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**Foto Claims**  
**Yukon Territory**  
**Gravity Interpretation**

**for**

**Dynasty Explorations, Ltd.**

**by**

**Airborne Geophysical Surveys Ltd.**  
**October, 1972**

Foto Claims  
Gravity Interpretation

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## Introduction

Field work on the Foto claims was conducted during the months of August and September, 1972. Fly camp, supplies, air support, communications and direction were provided by Dynasty Explorations, Ltd. Airborne Geophysical provided gravity meter, survey instruments and a three man crew, consisting of meter operator, surveyor and rodman.

Programme consisted of about 50 miles of east-west lines and north-south tie lines. Line spacing was 800' for the most part, and station spacing was 200'. Surface elevation decreased across the area in a WSW direction from a high point in the northeast portion of the area to a low point in the southwest corner. Maximum elevation range is 1300'±. Local undulations are present in the generally uniformly westerly dipping surface. Most prominent of these is in the west-central part of the area where there is 120' of relief to the east.

Accompanying this report are the following maps:

Station location

Elevation

Bouguer gravity

Residual gravity

### Bouguer Map

Bouguer values were calculated in a normal manner using an elevation correction factor of 0.06 (corresponding to a surface rock density of approximately 2.7). The Bouguer map, contoured at a 0.5 mgal. interval, indicates an ENE regional gradient across the area - counter to surface slope. This suggests that the elevation correction factor of 0.06 is too low. Indeed, in the east-central and north-east portions of the area a factor of 0.064 (surface density of 2.35) would flatten the regional. Even local surface features in these areas do yield gravity changes when the 0.06 factor is used. So it is possible that the bulk of the rocks forming the areas of higher elevation in the east-central and north-east parts are less dense than 2.7. However, this is not the case in the rest of the area, where normal bedrock of 2.7 density does exist.

Most local flexures on the map are not readily apparent. A few exist in the east-central and north-east portions over topographic and other features. A regional low, with a local positive within it, exists on line 60E between 24S and 34S. Most prominent is a strong nosing between 40S and 48S on 30E. These

and others have been isolated on the residual map and analyzed. They are described in the following section.

### Residual Map

Bouguer values and elevations were plotted in profile form. These profiles accompany this report: On prints of the profiles, smoothed Bouguer lines were run. Regionals were also run, tied and adjusted. The residual map accompanying this report represents a contoured presentation of the difference values between smoothed Bouguer and regional. Contour interval is 0.1 mgal. It should be noted that the Bouguer values were smoothed to remove very sharp, small, near-surface effects; and the regional (subtracted from Bouguer) is designed to remove very deep-seated effects. The regional will also include (and remove from Bouguer) very gradually-changing near-surface features. What are left in the residual are shallow gravitational changes caused by density changes from masses having rather abrupt edges. The residual map should be used with care at the limits of data acquisition as regional values (and hence residual values) are under poor control in these areas.

On the residual map, every local positive indicates the presence of a mass which is heavier than surrounding rocks. The mass may be a bedrock topographic high covered by overburden. It may be an injected dike or a local, vertically oriented heavy layer in a metamorphic sequence. It may be a greenstone lens. Or it may be a mass of heavy mineralized material. In evaluating the various positives, the writer relies primarily on amplitude and flank gradient. It should be noted that sulphide accumulations have been found in this region beneath positives as small as 0.5 mgal. On the other hand, some positive anomalies over 1.0 mgal. in amplitude have not been associated with mineralization.

Below is a list of positives of moderate interest. Most are relatively low in amplitude, and causative masses are ill-defined. They are potentially economic if they coincide with other geophysical or geological leads. Order of listing is geographical and it does not bear on relative merit.

- |    |                        |            |                   |
|----|------------------------|------------|-------------------|
| 1. | SW on 192N             | 0.35 mgal  | open to northeast |
| 2. | 14W on 168N            | 0.5 mgal.  | end of line       |
| 3. | 40W, 14W and 6E on 32N | 0.4 mgal.  | single line       |
| 4. | 38E on 24N             | 0.7 mgal.  | open to southeast |
| 5. | 21E on 24S             | 0.45 mgal. | gentle gradient   |

- |    |             |            |                  |
|----|-------------|------------|------------------|
| 6. | 43E and 24S | 0.58 mgal. | gentle gradient  |
| 7. | 16W on 40S  | 0.6 mgal.  | end of line      |
| 8. | 6W on 48S   | 0.56 mgal. | gentle gradient. |

Following are the prime anomalies in the prospect lettered consecutively in order of importance.

A- (intersection of lines 40S and 30E). 1.28 mgal. amplitude. Causative mass 800' x 2400' in areal extent and 110' thick. Maximum depth to top 235'. In relatively uniformly sloping terrain where topographic effects should not exist. Surrounding negative areas are narrow.

A'- Build-up of 0.86 mgal. at 6E on line 48 suggests an associated feature to A may exist south of 48S.

B- (24E on lines 120N and 128N). 1.6 mgal. amplitude from the minimum to the southwest. Causative mass, dipping northeasterly, is 1800' x 3000' in areal extent. Based on surface density of 2.7 and causative mass density of 3.6 thickness is 150' and maximum depth to top is 270' at up-dip edge.

Because this anomaly lies in an area of possible surface density of 2.35 line 120N was recom-

puted with an elevation correction factor of 0.064. The anomaly still appears, but with lesser flank gradient. It was isolated, and computations were made under an assumption of a 0.35 density contrast (i.e. thick overburden of 2.35 to 2.7 bedrock). With a causative bedrock mass of 2.7 and 2.35 overburden, we get maximum depth to top of about 400' and thickness of 400'. Therefore, unless some other geologic information indicates otherwise, it is not too unreasonable to conclude that the B anomaly may be related to a change in rock type rather than to the presence of massive sulphides.

C.- (46E on line 40S) 0.78 mgal. 1000' x 2500' areal extent and thickness of 70'. Maximum depth to top at up-dip edge is 190'. Causative mass trends NE-SW and dips SE. Graded third because of moderate amplitude.

D.- (26S on line 60E) 0.81 mgal. On small, sharp feature located in a regional low. Maximum depth to top of causative mass is 150', thickness 70'+. This anomaly is seen on only one line. It may be related to C.

E.- (30E on line 40N to 29E on line 64N). A lengthy, low-relief (0.6 mgal.) positive, probably extending beyond line 24N. Steep eastern flank suggests west tip. Computed depth to top is 150', thickness 50'.

F.- (43E on line 72N) 0.8 mgal. amplitude, Downgraded because of gentle flanks.

Recommendations

1. Drill A anomaly to 300' at intersection of lines 40S and 30E.
2. Drill B anomaly to 500' at 23E on line 120N.
3. Drill C anomaly to 300' at 46E on line 40S.
4. Run gravity lines 52S and 56S between 30W and 30E and line 6E between 40S and 56S to further evaluate A'.
5. Extend gravity lines 16S and 24S eastward to 70E and run gravity line 64E between 16S and 32S to further evaluate D.
6. If other residual gravity positives coincide with other geophysical or geologic leads, consider detail programmes across them.

Respectfully submitted,



R. B. Galeski, P. Geoph.