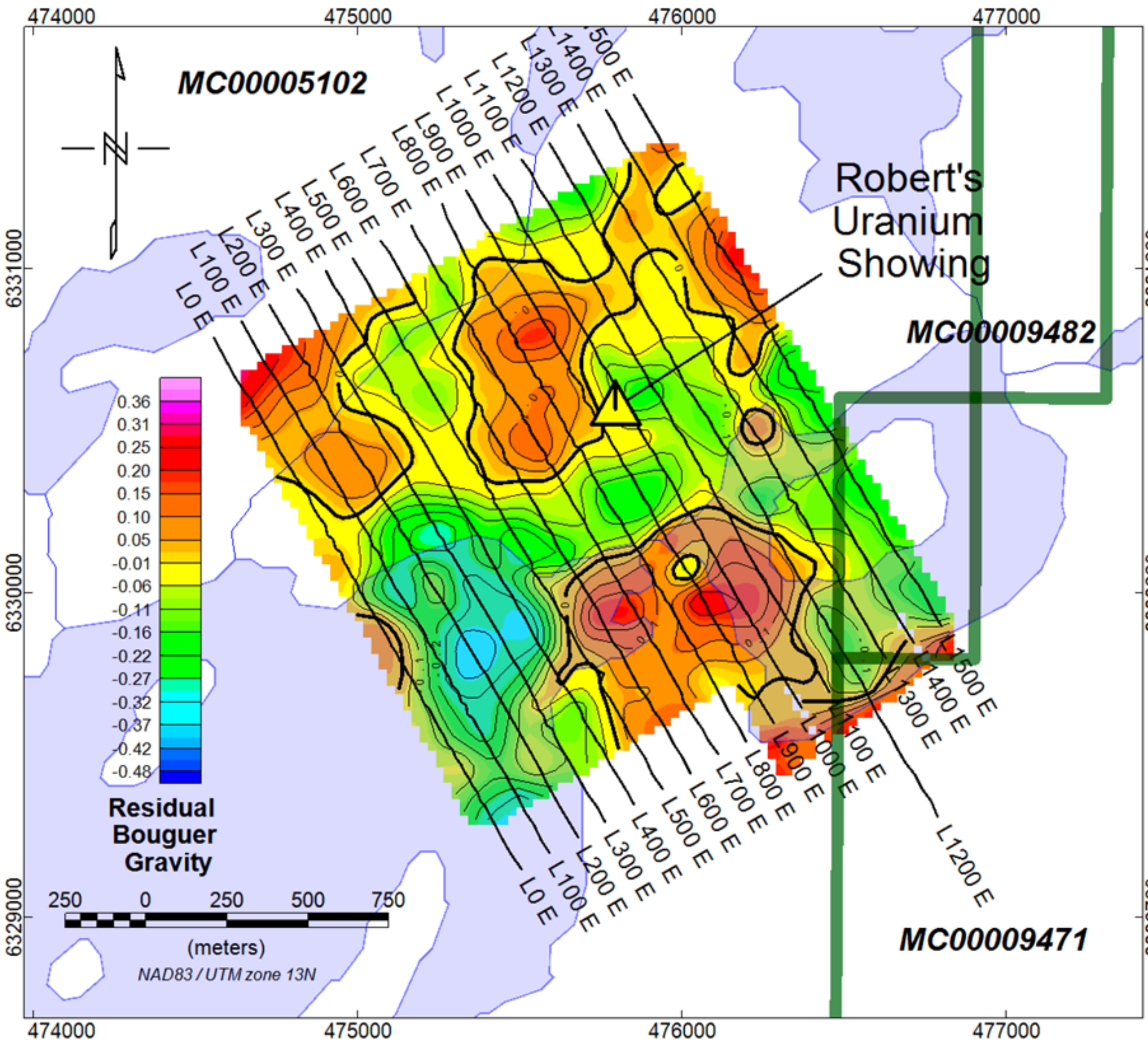

Figure 25: Residual Bouguer Gravity

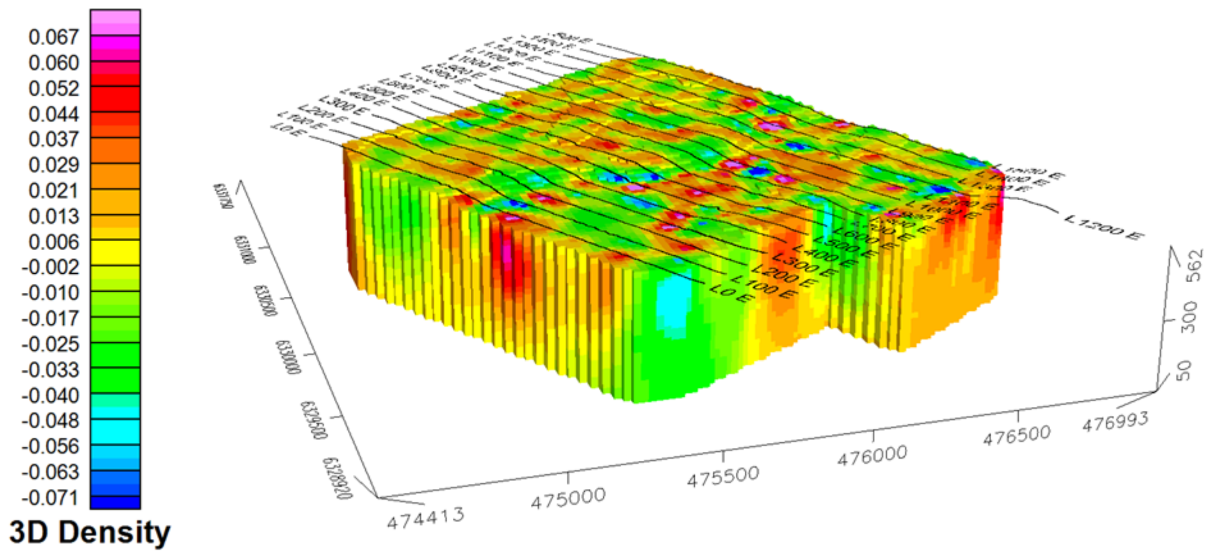

Figure 26: Inverted 3D Density

As in the 3D Resistivity, three (3) density benches are extracted from the GRAV3D Inversion (surface, basement and deep basement).

