PRELIMINARY REPORT ON DUNCAN PROPERTY, KENO HILL, Y.T.

By: A. E. Aho

January 23, 1960

PRELIMINARY REPORT ON
DUNCAN PROPERTY, KENO HILL, YUKON

Submitted to Canex Aerial Exploration Ltd.

Vancouver, B.C.
January 23rd, 1960.

A.E. AHO.

INTRODUCTION:

The Duncan Property had been briefly examined by C.E. McFarland and a resistivity survey was done in early October, 1959, by Geophysical Engineering and Surveys. Having some experience in the area and being slightly familiar with this property, the writer was asked by J.D. Little to analyse the current data and add any comments or suggestions.

To the accompanying resistivity survey plan the writer added some contouring, some pace and compass data and some interpretation. This information should be used only as a rough guide; the important features should be surveyed in more accurately for actual exploration purposes.

It is assumed that the usual background data on this property is on file, so only pertinent data and ideas are presented here.

DISTRICT ORE LOCALIZATION:

High-grade silver-lead ore shoots in the district occur mainly in N-E trending vein-fault systems which usually dip steeply to moderately southeast, cutting brittle quartzites or hard greenstone which strike N.70-90°E and dip 15-30° south. In these competent rocks, the ore tends to be localised in or near the most massive members, particularly at vein-fault intersections or where vein faults pass upward into intercalated schists or thin-bedded quartzites. Right-handed cross-faults, while they offset the ore, appear to have exerted some previous control in localising ore near them.

The schists, being incompetent, generally have not held open fractures continuously enough to contain any significant ore except where they occur within or near the more competent rocks. Vein faults on the schists tend to be narrow, lenticular and discontinuous and filled mainly with barren siderite or quartz.

FRIENDSHIP - SADIE-LADUE VEIN SYSTEM:

The Friendship - Sadie-Ladue vein-fault system is the only significant producer that occurred in the lower schist formation. Specifically, it lies in the Caribou Hill quartzite member which in this locality grades into schist. (See Geological Survey of Canada Paper 58-30, preliminary map 58-30 and Fig.2).

There was probably enough quartzite and greenstone in the vicinity to impart a certain degree of general competence to the section, and a large buttressing of greenstone to the east may have served to localise favourable tensional conditions, producing the strong interlacing vein fault system.

The actual ore bodies lie in schist, greenstone or quartzite at vein-fault intersections which pitch moderately to steeply northeast. In

these the ore bottoms at about the 400 level, with only minor lenses down to the 600 level.

The southwest extension of this vein-fault system on the Klondike Kano property showed only minor lenses of galena in schist.

The northeast extension lies on the Duncan property, largely in schist, but has not been explored.

DUNCAN PROPERTY (See resistivity plan)

Geology and Mineralization:

Rocks exposed on the Duncan property consist entirely of south-dipping graphitic and quartz-mica schists of the lower schist formation, with at least two main sill-like bands of greenstone; (a) along the north boundary of the Bob claim, and (b) extending from Lake #1 claim into the Ivan claim. Minor thin-bedded quartzite apparently occurs on the Yukon claim. These rocks strike N.70-90°E and dip 20° to 30° southerly.

In 1956 the Ladue vein-fault system was exposed in bulldozer cuts 200' west of the boundary of the Duncan property and was thought to extend across the property into a similar zone of several vein faults which cut greenstone and schist on the boundary between Lake #1 and Ivan claims. Pods of galena containing high silver values were found on the Mary claim; only traces of silver-rich tetrahedrite were seen in the most southerly vein fault on the Lake #1 - Ivan boundary. Small amounts of galena were taken from the shaft and from the adit shown on the Ivan claim. However, no economic ore shoot has yet been found anywhere on the property.

Resistivity Survey:

Low resistivity values apparently can be caused by sulfides, graphite, bedrock topography, or certain characteristics of overburden. Fortunately most of the mineralised vein faults strike northeast so they should be distinguishable from graphitic schists and from bedrock topography or overburden resulting from east-west glaciation. However, unless silver-lead mineralization is massive it may not give very low readings and might be masked by these other effects.

Further contouring and colouring of the resistivity plan definitely shows that a N.55-60° E. zone of moderately low values crossing the property corresponds to the known northeast extension of the Ladue vein-fault system. About 200 feet to the northwest a zone of moderate "lows" strongly suggests a parallel vein-fault.

