

REPORT
ON
GEOLOGICAL AND GEOCHEMICAL SURVEYS

K.L. CLAIMS

KEEFER LAKE AREA

VERNON MINING DIVISION, B.C.

by

Murray Morrison, B.Sc.

CLAIMS: K.L. 1 to 12 inclusive
K.L. 13 and 14 Fractions

LOCATION: One mile northeast of Keefer Lake,
44 miles east of Vernon, B.C.

Latitude 50°08' N, Longitude 118°19' W

N.T.S. 82L/1W

OWNER: Ducanex Resources Limited

WORK BY: Ducanex Resources Limited

DATES: September 20 to October 5, 1974

Vancouver, B.C.

October 25, 1974

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT

NO. 5279 M.P.

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M A P S

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SUMMARY

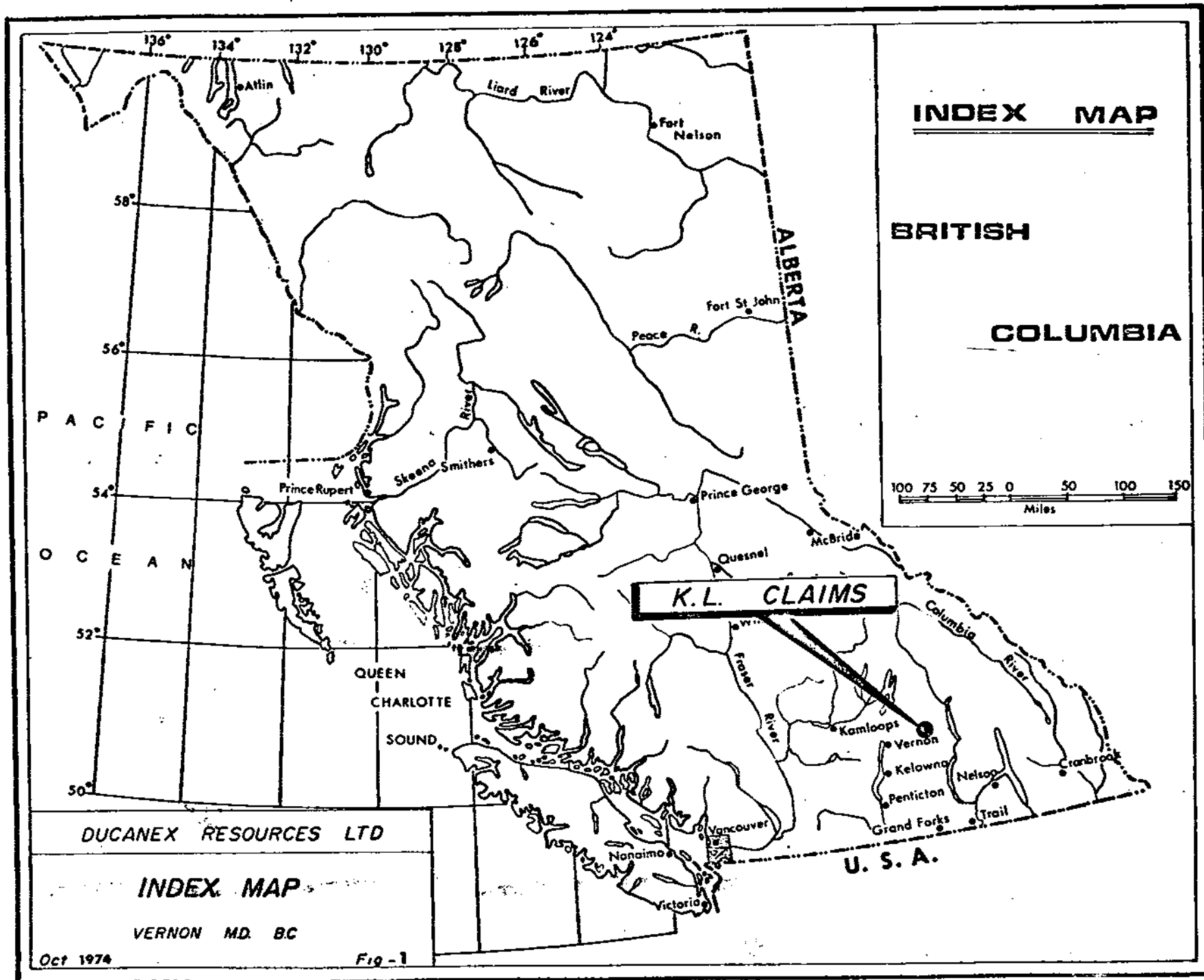
The twelve full-sized and two fractional K.L. claims belonging to Ducanex Resources Limited at Keefer Lake in the Vernon Mining Division were geologically mapped and geochemically surveyed by a crew of Ducanex Resources Limited during a two week period from September 20 to October 5, 1974. Control lines were laid out 400 to 500 feet apart and stations were marked at 100 foot intervals. All outcrop exposures were mapped and soil samples were collected from each station. Soil samples were analyzed for arsenic.