- The surface bench is from surface to 50m deep.
- The basement bench is from 150 to 200 m deep.
- The deep basement bench is from 350 t0 400m deep.

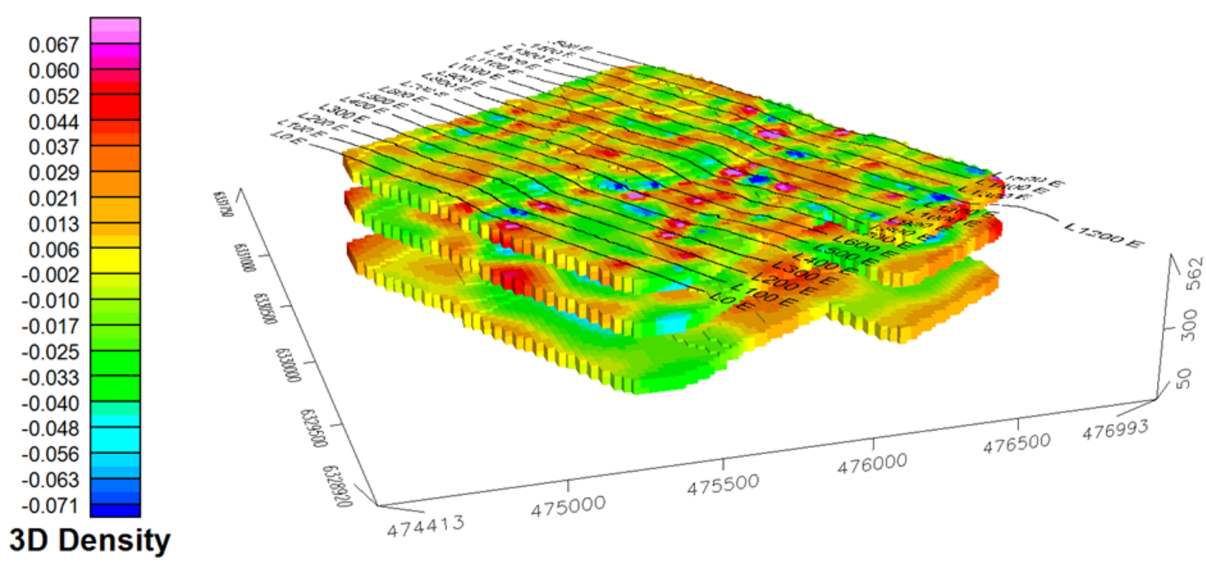

Figure 27: 3D Density Benches (Surface, Basement, Deep)