The lowest values, on line 28 +00 (Section A) occur close to the Ladue workings, probably within the same formations, and, therefore, could indicate the presence of ore.

The next lowest values , on line 12 +00 (Section B) may be related somehow to adjoining massive greenstone; a survey done for the winter also showed "lows" on or adjacent to massive quartzites, and extending parallel to their trend for some unexplained reason. However, it could also be related to sulfides near the greenstone.

Moderately low values, mainly on the northeast half of Yukon claim (Sections C and D) may indicate only the presence of vein faults, although ore may be masked. The lower values on Section C may also reflect the projection of favourable greenstone into this locality.

The survey is not extensive enough for much further interpretation but it is possible that cross-faults may exist in the general vicinity of discontinuities in the resistivity trends, perhaps as suggested.

Possibilities for Ore:

In the Ladue Mine, although insufficient data is present, it would appear that the bottoming of the ore shoots pitches about 15 to 20° to the southeast, along what would be the trace of gently south-dipping wall-rock formations on the plane of the vein system (see G.S.C. Paper 28-30, Fig.5). This may be very important in evaluating the Duncan property to the northeast since such a "bottoming" horizon, which may be the approximate base of the Caribou Hill quartzite member, would project to the surface about a thousand feet from No.1 shaft, extending only a few hundred feet into the Duncan property on the Yukon mineral claim (see resistivity plan). The resistivity anomaly on line 28 +00 (Section A), lying within the ore-bearing section may thus indicate sulfides. On the vein itself this would leave only about a hundred feet of depth potential, but since surface geology does not show any marked difference in rock types the ore may not bottom at any one particular horizon since its continuity to depth depends on the strength and types of vein fault intersections as well as wall-rock competence.

Although it is less likely that such ore would exist, further northeast into the schists, the greenstones on the Duncan property may favour limited ore shoots in or adjacent to them, as on line 12 +00 (Section B) and Sections C and D.

Possible Exploration:

(a) Geology and Geophysics:

More precise geologic mapping and additional geophysical work, possibly with electromagnetic or inductance-type methods should help to define possible favourable areas more closely.

(b) Trenching:

Stripping across the veins on Sections A, B, C or D and

downhill on to the west may reveal float beneath the cover of moss and soil.

To uncover the vein, any bulldozer trenching should be planned with careful regard to probable depth of overburden, since the permafrost must be allowed to thaw a few days between each deepening, a process that may take all season in deep overburden and still not reach bedrock. Resistivity results on Sections A and B apparently could suggest depths of about 30 to 40 feet of overburden. No estimates are given for Sections C and D.

(c) Drilling:

Diamond drilling in this district has been notoriously unreliable and costly due to difficult overburden and broken up rock and vein conditions, and is not especially recommended in this locality.

Churn, Rotary or keystone drilling should prove cheaper and more rapid but would give only cuttings unless core could be taken, and may not intersect the steeply dipping veins since only vertical or near-vertical holes could be drilled.

(d) Test Pitting:

Test pits or shafts may be preferable to bulldozer trenches in deep overburden but, aside from being slow and therefore somewhat costly, the resistivity results do not locate the veins accurately enough and the zone of vein faults is too wide to be explored without cross-cuts.

CONCLUSIONS:

The Ladue vein and probably a parallel structure has been traced through the Duncan property.

The stratographic section which contained the productive part of the Ladue vein projects only a few hundred feet into the Duncan property: the rest of the vein extends further into the underlying schists which are considered unfavourable.

Although favourable sections of the vein may thus bottom at shallow depth in the southwest corner of the property, strong vein intersections, particularly where greenstone lenses are involved, could contain ore shoots elsewhere on the property, but it is anticipated that these would tend to be limited in extent.

If only cost of exploration but no option payment is involved, it would appear that limited near-surface exploration may be justified.

RECOMMENDATIONS:

For further exploration four sections, A, B, C and D, are indicated on the resistivity plan in order of preference based on ideas already outlined.

1. More precise geologic mapping and perhaps a little geophysics should be done to confirm or delimit exploration of these or other sections. This work should not occupy more than a few days time.