CONCLUSIONS AND RECOMMENDATIONS

Both the geological mapping and the geochemical survey for arsenic in soils served to point out the fact that an area bounded by 10 N, 5 W, 22 E and 14 N probably warrants closer further examination more than any other part of the property. The geological mapping shows that intrusive dyking, faulting and local silicification occur near line 12 N for a length of 2,200 feet. Line 12 was the only intermediate line established on the property and soils along it were tested to see if they would have anomalous values of arsenic coincident with the faulting

and silicification. The geochemical results for this intermediate line did prove to be the best on the property.

One sample (#2937) taken from a promising-looking silicified rock, at 12 N 2 E proved to have only 0.005 oz. Au/ton and 0.02 oz. Ag/ton. It is possible that the arsenic on the property accompanies very low grade Au and Ag as exemplified by sample #2937. However, it is recommended that detailed sampling be carried out in the vicinity of line 12 N from 5 W to 22 E to test for possible gold values in bedrock. A systematic sampling job could be carried out using shallow hand-dug trenches combined with the sampling of existing rock exposures. A complete sampling job could probably be done by a small crew in three days.



DUCANEX RESOURCES LTD

INDEX MAP

VERNON MD. BC

Oct 1974

Fig - 1

Department of
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NO. 5279 MAP #1

INTRODUCTION

The K.L. claims were staked in the fall of 1973 as the result of a reconnaissance silt sampling programme. During the staking of the claims a preliminary geochemical survey was carried out on widely spaced lines. Encouragement from the first results led to the more detailed geochemical survey carried out this season (1974).

The Keefer Lake region was known to have gold associated with arsenopyrite, and it was hoped that a detailed geochemical survey for arsenic would outline regions of anomalous gold values.

LOCATION AND ACCESS

The K.L. claims are located north of the east end of Keefer Lake which is near the headwaters of the Kettle River.

Access to the claim group from Vernon, B.C. is easterly via Highway No. 6, about 50 miles, and then by way of the Keefer Lake logging road, an additional 12 miles. New logging roads provide access to the southwest corner of the claim group.

Elevations on the property range from 4,500 to 6,000 feet. The major creek passing through the property has steep-sided banks cutting as much as 200 feet into the

topography which otherwise has gentle relief.

Timber on the property is made up of mature cedar, fir and spruce. Underbrush is dense.

CLAIMS

The block of fourteen claims (12 full-size, 2 fractional) were located by D. Johnson and recorded October 29, 1973 in Vancouver. The claims are as follows:

<u>Claims</u>	<u>Record Numbers</u>	<u>Mining Division</u>	<u>Owner</u>
K.L. 1 - 12	17473 - 17484	Vernon	Ducanex Resources Limited
K.L. 13 & 14 fractions	17485 - 17486	"	

HISTORY

The property was staked to cover an area from which anomalous arsenic values were found during a regional silt sampling project. El Paso Mining and Milling Company was apparently conducting a similar programme in the area in 1973, and had staked two claim groups; the Rose claims adjoining the K.L. property on the west, and the Donna claims about 3½ miles west of the K.L. claims. No evidence of previous work had been seen on the K.L. claims or in the immediate area.

During the last week of the 1973 field season a preliminary geochemical soil survey was carried out on the

K.L. claims. A total of 88 samples taken from 200 foot stations on lines spaced approximately 1,000 feet apart were analyzed for Cu, Pb, Zn, Ag, Au and As. Only the arsenic values proved to be significant and it was decided that a more detailed soil survey using arsenic as a pathfinder for gold mineralization should be carried out in the 1974 season.

