GRAVITY SURVEY

of the

ARROW CLAIMS GROUP
YUKON TERRITORY

for

CANADIAN RESERVE OIL & GAS LTD.

by

OVERLAND EXPLORATION SERVICES (1969) LTD.

This report has been examined by the Geological Evaluation Unit and is recommended to the Commissioner to be considered as representation work in the amount of $ 12,216

D. B. Craig

Resident Mining Engineer or

Considered as representation work under Section 53 (4) Yukon Quartz Mining Act.

Commissioner of Yukon Territory

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(ARROW CLAIMS GROUP)
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INTRODUCTION

In September 1970, Overland Exploration Services (1969) Ltd., conducted a gravity survey on the Arrow Claim Group for Canadian Reserve Oil and Gas Ltd. This survey was carried out on grid lines spaced 750 feet apart and the gravity station interval along these grid lines was 200 feet. Overland Exploration carried out this work from two base camps located on either side of the Tay River. The camps were moved in and out and supplied by helicopter. Overland stocked food stuffs and gasoline at Faro townsite in order to shorten the helicopter haul to the prospect. The Arrow Claim Group is situated 30 miles northwest of the Anvil townsite on Map Sheet 105L-9, 62° 35' north and 134° 15' west.

SURVEY & FIELD PROCEDURE

The Horizontal and Vertical Survey was conducted with a T-1 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 Meter and LaCoste & 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 tidal drift, Bouguer Free-Air Correction, latitude correction, and terrain correction. A density factor of 0.060 for a surface density of 2.65 has been used in this interpretation.

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 Master # 806
	-	LaCoste & Romberg No.'s 181 & 225
Meter Constants	-	# 806 - 0.09851
	-	# 181 - 1.05556
	-	# 225 - 1.06040
Base Value	-	Arbritary value of 500 milligals

INTERPRETATION

Included with the interpretation of the Arrow Claim Block is

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

The basis of this gravity interpretation is the examination of residual gravity highs and lows from a regional gravity gradient. We have attempted to construct a regional gravity gradient over the Arrow Claim Block area which filters out deep-seated gravitational effects. Apparent positive and negative deviations from this gradient are considered as being "residual" and to probably emanate from within the top 1,000 feet of the geological section. The interpretation of this report is an investigation of these residual anomalies. Overland has tested rocks from within the Anvil area and have assumed density data

to the degree that average densities for known rock types are now available. Using these average densities, along with the known densities of massive sulphides in the Anvil area, we have been able to establish the parameters whereby anomalies can be investigated for the necessary contrast which would equate them to possible sulphide deposits. The following is a discussion of the various maps presented.

BOUGUER GRAVITY MAP

The Arrow Claim Block Gravity Bouguer Map shows a highly disturbed mass distribution. Through the central portion of the map, slightly north of the No.1 Base Line there is a major gravity low. This low is probably caused by a major fault striking northwest-southeast through this area just to the west side of the low. To the east of this gravity low the gravity rises 8 milligals to a large positive feature located on the northeast extremity of the work. West from this low the gravity rises in a gentle manner to a positive ridge which strikes northeast-southwest along Base Line No.2. West of Base Line No. 2 the gravity indicates that the area is quite disturbed. However, only one line crosses this area and not much more can be said without additional information. The area of local shallow interest is discussed on the Residual 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 Arrow Claim Block area 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 Tay River area this investigation depth is 1,000 feet or less below surface.

The following is a summary and analysis of the important gravity anomalies which appear along the gravity lines which comprise the Arrow Claim Block Survey. Three-dimensional model studies have been

performed on all of the significant anomalies. These studies have parameters based on known differential densities existing between massive-sulphides and Cambrian metamorphic rock in this area. There are several geological conditions which can produce gravity anomalies which are similar to the anomalies caused by sulphide bodies. Two of the more common such conditions are:

(1) Where we find a steep-flanked knob or ridge of Cambrian rock in contact with surface till we can expect to find a gravity anomaly having similar quantitive dimensions to those of a sulphide body, and

(2) Where a very dense intrusive rock is present.