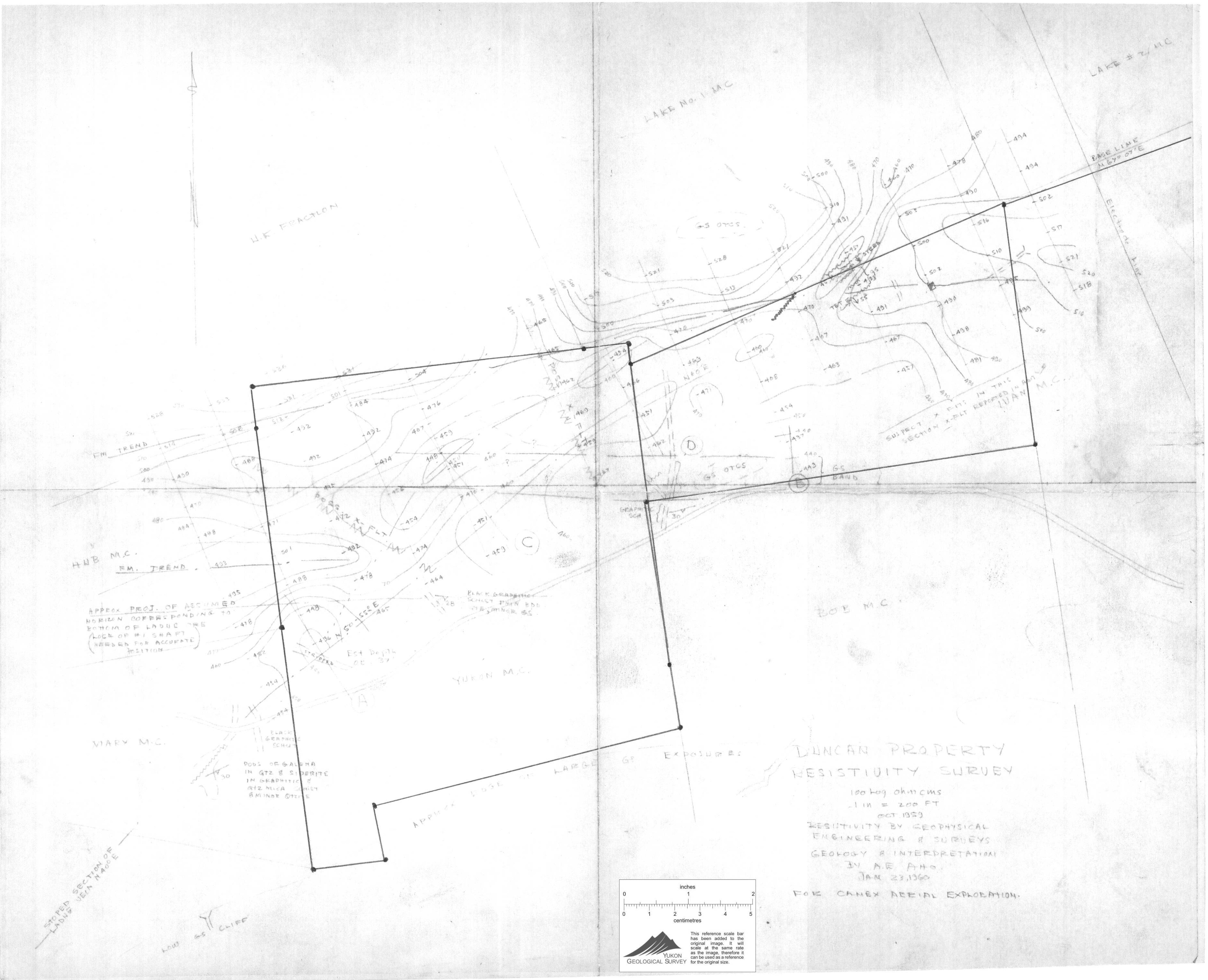
2. The more promising vicinities should be stripped early in time for (a) any indicative float and (b) trenching to depth if warranted by overburden conditions.

3. Decisions on any further work should be carefully weighed as to probability of getting desired information, and particularly cost in relation to the probable limited value of ore that might be expected.

4. No more than, say $5,000, should be expended on this venture unless there is very good reason to expect ore with greater certainty or in greater quantity.

Respectfully submitted,

AAB:ed



inches
0 1 2
0 1 2 3 4 5
centimetres
This reference scale bar has been added to the original image. It will scale at the same rate as the image, therefore it can be used as a reference for the original size.
YUKON GEOLOGICAL SURVEY