REGIONAL GEOLOGY

G.S.C. Map 1059-A shows that the K.L. claims lie within a westerly trending, 10 mile wide, belt of Permian Cache Creek Group volcanic and sedimentary rocks extending from Holmes Lake just southeast of the claim group to Cherryville, 16 miles to the northwest of the claim group. The Cache Creek Group rocks have faulted contacts with Monashee Group gneisses lying towards the northwest and northeast. Jurassic and/or Cretaceous igneous rocks intrude the Cache Creek Group on the south side of the belt.

PROPERTY GEOLOGY

The geology of the K.L. claims consists of Permian Cache Creek Group sediments (Division A) and volcanics (Division B) which have been intruded by quartz diorites and diorites believed to be of Jurassic or Cretaceous age.

Cache Creek Group, Division A, Sediments:

The most predominant rock found on the K.L. claims is an argillite of the Cache Creek Group. The argillite, or variations of it, underlies all but the southwestern corner of the property. The basic argillite rock unit (1a) is a fine-grained black rock which is generally well fractured and which contains trace amounts of pyrite locally.

A variety of the argillite (1b), found to be widespread on the property, contains large limestone inclusions which may measure from 2 inches to 10 feet. The argillite with these limestone inclusions appears to form beds within the basic argillite rock unit (1a). It is thought that turbidity currents in a Permian sea might have been responsible for transporting the large limestone fragments into a fine sediment environment.

On the northeastern corner of the K.L. property three types of Cache Creek sediments are interbedded with rock unit 1a. One rock unit (1c) is made up of angular argillite fragments (5 mm.) set in a matrix of argillite. A second, but similar, rock unit (1d) has argillite fragments up to 30 mm. set in a matrix of argillite and it could be called an argillite agglomerate. A third rock unit (1e)

made up of black silt size (0.5-2mm.) grains has been mapped as siltstone.

In the vicinity of intrusive dykes in the southwestern corner of the property, the argillite has been hornfelsed. The argillite is hornfelsed in varying degrees usually depending on the proximity of the intrusives. An increase in silica and pyrite content and an increase in bleaching of the rock can generally be noticed as one approaches the intrusive dykes.

Near fault zones argillite contains up to 3% gypsum on fracture surfaces, and some serpentization is in evidence.

Cache Creek Group, Division B, Volcanics

The southeastern corner of the K.L. property is underlain by Cache Creek Group volcanics. All of the volcanics are of andesite composition, but they differ in texture. The most common variety of andesite is medium-grained (2a). It is massive in outcrop. Zones within this medium-grained andesite are agglomeritic and some flow breccia was seen to occur between beds of less agglomeritic andesite. The medium-grained andesite has been metamorphosed to greenstone.

North of the medium-grained variety of andesite a fine-grained black andesite (2c) occurs. This variety is difficult to distinguish from the well fractured argillite found elsewhere on the property, but the fine-grained andesite is crumbly in outcrop, whereas the argillite trends to break along cleavage planes.

A third variety of andesite (2b) occurs at the western edge of the volcanic exposures. It is a fine-grained andesite which has been metamorphosed to greenstone. It is highly fractured and slightly silicified. Traces of quartz and calcite veinlets are widespread in this rock.

A porphyritic variety of andesite (2d) occurs at one place near the southeastern corner of the claim group. The rock contains 10% augite phenocrysts (2 mm.) and 20% plagioclase phenocrysts (2 mm.).

Jurassic and/or Cretaceous Intrusives

Quartz diorite dykes were seen in the creek valleys on the western side of the property. Both medium-grained and porphyritic varieties of quartz diorite were seen, but the two varieties probably have a common origin. In the porphyritic variety hornblende and plagioclase phenocrysts up to 5 mm. were noted.

The quartz diorite dykes contain up to 2% pyrite

and up to 1% quartz veining.

A stock of fine to medium-grained diorite intrudes in the vicinity of line 12 south 30 east. The rock here is well fractured and chlorite altered.

Structural Geology

A study of air photo lineaments combined with geological observations during the course of mapping has led to the outlining of the inferred faults on the map of the K.L. claims. What the displacements along these faults have been and how these displacements have affected the areal geology are questions which have not been worked out.

Bedding of the Cache Creek Group of sediments is generally ESE. On the northeastern corner of the property dips are steeply NE or SW, whereas towards the southwestern corner of the property dips are moderate towards the SW. Near faulted zones bedding becomes variable.