However, anomalies having the characteristics of known sulphide deposits must be drilled because only the drill will reveal their true composition.

"A" ANOMALY

The "A" Anomaly dominates the eastern portion of the survey area and reaches an amplitude of 1.80 milligals. It has a large areal extend and its depth of emanation is (a maximum) of 800 feet below surface. This source-depth appears to be deepening to the north of the feature. The south side of this anomaly is not well defined and more gravity lines and staking are required in this direction.

We have assumed a "slab" shape for the causative mass and by using appropriate formula we calculate that the weight of the mass is about 66,000,000 metric tons.

We feel that the "A" Anomaly is the prime target on the Arrow Block Map Sheet. A fault appears to be present on the east side of the feature and this can be seen on Profiles 6 and 7.

"B" ANOMALY

The "B" Anomaly is made up of a series of small gravity positive features all of which attain an amplitude

of 0.60 to 1.00 milligals and which are strung out in an east-west linear trend. The most attractive of the individual gravity highs making up the "B" Anomaly are found at:

(1) Station 3 North - Line 13

(2) Station 2 South - Line 14

(3) Station 6 South - Line 15

(4) Station 8 South - Line 17

These individual features as listed represent the areas of most interest in the search for massive sulphides. There is however, also a very good possibility that this linear feature represents an intrusive of dense material.

"C" ANOMALY

"C" Anomaly is best represented on Lines 11 and 12 South. Here we find a massive gravity high which is coincident with the topographic high. Because of its large areal extent and its coincidence with topography, we feel the "C" Anomaly is not a good target. However, this area covered by the "C" Anomaly is adjacent to anomalous mineralized values found in the soil sampling and for this reason has been staked.

"D" ANOMALY

The "D" Anomaly is another trend of small gravity highs that meld together to form a linear feature extending across the southwest side of the Arrow Claim Block work. These features are best seen on Lines 8, 10, 11 and 13 South. These anomalies all attain a magnitude of 0.80 milligals and lie in close proximity to anomalous geochemical samples. We feel one of these highs should be investigated with a core hole and our choice is the positive feature on Line No. 8 South.

"E" ANOMALY

This positive anomaly attains a maximum amplitude of 0.60 milligals and we do not feel it is worth further investigation.

On the Arrow Claim Block Residual Map we have colored in red the anomalies which are considered at this time as being prime prospects.

CONCLUSIONS

The "A" Anomaly situated in the northeast portion of the Arrow Claim Block Survey, is one of the best gravity anomalies which we have seen so far. Present information suggests that there is a good possibility the anomaly is caused by a dense sulphide body. We feel that one or two drill holes should be located on this anomaly. Also, further work should be done to the south of Line No. 6 as there is a possibility that this anomaly could extend in a southern direction for some considerable distance. Other anomalies which are worthy of drilling are along the "E" and "D" trends. These features have been fully discussed as individual anomalies elsewhere in this report.

Further work should be done in the southeast portion of the "C" and "D" anomalies where these

features are still open ended.

Respectfully submitted by:

OVERLAND EXPLORATION
SERVICES (1969) LTD.

W. F. Salt.

WTS/jbl

5. I am a member of the following academic and professional societies:

- Society of Exploration Geophysicists
- American Geophysical Union
- European Association of Exploration Geophysicists
- Association of Professional Engineers Of Alberta
- Geological Society of Republic Of China
- Chinese Petroleum Institute
- Chinese Institution of Mining and Metallurgical Engineers.