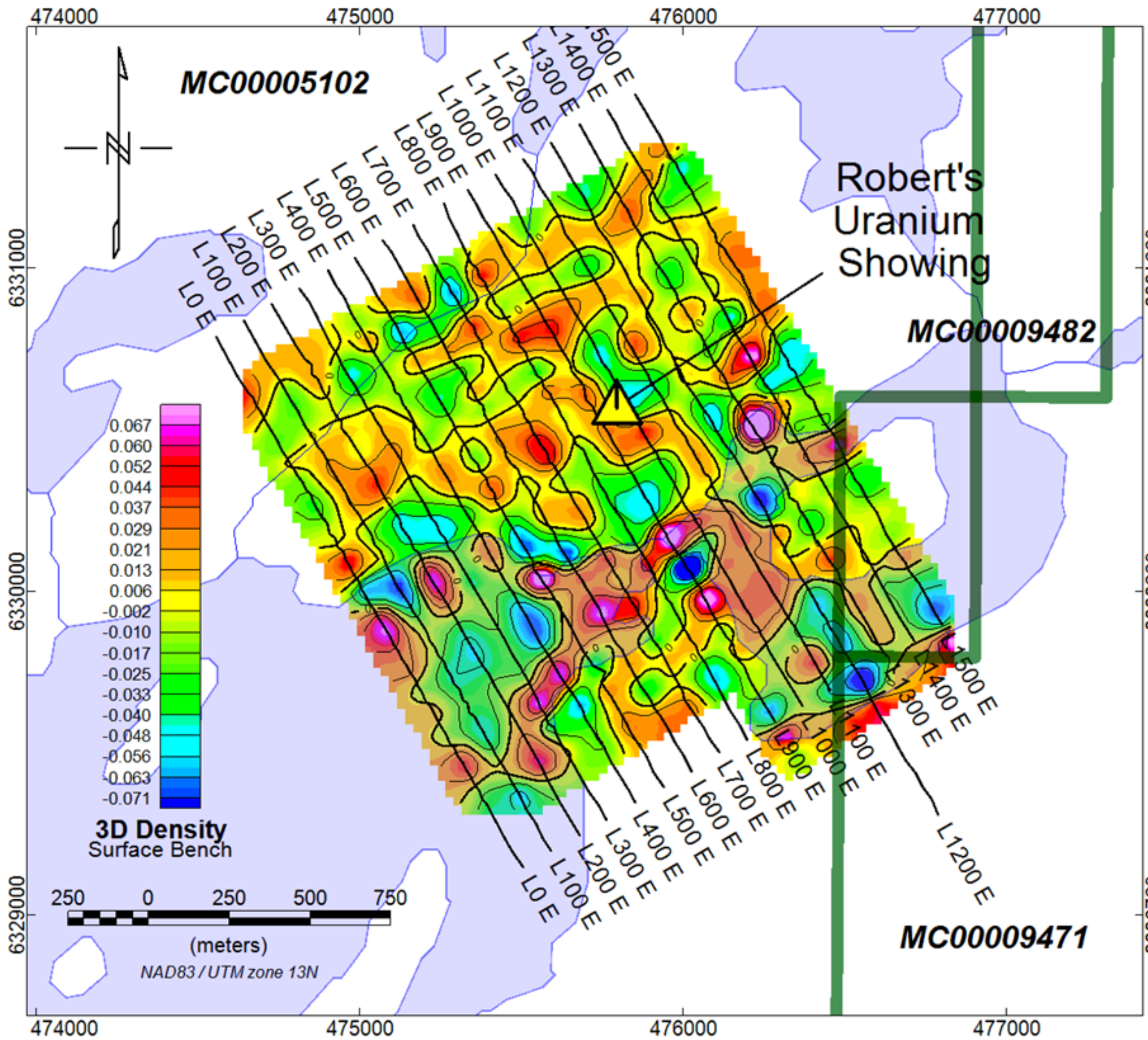

Figure 28: Gravity Inversion – Near Surface Density Bench

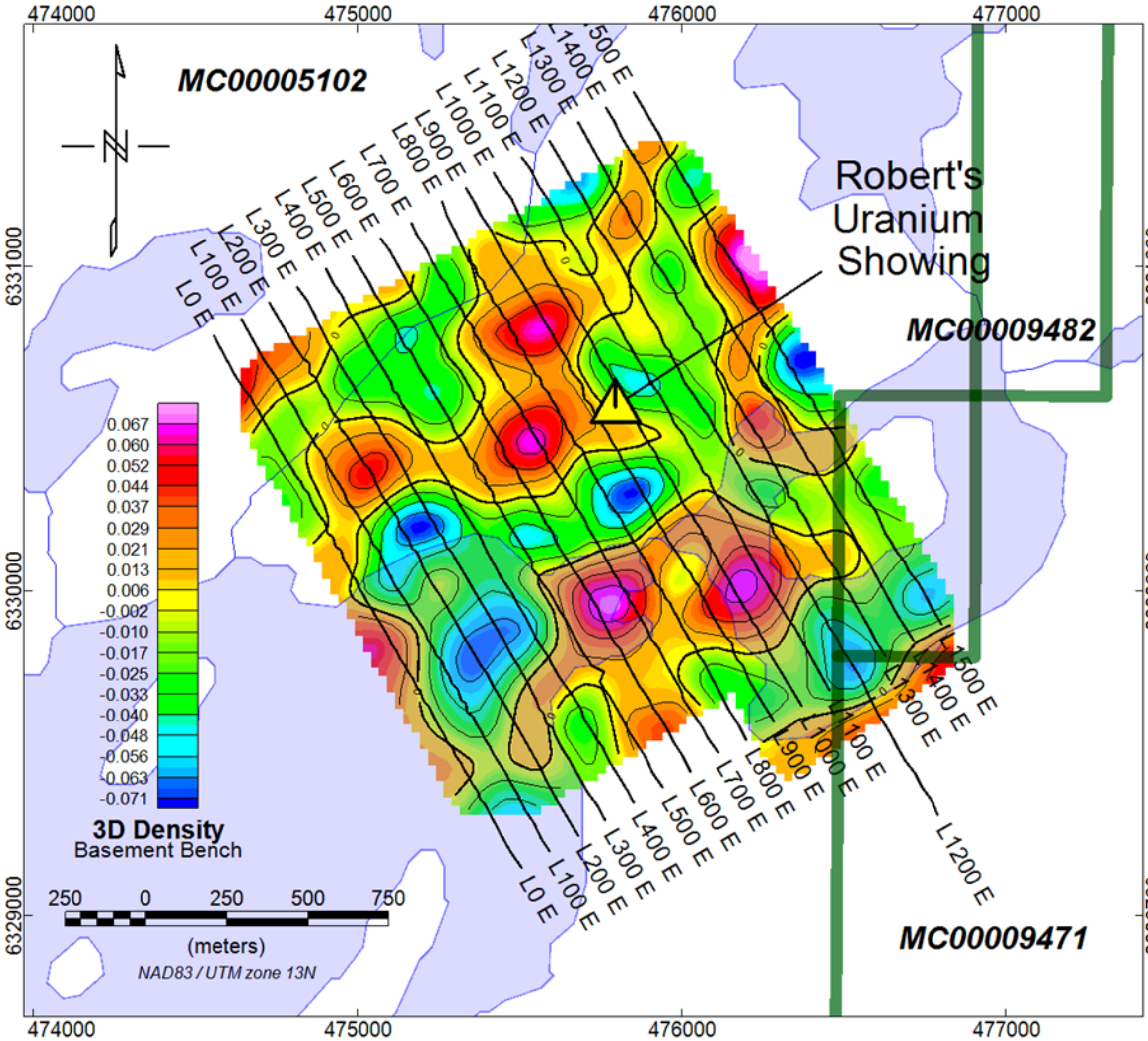

Figure 29: Gravity Inversion – Basement Density Bench

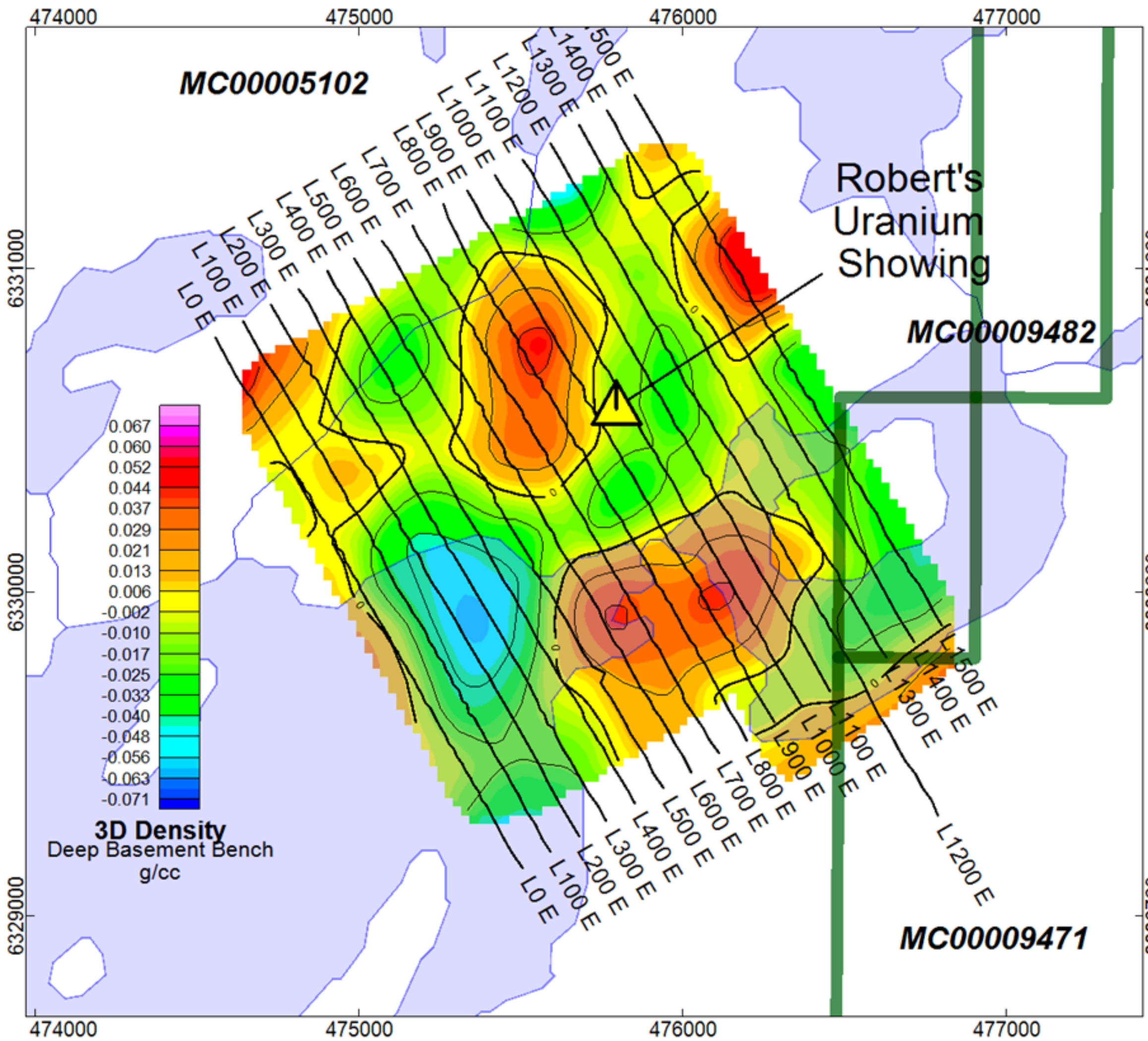

Figure 30: Gravity Inversion – Deep Basement Density Bench

2.4 Discussion

In the Athabasca Basin with competent sandstone cover, an alteration halo is typically observed as a resistivity low in the lower sandstone. In the absence of the sandstone layer (as in this project area), the alteration is expected to take on a different character consisting of a widening and /or increase in intensity of the basement resistivity.

