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HUNTER POINT EXPLORATIONS LTD.

Perkins Peak Property

APEX CLAIM GROUP

Caribou Mining Division, British Columbia N.T.S. 92 14 E $\mathcal{JPN}/(4\mathcal{E})$ Report on VLF-EM GROUND SURVEY N.M. Cooper August, 1976

> MINERAL RESOURCES BRANCH ASSESSMENT REPORT

NO.

ADDENDUM.

1. Apex No 1 to No 8 Inclusive mineral claims.

Staked by Fred Brink an agent-for Hunter Point Explorations Ltd on the 1st day of October 1976.

2. Aper No 9 to 54 Inclusive Mineral Claims.

Staked by Michael Hretchka an agent for Hunter Point Explorations Ltd on the 24th day of ay 1968.

3. Mineral Lease No H-26 (562 Acres) 13 crown granted claims.

Acquired by Hunter Point Explorations Ltd from the Depat of Mines Victoria as a crown lease,

Belcher No 1 to No 8 Inclusive.

B riton,

Iron Crown No 7

Monarch

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B lue Bell

Mineral Lease M-26 adjoins the Apex No 21,22 and 19 to south.

- 4. On the 30th day of April 1969 Kleens Kleens Gold Mines Ltd acquired by purchase subject to a royalty payout the Apex 1 through 54 and Mineral Lease M-26 from Hunter Point Explorations Ltd.
- 5. On August 11 1975 Kloena Kleene Gold Mines Itd converted the claims of Mineral Lease No N-26 into Mineral Claims of the same name.

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9250-foot Perkins Peak

Northeast ridge reaches toward viewer, This peak represents the approximate southwest corner of the Apex claim group.

PREAMBLE

During the period from August 13 to August 23, 1976 inclusive, a VLF-EM survey was undertaken on the APEX claim group, Caribou mining division, B.C. on behalf of HUNTER POINT EXPLORATIONS LTD. by Norman M. Cooper, a geophysical pregraduate of the University of British Columbia. Some 16 line miles of grid were established and surveyed using a Ronka VLF-EM 16 instrument. A visual inspection of an abandoned adit was also performed and a few samples were taken.

PURPOSE of SURVEY

The intent of this survey was to extend some ground VLF-EM work started in July of 1975 by Tom S. Smith of the exploration division of Canex Placer Limited for Kleena Kleene Gold Mines Ltd.

It was desired to delineate known mineralization zones which have been established by three adits which exist on the property, as well as by several cuts near the COMMODORE and MOUNTAIN BOSS adits. Also of interest was the location of a conductor which was detected by T. S. Smith just north of the Mountain Boss conductor.

LOCATION and DESCRIPTION of PROPERTY

The APEX claim group consists of 54 individual claims staked in 1966 by Fred Brink of Kleena Kleene for HUNTER POINT EXPLORATIONS LTD. The group is centered about latitude 51° 51' N., longitude $125^{\circ}03'$ W. in the Caribou mining division of British Columbia. Perkins Peak (9250') approximates the southwest corner of the property which extends some 2 miles (9 claims) N 70° E and some $1\frac{1}{2}$ miles (6 claims) N 20° W from this point. This area encompasses the northeast flanks of Perkins Peak down to the floor of Moose Valley. It includes the northeast ridge of Perkins Peak and several claims to the south of this ridge. page 2

There are two major cirques on the eastern extent of the northeast ridge which provide major landmarks and good cross-sectional studies of the geological structure of the area. The northern slopes in the area (which comprise the majority of the property) are often precipitous. These slopes are characterized by steep, unstable talus interupied often by bluffs of rotten rock. Due to the northern exposure, these slopes tend to hold snow in gullies late into the season (sometimes all year). The average angle of this side of the mountain is 35° to 40° . The elevation of the property varies from less than 4000 feet AMSL at the valley floor to above 9000 feet AMSL at Perkins Peak.

That part of the property on the southern side of the northeast ridge is generally less steep with virtually no outcrops of rock. As opposed to the smaller talus found on the northern slopes, the southern slopes are dominated by larger sized float, usually quite stable. Very little snow is found on the southern slopes except at the base of Perkins Peak proper.

Perkins Peak is one of the first mountains to rise from the Chilcotin Plateau to form the Coast Range. From the northeast ridge one has a view to the northeast over the plateau country and to the southwest into rugged mountains of the Coast Range.

The working season is about four months, during which occasional blizzards and other typical mountain storms may be expected. These storms are usually short lived and the working season is generally characterized by good weather.

