



GRAVITY SURVEY

of the

MARK CLAIMS (106 to 131) GROUP,
YUKON TERRITORY

Map Sheet 105K-5
Latitude 62° 25' and Longitude 133° 50'

for

CANADIAN RESERVE OIL and GAS LTD.

by

This report has been examined by the
 Geological Survey of Canada and is
 certified to be a true and correct
 copy of the original report.

3515-22

M. W. Milner (for)

Commissioner of Yukon Territory

OVERLAND EXPLORATION
 SERVICES (1969) LTD.

Commissioner of Yukon Territory

Job No. 71-182
July 1st to July 20th, 1971

David K.Y. Chen

060965

INTRODUCTION

In July 1971, Overland Exploration Services (1969) Ltd. conducted a gravity survey on the Mark Claim Group, Claims 106 to 131. The Mark Claims 106 to 131 are an eastern extension to a group of claims staked in 1970. A gravity survey was conducted on the grounds staked in 1970 and a continuation of this survey is the subject of this report. Overland conducted this survey from a tent camp located in the field and supplied by helicopter. Food and supplies were stocked in Faro and flown in from the Faro Airstrip. The Mark Claims are situated approximately 20 miles northwest of Faro on Anvil Creek (Map Sheet 105K-5) about 62° 25' latitude and 133° 50' longitude.

Claim grant numbers are:

MARK	106 - Y 60881	112 - Y 60887
	107 - Y 60882	113 - Y 60888
	108 - Y 60883	114 - Y 60889
	109 - Y 60884	115 - Y 60890
	110 - Y 60885	116 - Y 60891
	111 - Y 60886	119 - Y 60895

MARK	120 - Y 60896	126 - Y 60902
	121 - Y 60897	127 - Y 60903
	122 - Y 60898	128 - Y 60904
	123 - Y 60899	129 - Y 60905
	124 - Y 60900	130 - Y 60906
	125 - Y 60901	131 - Y 60892

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TECHNICAL DATA

Bouguer Free-Air Correction Factor	-	0.06
Latitude Correction	-	4911.15 feet/milligal
Density	-	2.65
Diurnal Drift	-	taken from base plots
Terrain Corrections	-	taken where necessary
Meter Numbers	-	Worden No. 806 LaCoste & Romberg No.'s 181 & 225
Meter Constants	-	No. 806 - 0.20961 No. 181 - 1.05556 No. 225 - 1.06040
Base Value	-	Arbitrary value of 500 milligals

SURVEY & FIELD
PROCEDURE

The horizontal and vertical survey was conducted with a TI-A theodolite. Stations were located and elevated along each of the grid lines. The elevation was then closed across the extremities of the grid lines, all of the closures thus formed were under 2.5 feet. A field plot of the actual elevation closures has been included with this report. The gravity readings were taken with a Worden Master and LaCoste and Romberg meter and stations were metered on a two and one-half hour run from base to base interval. The base station plots were used for graphing the diurnal gravity drift which in turn was applied to all station readings. Each gravity station run had several repeat stations from preceding runs in order to prove the repeatability of the gravity meter. The repeats were all within a 0.00 to 0.08 milligal range. All gravity readings were corrected for diurnal drift, Bouguer Free-Air-Correction, latitude correction, and terrain correction. A density factor of

0.06 for a surface density of 2.65 has been used in this interpretation.

INTERPRETATION

Included with this report are the following maps

- Elevation Map
- Bouguer Gravity Map
- Residual Gravity Map
- Bouguer Profiles showing regional gradient and residual features.

The interpretation of this report is mainly based on the Bouguer Profiles of the surveyed area. It is the profiles which have been examined for anomalous trends and it is from the profile gradient that model studies have been conducted of significant gradient changes. Any gradient changes emanating from within the upper 1,500 feet of the geological section are deemed to be "residual" and are shown as being positive or negative on the Residual Map.

The features which are being sought are gravity positives which can be identified with a source contrast of 1.00 specific gravity. This is the average minimum

contrast that we can expect to find between the altered sedimentary host rock and the massive sulphide bodies.