The residual gravity anomalies are extremely low in amplitude (less than 0.15 milligals). The GRAV3D inversion is a reflection of the residual gravity, so the GRAV3D inversion doesn't add significantly to the interpretation.

From analysis of the inverted resistivity sections, the surface layer is evident and confined to the top 100m of the 3D resistivity inversion. Anomalies below this level can be considered to be probable alteration / structural features in the host bedrock.

There are a number of resistivity anomalies labeled on the interpretation maps and listed below in order of priority

Anomaly A - (High Priority): this is a well-defined sub-vertical basement anomaly which increases in amplitude at depth. This anomaly trend is parallel to the Key Lake Trend conductors. This anomaly is also co-incident with a gravity anomaly and is proximal to the Roberts Uranium showing at surface. This trend is strongest on line 900E through 1100E and can be weakly traced to anomaly B and maybe anomaly G.

Anomaly B - (High Priority): This is a strong basement resistivity anomaly associated with interpreted N trending structure. This appears to be a widening where the N trending structure is offset. This is a strong surface anomaly at the lake, but extends well below the lake bottom. L200E shows some separation of the surficial lake anomaly and the deeper basement anomaly. The core of the anomaly is located in the basement. There is also a coincident weak basement gravity anomaly. This anomaly attenuates at depth.

Anomaly C & D - (Medium Priority): These are moderate basement sub-vertical resistivity anomalies showing some strike extent. These anomalies also trend parallel to the Key Lake Trend conductors. Anomaly D is contiguous with a weak gravity low anomaly. These are open to the SW of the survey area.

Anomaly E, F, G: weak resistivity anomalies observed in the L1500E section. These are open to the NE of the survey area. Anomaly G is associated with a weak basement gravity anomaly.

The sub-vertical character and trends of anomalies A, C, D & G suggest there is a possibility these may be basement conductors. A work search indicates no recent high power EM surveys, just an historical INPUT survey. The INPUT system is limited to fairly shallow depths of investigation and very well could have missed deeper basement conductors.