Only one bedding plane was noted in the Cache Creek Group volcanics. The attitude (350/45 SW) of the bed was at right angles to bedding in the Cache Creek Group sediments.

REGIONAL ECONOMIC GEOLOGY

Mineral showings of the Upper Kettle River area are characterized by quartz veining. The quartz veins may be narrow, irregular and discontinuous like those found at

showings on Eureka Mountain six miles southwest of Keefer Lake, or they may show better thickness and length such as those at the St. Paul Mine five miles northwest of Keefer Lake. Mineralization within the quartz veins is erratic. Stibnite, arsenopyrite and pyrite are the principal sulphides found in the quartz and gold and silver values are associated with these sulphides. On some properties in the district gold values are greatest with high antimony values, while on other properties gold values are greatest with high arsenic values.

High gold and silver values can be obtained from sulphide enriched zones found at several quartz vein showings in the district, but only the veins at the St. Paul Mine have proved to be strong and rich enough to warrant mining operations. Since 1890, at the St. Paul Mine, 2729 tons of ore have yielded 503 ounces of gold, and a small amount of silver (G.S.C. Memoir No. 296, 1959).

Quartz veining on Eureka Mountain is found in batholithic rocks of Jurassic and/or Cretaceous age. Quartz veining in the Keefer Lake and St. Paul Mine regions can be found in either intrusive stocks or in argillites and volcanics of the Cache Creek Group. However, the quartz veins in this region show a very close spacial relationship

to the intrusive stocks which are probably offshoots of the main batholith found at Eureka Mountain.

PROPERTY ECONOMIC GEOLOGY

From the very brief description of the district economic geology given above, it is apparent that quartz veins related to Jurassic and/or Cretaceous intrusives are required on the K.L. property if we hope to find gold or silver values of ore-grade quantity.

On the K.L. property there are intrusive rocks which in all probability are related to the other intrusives in the district. It is believed that a small intrusive plug, centred at 5 N and 10 E and 2,000 feet in diameter, underlies a thin covering of argillite in this area of the property. Evidence for such a plug is the dome-like topographic feature of this area which shows up on the aerial photograph of Keefer Lake. On the ground, strong faulting is seen along three sides of the suspected plug. On the western side of the suspected plug, erosion by the creek has cut deeper through the argillite cover than elsewhere in the immediate area, and in the creek gully intrusive rocks are found as dykes. Argillite has been hornfelsed to a greater extent than would be expected to

be the case if only the observed dykes were responsible. It is believed that more intrusive rock is near at hand.

In an economic sense, the most interesting area on the property is the inferred fault believed to extend from 2 E to 18 E near line 12 N. Quartz diorite and quartz diorite porphyry are found in the vicinity of the inferred fault. Locally, pyritization, silicification and chloritization are in evidence where the igneous rocks cut hornfels. Mended (by quartz) fault breccia in a zone a few feet wide was seen at 2 E, 11 E and 16 E along the inferred fault zone. A sample (No. 2937) of the most promising looking rock (silicified hornfels with 30% quartz veining and 2% disseminated pyrite) was taken from an outcrop at 2 E - 12 N, but it was found to contain only 0.005 oz. Au/ton and 0.02 oz. Ag/ton.

Quartz veins found associated with intrusives on the property proved to be narrow (2 inches), irregular and discontinuous. The veins were mineralized with disseminated pyrite, but no stibnite or arsenopyrite were seen on the property.

Segregations of quartz and calcite were seen on the northern part of the property, but no sulphides were seen associated with these gangue minerals.

At 3 W - 38 N two large (4 ft.) pieces of rusty angular quartz were seen, but their significance is unknown.

GEOCHEMISTRY

General

A total of 607 samples (555 in 1974) were collected at 100 foot intervals along lines spaced 400 to 500 feet apart on the K.L. property. Samples were taken with a mattock which was used to uncover the B-soil horizon usually 6 inches below the humus layer. Soil below the humus layer was generally composed of a fine sand which was coloured various shades of orange by iron oxides. Where the B-soil horizon could not be reached due to thick humus layers (2 feet or more), the organic-rich soil of the A-horizon was selected and marked accordingly in a notebook.

Samples were placed in 3½ by 6 inch water resistant kraft envelopes and sent to Bondar-Clegg Limited Laboratory in North Vancouver for analysis.