David K.Y. Chen

DAVID K.Y. CHEN
Professional Geophysicist

DKYC/jp

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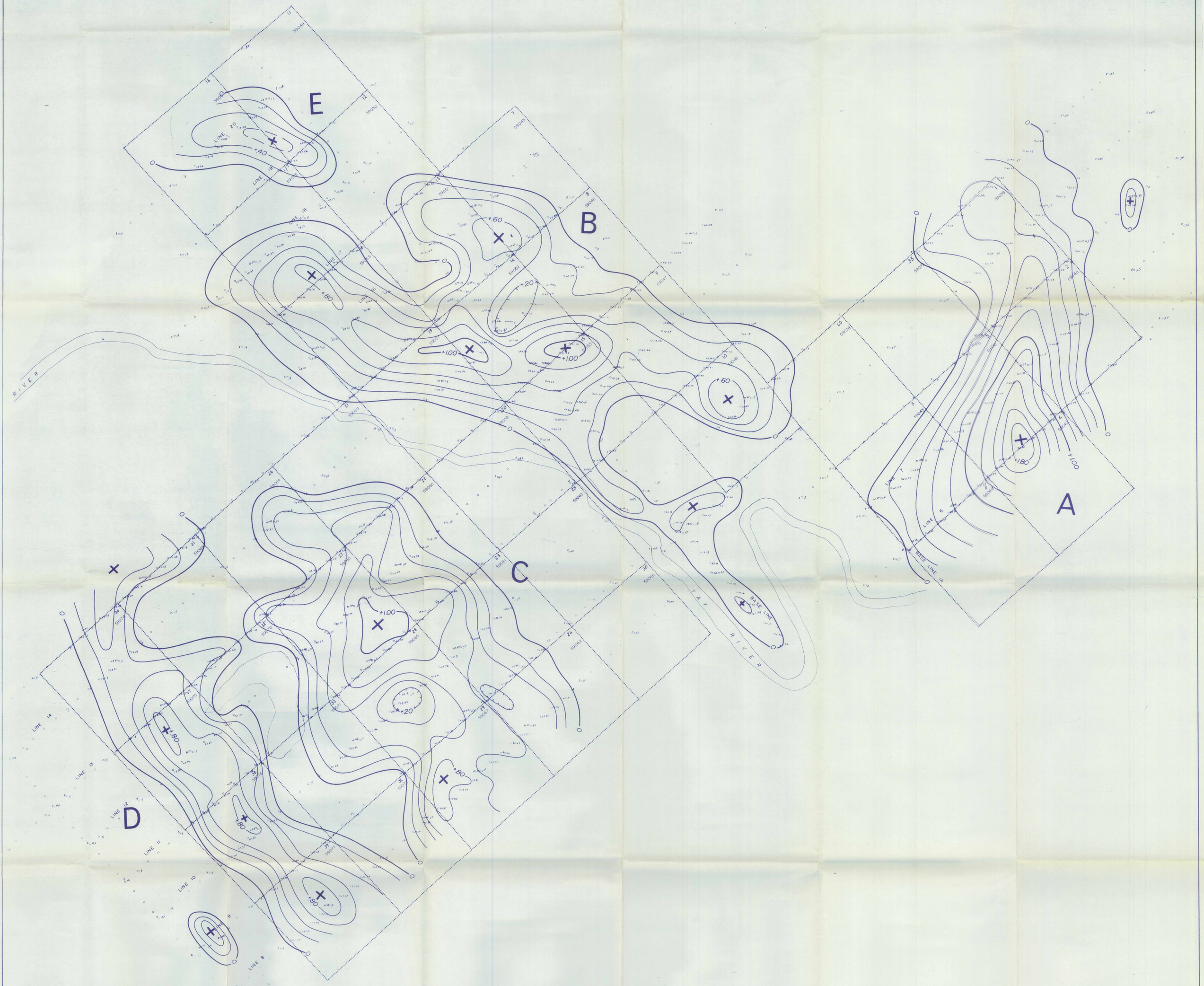
ARROW CLAIM BLOCK
TAY RIVER AREA, YUKON TERR

BOUGUER GRAVITY MAP

Scale: 1"= 400'