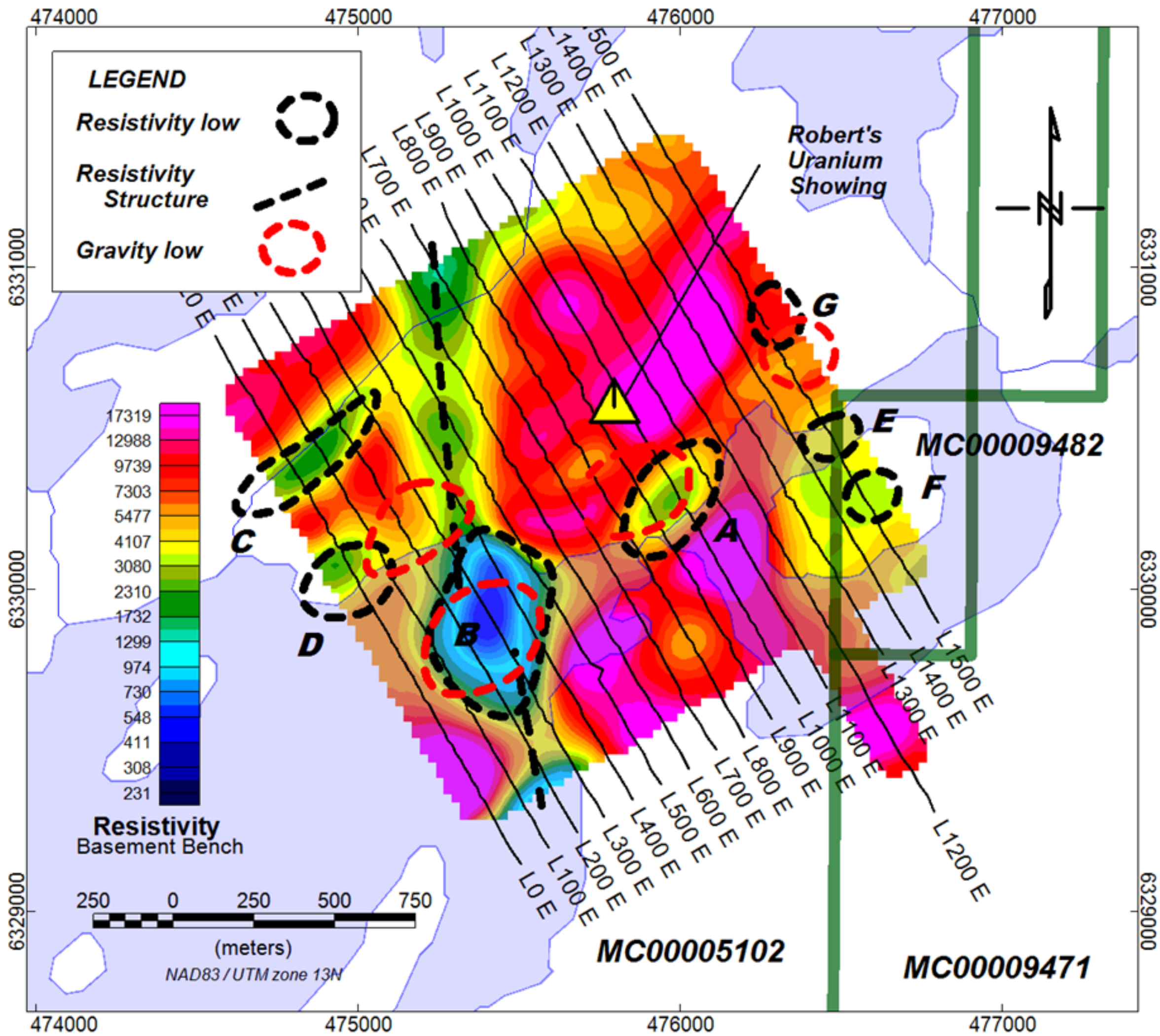

Figure 31: Interpretation with basement resistivity

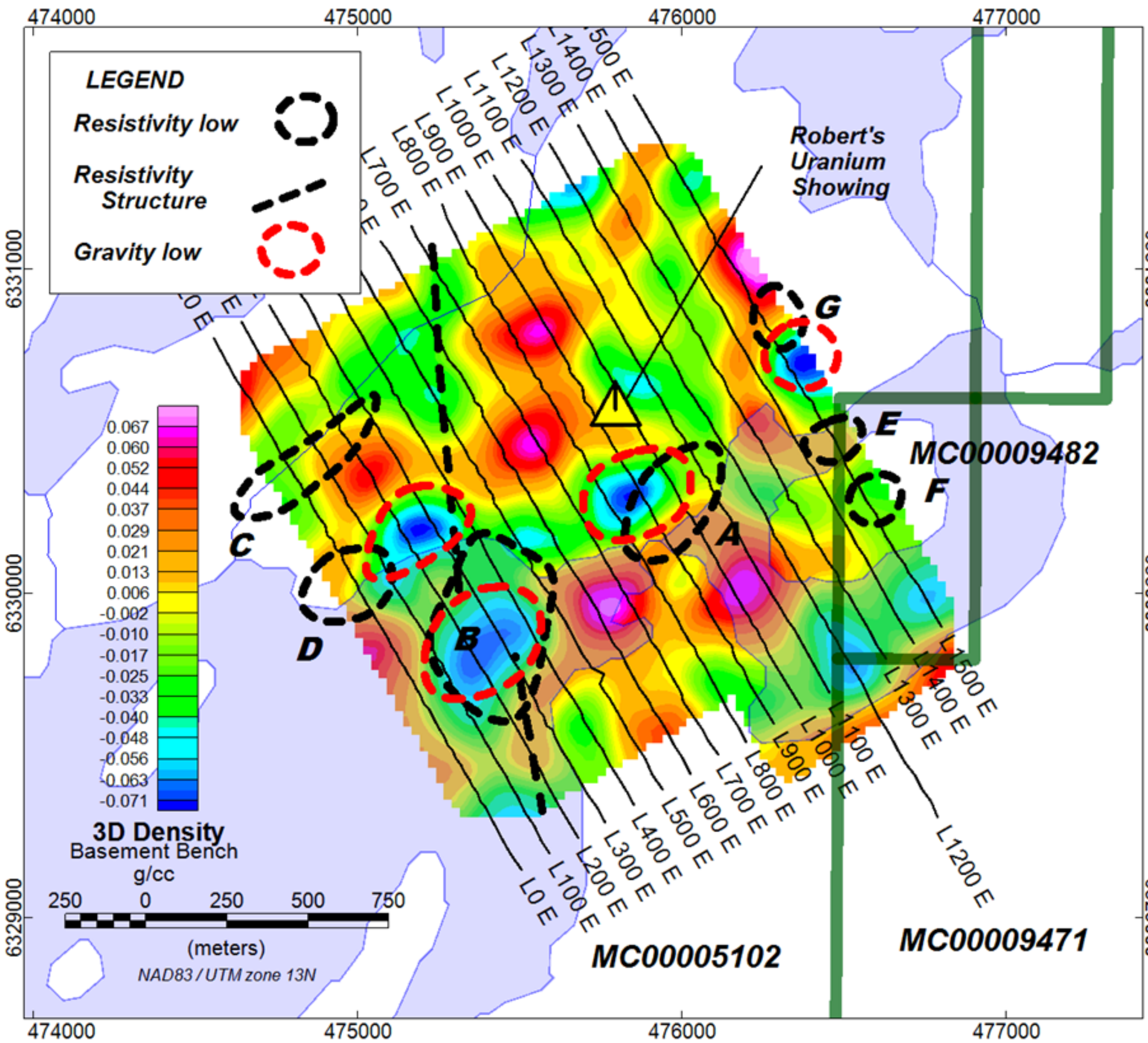

Figure 32: Interpretation with Basement Gravity

3 CONCLUSIONS

The resistivity and gravity surveys were successfully conducted over the survey area. In the Athabasca Basin with competent sandstone cover, an alteration halo is typically observed as a resistivity low in the lower sandstone. In the absence of the sandstone layer (as in this project area), the alteration is expected to take on a different character consisting of a widening and /or increase in intensity of the basement resistivity.

Two high priority anomalies were detected as well as a number of lesser priority anomalies. The anomalies labeled on the interpretation maps and listed in the discussion.

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The High Priority Anomaly B is a strong basement resistivity anomaly associated with interpreted N trending structure. This appears to be a widening where the N trending structure is offset. There is also a coincident weak basement gravity anomaly. This anomaly attenuates at depth.

The sub-vertical character and trends of anomalies A, C, D & G suggest there is a possibility these may be basement conductors. A work search indicates no recent high power EM surveys, just an historical INPUT survey. The INPUT system is limited to fairly shallow depths of investigation and very well could have missed deeper basement conductors.