The analytical procedure involved taking 1/10 of a gram of minus 80 mesh material, and digesting it in nitric acid and perchloric acid. Arsenic was reduced and evolved as arsine gas. It was then complexed with silver diethyldithiocarbamate in pyridine and then compared colorimetrically with known standards to determine parts per million arsenic.

A map showing the plot of the geochemical results is enclosed within the pocket at the back of this report.

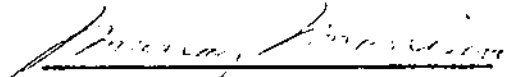
Discussion of Results

It is believed that statistical analysis of the geochemical results and a contouring of the results based on this analysis would add little insight into the evaluation of the property. Based on a careful field study of soil conditions and geology of the property, the arsenic values in soils can be categorized as follows:

Category #1	0-60 p.p.m.	background values
Category #2	60-400 p.p.m.	generally organic samples (the greater the organic content of the soil, the greater the arsenic content seems to be)
Category #3	100-1000 p.p.m.	these values signify possible anomalous arsenic values in underlying rock

Because categories #2 and #3 overlap in values, the only possible way to distinguish them is to study geochemical and geological field notes. A study of these notes shows that only the high values in an area 10 to 14 N and 5 to 22 E can be considered anomalous. Intrusive dyking and local faulting occur in the anomalous area and it is very likely that detailed mapping and sampling will reveal

anomalous arsenic values in the bedrock. Elsewhere on the property, organic soil conditions can be traced to be the most likely cause of high arsenic values.



Murray Morrison

Vancouver, B.C.
October 25, 1974

REFERENCES

Jones, A.G.

Vernon Map-Area, British Columbia,
G.S.C. Memoir No. 296, 1959.

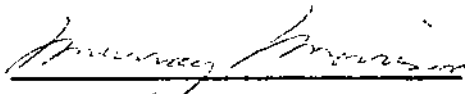
Johnson, D.L.

Preliminary Report on the K.L. Claims,
Vernon Mining Division, B.C.
November, 1973.

STATEMENT OF QUALIFICATIONS

I, Murray Morrison, of the City of Vancouver, in the Province of British Columbia, do hereby state that:

1. I graduated from the University of British Columbia in 1969 with a B.Sc. degree in Geology.
2. I have been working in all phases of mining exploration in British Columbia for the past seven years.
3. During the past six years I have intermittently held responsible positions as a geologist with various mineral exploration companies in British Columbia.
4. I am presently employed as an exploration geologist with Ducanex Resources Limited.
5. I carried out the geological mapping on the K.L. property and I supervised the geochemical sampling programme.


Murray Morrison

Vancouver, B.C.
October 25, 1974

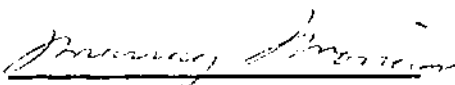
STATEMENT OF COSTS

The following cost statement is for work carried out by three Ducanex Resources Limited personnel on the K.L. property, Keefer Lake, B.C. Work was done between September 20 and October 5, 1974.

The work consisted of laying out twelve miles of flagged line, using a compass and nylon chain. These lines were used as a control for geological mapping and soil sampling. Additional time was spent in Vancouver with report and map preparation.

Costs

Geologist	12 days @ \$40/day	\$ 360.00
Assistant	15 days @ \$28/day	420.00
Assistant	15 days @ \$24/day	360.00
Room and board, for three men		
	15 days @ \$35/day	525.00
Transportation	1/2 month @ \$600/month	300.00
Analysis of soil samples		
	555 samples @ \$2.25/each	1,248.75
Report Preparation		
Geologist - 5 days @ \$40/day		200.00
Drafting	10 hours @ \$6.50/hour	65.00
		<hr/>
		\$ 3,478.75