ACCESS to PROPERTY

Usual access to the claim group from Vancouver is by road or rail to Williams Lake. An excellent unpaved all-weather road leads west toward Bella Coola. Some 160 miles west of Williams Lake is One Eye Lake (near Kleena Kleene). At this point a rough (usually 4-wheel drive) road leads south through trees for 18 miles. This proceeds across the plateau and near its end climbs to a sadd $|_c$ on the flank of Perkins Peak. The road follows this saddle to a 12' X 24' plywood cabin situated directly below the hogback which is common to the two major cirques in the area.

Further roads extend accessibility throughout the property, but these are seasonal and must be opened up each spring by a tractor.

Nearby Miner Lake provides a good landing sight for float planes. Helicopters are able to set down on many areas of the property.

HISTORY of PROPERTY

Although the history of the property is quite extensive, very little geophysical work has been done on it. Serious interest in the area as a mining prospect dates back to 1925, at which time Dr. V. Dolmage of the Geological Survey of Canada reported on the gold showings in a small adit (Mountain Boss). Dr. Hartley Sargent made a more extensive report to the Minister of Mines in 1938 on the Mountain Boss group. At that time the workings were open and clean. He noted among other features, the structure of the quartz veins which contained gold with arsenopyrite. A copy of Sargent's



Looking northeast from ridge of western cirque Curl of smoke reveals cabin at bottom of picture. Parts of approach road can be seen crossing the saddle. Miner Lake is visible at left; the Chilcotin Plateau in background. findings is appended to T.S. Smith's report to Kleena Kleene Gold Mining Company Ltd. (1975), which is available from Mr. M. Hretchka of Chromex Nickel Mines Ltd. Mr. Hretchka is currently responsible for the developement of the Apex group.

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The first record to mention the Bluebell adit is a 1945 report to the Minister of Mines in which is stated that the Bluebell is believed to be situated on an extension of the Mountain Boss zone.

Dr. Joseph Mandy also prepared a lengthy report on the area in 1948 (also available from Mr. Hretchka). L.S. Manning and Associates presented a summary report to Kleena Kleene G.M.L. in 1974. However, all reports to this date are based only on surface observation and geological inspection of the available adits and open cuts.

In 1970 Waterton Airex performed airborne magnetic, electromagnetic, and radiometric surveys over part of the property. The results show a pattern of correlated anomalies but presentation was incomplete and inconclusive. The 18-mile access road was also completed in 1970.

In 1971 the property saw more road construction and some stripping. In 1972 more road work and stripping was completed as well as some trenching and diamond drilling. 1973 showed similar work. This recent work yielded a few assays which show only highly localized commercial values, but it did extend the zone of known mineralization.

A. Sacit Saydam of Canex Placer Ltd. was the geophysicist who actually surveyed three short lines with VLF-EM and protonprecession magnetometer instruments in 1975. Due to time limitations, he was not able to complete enough work to be conclusive. Therefore, despite the age of this property and the amount of work done on it, little reliable information has been established except in localized areas prior to this report.

GEOLOGY of AREA

The Apex claim group lies just east of the contact of sedimentary sequences of the Chilcotin Plateau on the granitic Coast Range Batholith. The property is characterized by carbonaceous and ferric argillites frequently interupted by highly weathered felsic sills. Some areas are highly fractured and some degree of metamorphism is evident. In the more westerly cirque a small area of columnar jointing was observed. The dip of the bedding varies from 30° to 60° to the south (the bedding strikes slightly north of east). The lower sequences tend to have the steeper dips. Based on the stitude of bedding in the mountains across Moose Valley from the property (which are north dipping), the author proposes that the claim group actually lies on the southerly limb of an antiform which has been cut along its axial plane by Moose valley.

The rocks in the Perkins Peak area are of Lower Cretaceous age, and are volcanically intruded. Evidence for the latter is emphasized by a small granodiorite stock visible on the northeast ridge of Perkins Peak just west of the cirques.

Gold and silver, occuring with arsenopyrite and pyrite in small quartz stringers, constitute the mineralization of major interest. Hematite and limonite were also observed in the float rocks on the property. Examination of the Bluebell adit revealed a substantial occurence of graphite. Much of the surrounding argillite of the area is graphitic and the author has presumed that



View of western cirque over cabin Line OO runs approximately along ridge on right. Prominent felsic dike is readily visible across cliffs of cirque. page 6

a leaching process through a shear zone has drawn the graphite from the argillite in a pure form.

One very noticable feature on the property is a highly weathered felsic sill which has been exposed high in the cirques. It extends entirely across these cirques and is traceable quite far west across the northern slopes of Perkins Peak, where it is not covered by talus. It is about five feet thick but surface examination revealed no economic mineralization.