Complicating the search are two events that will nearly satisfy the above parameters for density contrast. One is a cone or ridge of dense native rock surrounded by several hundred feet of surface till. The second is a mass of altered quartzite or skarn that can be very dense (up to 3.5) and if adjacent to a phyllite with a density of 2.65 will appear as a positive gravity anomaly which is similar to the anomaly produced by massive sulphide bodies.

In most instances only drilling will verify the cause of the anomaly.

The following is a discussion of the maps presented.

BOUGUER GRAVITY MAP

The Bouguer Gravity Map is a total intensity map which displays the entire gravitational field. Quite often it is of little value and the main gravitational features appearing on this map are sourced from major density changes deep within the earth's crust. Occasionally shallow features and trends can display enough relief to have visual significance and be discernible against the deeper and broader background.

The mass distribution exhibited by the Bouguer Map shows the prospect to lie on the north flank of a dense east-west striking material. This steep gradient is probably an expression of a change in rock type located immediately south of the survey limits. The mass deficient area in the north is possibly the gravitational influence of the granite that extends along the north side of the survey. Our experiments with the density of rocks in the area show that generally the intrusive granites are

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less dense than the metamorphosed sediments. Anomalous density changes within the survey are best viewed on the Residual Gravity Map.

RESIDUAL GRAVITY MAP

The Residual Gravity Map shows the difference (in gravity) between the observed gravity and the regional gravity gradient. The regional gravity gradient on the Mark Claims Group has been constructed from a profile analysis of the surveyed gravity lines and is designed to attempt to eliminate deep-seated gravity features which complicate the identification of the shallow-sourced gravity features. These shallow features may indicate mineralized areas. By using this method, the deep seated gravity events are filtered out or suppressed to a point where the remaining or residual gravity is (mostly) emanating from above a predetermined maximum depth. In the case of the Mark Claims Group area this investigation depth is 1,500 feet or less below surface.

The only significant anomaly found on the Mark Claims 106 to 131 is the "A" anomaly. Here we see a positive feature having an amplitude of 2.00 milligals covering an area 1,500 feet by 600 feet. There is also

a possible extension to this feature lying to the east of the claim block but this portion of the anomaly does not reach the 2.00 milligal amplitude.

The physical qualities of the "A" anomaly are as follows:

This anomaly provides an elongated gravity high which is probably best related to a narrow, horizontal cylindrical shaped source. The maximum source depth of this anomaly is estimated to be 600 feet below surface. Using an assumed density contrast of 1.0 g/Cm^3 we estimate the mass weight of the source material to be 40,000,000 metric tons.

The radius of the model cylinder calculates to be 307 feet with a length of 1,500 feet.

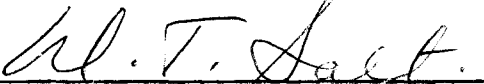
A drill hole located at Station 14 on Line No. 9 should intersect the center of the causative material.

CONCLUSIONS


The east extension to the Mark Claims Block has defined an anomaly of major proportions. We recommend that a drill hole be drilled vertically from the apex of anomaly "A" to a depth of 600 feet. We feel that this location is as good as any that were outlined in the 1970 survey on the eastern portion of the Claim Block. All of our model studies indicate that this anomaly is caused by a mass source having a density contrast in excess of 1.00 specific gravity and possibly 1.50. There is a very good possibility that the causative material is a massive sulphide body.

Respectfully submitted by:

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SERVICES (1969) LTD.



W.T. Salt



W.G. Crook



David K.Y. Chen

/jp



A

ANVIL
CREEK



OVERLAND
EXPLORATION SERVICES (1969) LTD.

FOR
CANADIAN RESERVE OIL AND GAS LTD.