While Anomalies A & B may be suitable for immediate drill testing, the possibility of basement conductors might be able to be detected and better resolved with small moving loop Time Domain EM surveys. Initially, two profiles (Anomaly A & Anomalies C,D) are suggested with possible further follow up on anomalies E,F &G pending results. The small moving loop is recommended using coils (dB/dT) with a 100m (2-turn) transmitter with a 500m TR-RX spacing.

4 QUALIFICATIONS

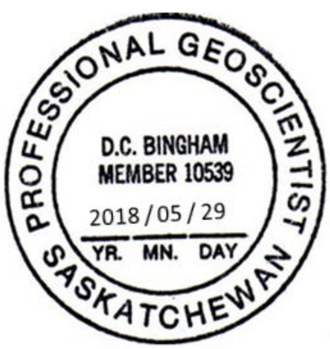
I, David C. Bingham, of the city of Saskatoon, Saskatchewan, hereby certify that;

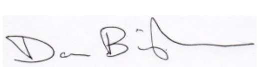
1. I am a graduate of the University of British Columbia in 1978 with a B.Sc. in Geophysics.

2. I have been practicing my profession for the last forty years.

3. I am a member in good standing of the Association of Professional Engineers and Geoscientists of Saskatchewan.

4. I am owner of Bingham Geoscience, an unincorporated body registered in Saskatchewan and with the Association of Professional Engineers and Geoscientists of Saskatchewan.





David C. Bingham, P GEO

Saskatoon, Saskatchewan

May 2018