C.I.: 0.50 mgl



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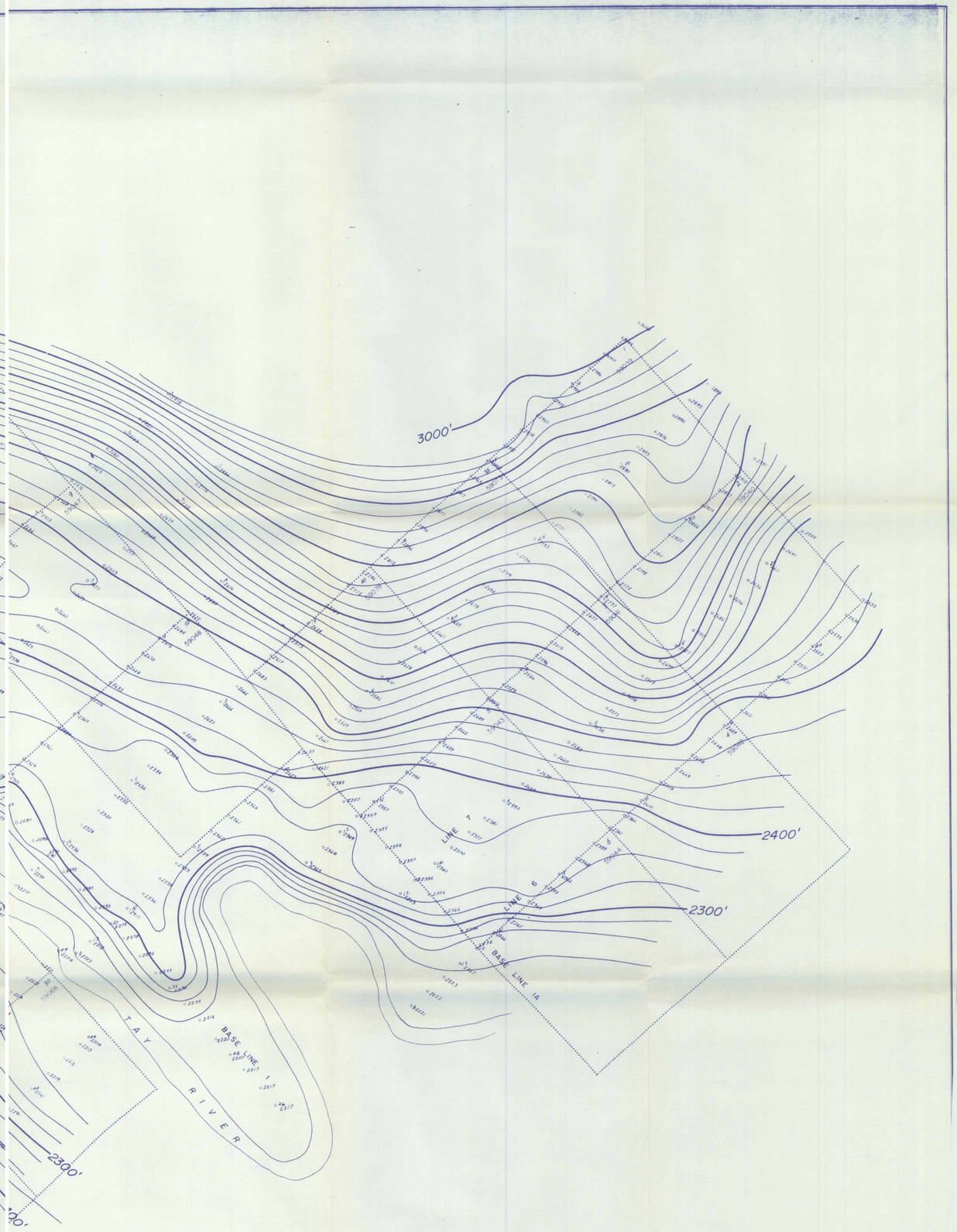
ARROW CLAIM BLOCK

TAY RIVER AREA, YUKON TERR.

RESIDUAL GRAVITY MAP

Scale : 1" = 400'

C.I.: 0.20 mgl.



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SURFACE ELEVATION MAP

Scale 1" = 400' C.I.: 25 feet