MARK CLAIM GROUP No's 106-131
ANVIL CREEK AREA YUKON TERR

RESIDUAL GRAVITY MAP

Scale 1" = 400' C.I. 0 20 mg. 71-182



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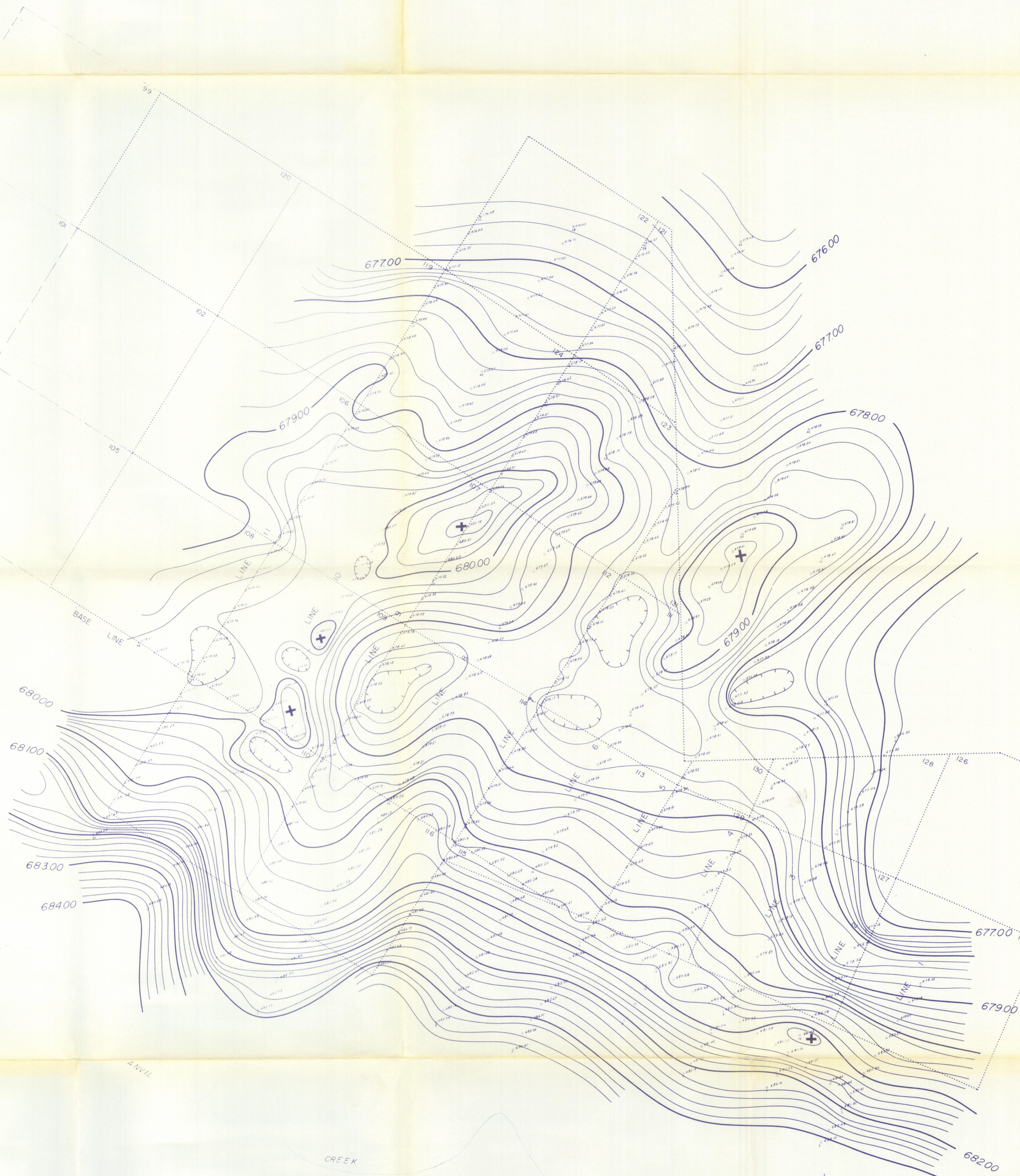
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SURFACE ELEVATION MAP

Scale 1" = 400 ft.

C. 25 ft

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FOR
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MARK CLAIM GROUP No's 106-131
ANVIL CREEK AREA YUKON TERR
BOUGUER GRAVITY MAP
Scale 1" = 400' C.I. 0.20 mgal