Stratigraphy is exposed for observation by the many cliffs and bluffs dominating the northeasterly slopes of Perkins Peak.

DESCRIPTION of GRID

Neither surveyor's chain nor inclinometer were available for this survey. The grid was therefore established by compass bearing and pacing. Many landmarks were noted as the survey was performed and these were later identified on topographic maps and aerial photographs. Distance measurements appear to have been made surprisingly accurately by pacing (not more than 3% error)

Twenty-one lines were established running true north, 100 meters apart. The shortest line is only 400 meters in length (limited by unsurveyable cliffs) and the longest is almost 2 kilometers. The average length of line was about 1.4 kilometers. Many parts of these lines were not surveyable, however, due to cliffs and lakes. The total surveyed grid constitutes some 26 kilometers of data.

Readings were taken every 15 meters (50 feet) and stations were marked every 50 meters either with pickets and survey tape or, occasionally, rock cairns with survey tape. These stations are largely located on unstable slopes and are not expected to be very permanent. However, many landmarks were noted relative to this grid and they are marked on the map provided (figure 27). It is believed that, if necessary, this grid could be reliably re-established at any time.

One final note on the grid regarding its origin is in order. Although A.S. Saydam was not able to construct a substantial grid in 1975, enough of his markings were located to identify the origin of his grid. He appeared to have located line OO, station OO quite arbitrarily. However, for the sake of consistency, it was decided to establish the entire 1976 grid on the basis of Saydam's origin.

INSTRUMENT

A Ronka VLF EM-16 instrument was employed for this survey. Alignment with the electromagnetic field is indicated by an audible null. Both real dip and quadrature components of field attitude are recorded as a + or - percent angle.

The primary field chosen was provided by radio NAA, Cutler, Maine (17.8 KHz). From the survey grid, the apparent direction to the transmitting station was 20° north of east. This created a primary field direction which was approximately north-south. Since it was believed that significant conductors on the property would strike east-west, Cutler was a good choice of stations. Twice during the performance of the survey, a signal could not be detected. It is believed that during these periods radio NAA was off the air for maintenance. In general reception was strong and clear.

INTERPRETATION

A. Data Processing:

Data recorded on the field survey consisted of the real dip component of field alignment and the quadrature component of field alignment. Both of these values are recorded in profile form in figures 2-26 of this report.

In order to facilitate the compilation of a contoured map of the survey area and to perform first order topographic corrections on the data, Fraser's filter was applied to real dip angle data. The effect of this filter is to phase shift data by ninety degrees so that inflections are transformed into peaks and to remove D.C. and attenuate long wavelengths (those due to topographic control). The filter also removes station to station random noise and amplifies local anomalies. For more information on Fraser's filter the reader is referred to "Contouring VLF-EM Data" by D.C. Fraser in the Society of Exploration Geophysicists journal <u>Geophysics</u>, volume 34, no. 6, December, 1969.

The filtered data is also plotted on the profiles in figures 2-26 and is further employed for the construction of the contour map (figure 27).

B. Observations:

The most significant conductor in the survey area encompasses the Bluebell adit. This conductor reaches a peak of some 9 times background and averages better than 4 times background for a length of some 700 meters. This conductor is in direct line with another located around the Mountain Boss adit. The Mountain Boss conductor averages 4 times background for some 300 meters but it peaks at only 5 times background.

Another noteworthy anomaly occurs at the eastern extent of the eastern-most cirque. This is a smaller zone yet quite strong. It is cautioned, however, that this anomaly lies at the base of cirque cliffs. It is possible that the sharp topographic inflection may have been local enough to be passed by the filter and would therefore not be geological in origin.

Several lesser anomalous zones appear elsewhere on the map, but these are too small to be of interest other than to note general trends. All data confirms an east-west strike of conductors in the survey area. The data also suggests a south-dipping conductor, which in combination with the known topography would account for the non-linear nature of the Bluebell anomaly.

Slight phase shifting of the quadrature profile relative to the real dip profile suggests a very weakly conductive overburden in the lower reaches of the eastern cirque. This is likely an insignificant result caused by the hematite and limonite float observed in the area.

CONCLUSIONS and RECOMMENDATIONS

It is plausible that the Bluebell conductor and the Mountain Boss conductor both represent the same zone of mineralization. This zone would have been interupted by the cutting of the western cirque, explaining the discontinuous anomaly. It is by far the most interesting prospect of the survey area. page 10

The smaller anomaly in the eastern cirque is believed by the author to be worthy of further investigation. It may be a result of topographic control over the electromagnetic field, but seems too significant for this to be the case. Note that elsewhere on the property sharp topographic inflections do not have the same effect on the filtered data (eg. the ends of lines 600W, 500W, 400W, etc. at the northeast ridge).

It is further believed that this small anomaly is part of a conductive zone paralleling and to the south of the prominent Bluebell zone. The southern zone represents a much weaker conductor but equal in length to the northern one. This conductor can not be well defined by a ground geophysical survey since it lies largely in inaccessible areas on steep cliffs. The western extension of this zone is coincident with the anomalous area noted by Saydam across line 00 and line 100W in 1975.

Further geophysical surveying is recommended in order to confirm the VLF-EM results. A magnetometer survey could be quickly and relatively cheaply performed over that part of the survey area of interest (i.e. all lines should be surveyed from 600N to 400S). The area is definitely not suitable to induced polarization or resistivity surveys due to the rocky nature of the terrain.

Given that the conclusions of this report are supported, a drilling program should be initiated to determine the nature and exact extent of the anomalies. Note the good accessibility and proximity to water for drilling the eastern reaches of the Bluebell zone. Drilling could be conducted from the road just south of the site of the old camp (between lines 1000E and 1200E). Assuming the Bluebell conductor and the Mountain Boss conductor represent the same zone of mineralization, araenopyrite and pyrite, with a small chance of gold or silver might be expected from such drill tests. The very strong anomaly peaks near the Bluebell adit are probably due to graphite deposits in a shear zone.

If these graphitic deposits are of significant extent and can be made easily accessible, they may be of economic interest. If assays and drilling programs prove the area to be economically feasible for development for its metals, this graphite should be kept in mind as a by-product.

The area is definitely of interest. At least one large significant conductor has now been defined. Further surveying and drilling will be necessary to determine its economic value.

To the best of my knowledge, this report is accurate and complete.

signed:

Norman M. Cooper

N.M. Cooper, geophysical pregraduate, University of British Columbia page 12

References

on property and area:

MANDY, Joseph T., "Report on: Mineral Deposit, Mountain King and Mountain City Groups, Perkins Peak", October 1948, available from Mr. Hretchka.

VON ROSEN, G.E.A. (for L.J. Manning and Associates Ltd.), "Chromex Nickel Mines Ltd. Gold Property, Perkins Peak, Kleena Kleene, B.C.", August 1974, available from Mr. Hretchka.

- SMITH, T.S. (for Canex Placer Ltd.), "Kleens Kleens Gold Mining Company Ltd., Perkius Peak Property", July 1975, available from Mr. Hretchka.
- TIPPER, H.W., "Mesozoic and Cenozoic Geology of the Northeast Part of Mount Waddington Map Area (92 N), Coast District, British Columbia", paper 68-33, Geological Survey of Canada, 1969, pages 49, 87.

on data reduction:

FRASER, D.C., "Contouring VLF-EM Data", <u>Geophysics</u>, vol. 34, number 6, Society of Exploration Geophysicists, December 1969, pages 958-967.

CONTRACT AGREEMENT.

This contract entered into at the City of Vancouver B.C. on the 22 day of June 1976 by and between the corporate parties,

Kleena Kleene Gold Mines Ltd and Hunter Point Explorations Ltd all of 105 West 6th Avenue, City of Vancouver B.C. V5Y 1K3.

NOW THIS AGREEMENT WITNESSETH.

For an in consideration of the mtual presents and valuable consideration receipt of which is acknowledged by the respective parties the parties agree as follows.

- 1. Whereas Kleene Kleene is the owner of the Apex 1-54 claims at and about Perkins Peak, Cariboo Mining Division and some 160 miles west of Williams Lake B.C. and said Kleena Kleene requires that certain geophysical surveys be carried out on certain designated mineral claims by qualified personal utilizing approved equipment and on a grid not exceeding 400 feet, with readouts every 50 feet more or less, and that such grid lines be marked about every 150 feet with colored tape or survey stacks so as to enable these grid lines to be followed and that such survey be completed by the last day of September 1976.
- 2. And whereby Kleena Kleene contracts out to Hunter Point for its account and benefit the contract to carry out and complete such survey, and the party contracting being Hunter Point Explorations Ltd binds and obligates itself to carry out the survey within the requirements as imposed by this contract.
- 3. It is agreed mutually by the parties that on completion of the survey the method of payment is calculated as follows,
 - (A). At the rate of \$400.00 per grid mile
 - (B). And all costs in respect to the opening up of the 22 miles of access roads.
 - (C) and costs in respect to the goephysical report in an amount not exceeding \$600.00

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