Murray Morrison
Geologist

82L/

50°W

TO NORTH SEE MAP 82L/10A

118°W

50°W

6

5

4

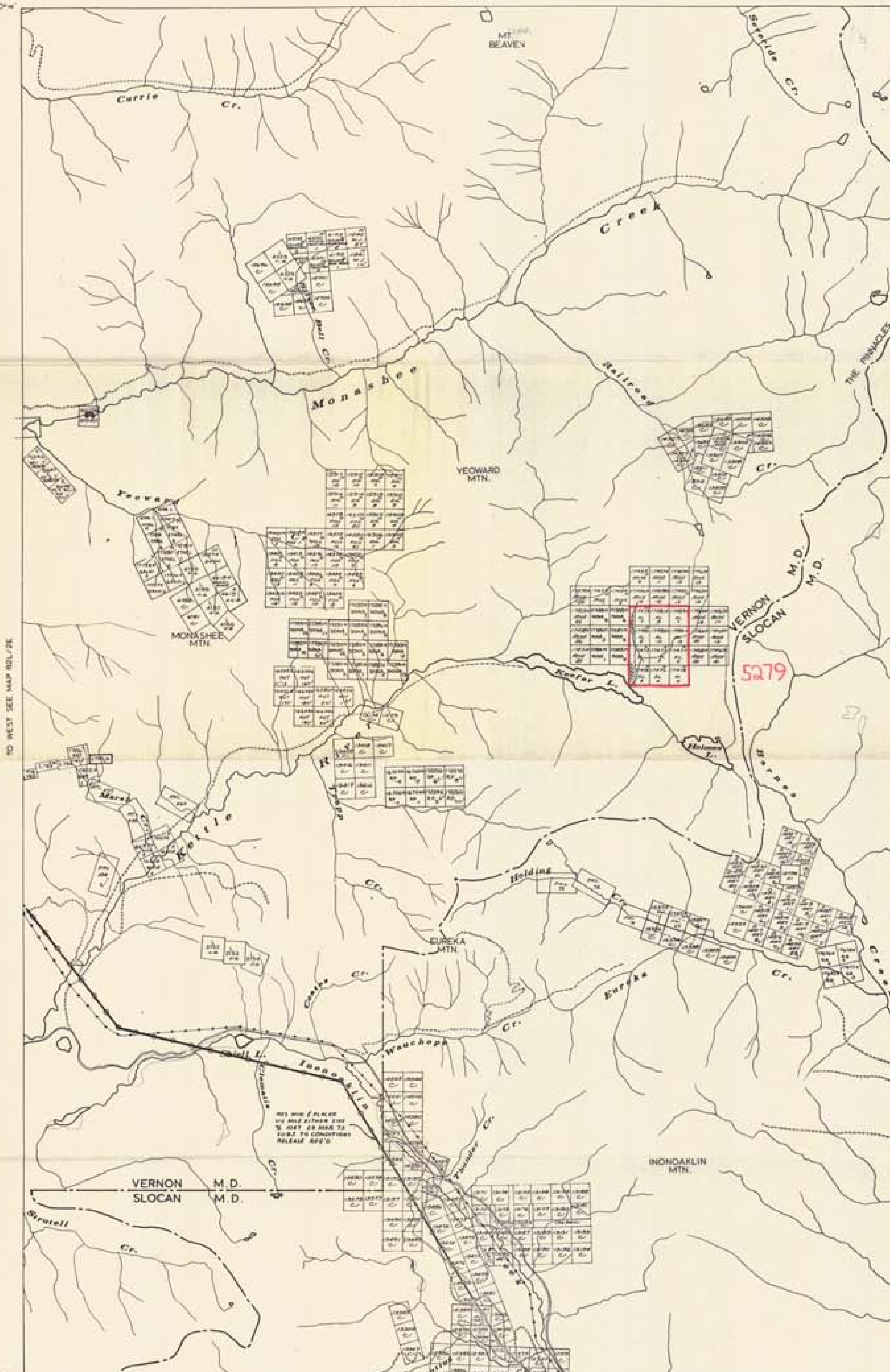
3

2

1

TO WEST SEE MAP 82L/7E

TO EAST SEE MAP 82L/7E



For up-to-date information on claims in any area apply to the Mining Recorder for the Mining Division concerned

DEPARTMENT OF MINES AND PETROLEUM RESOURCES
 VICTORIA, B.C.
 MINERAL CLAIM MAP 82L/1W (M)



Copied - Jan. 75

This map is prepared to show in a simple way the positions of located mineral claims and of those mining leases which are located on claims and are not quarantined. Letters 'C' indicate claim is open-bracketed. Symbol 'L' indicates claim has lapsed.

82L/1W (M)

10W

00E

10E

20E

30E

40E



40N

30N

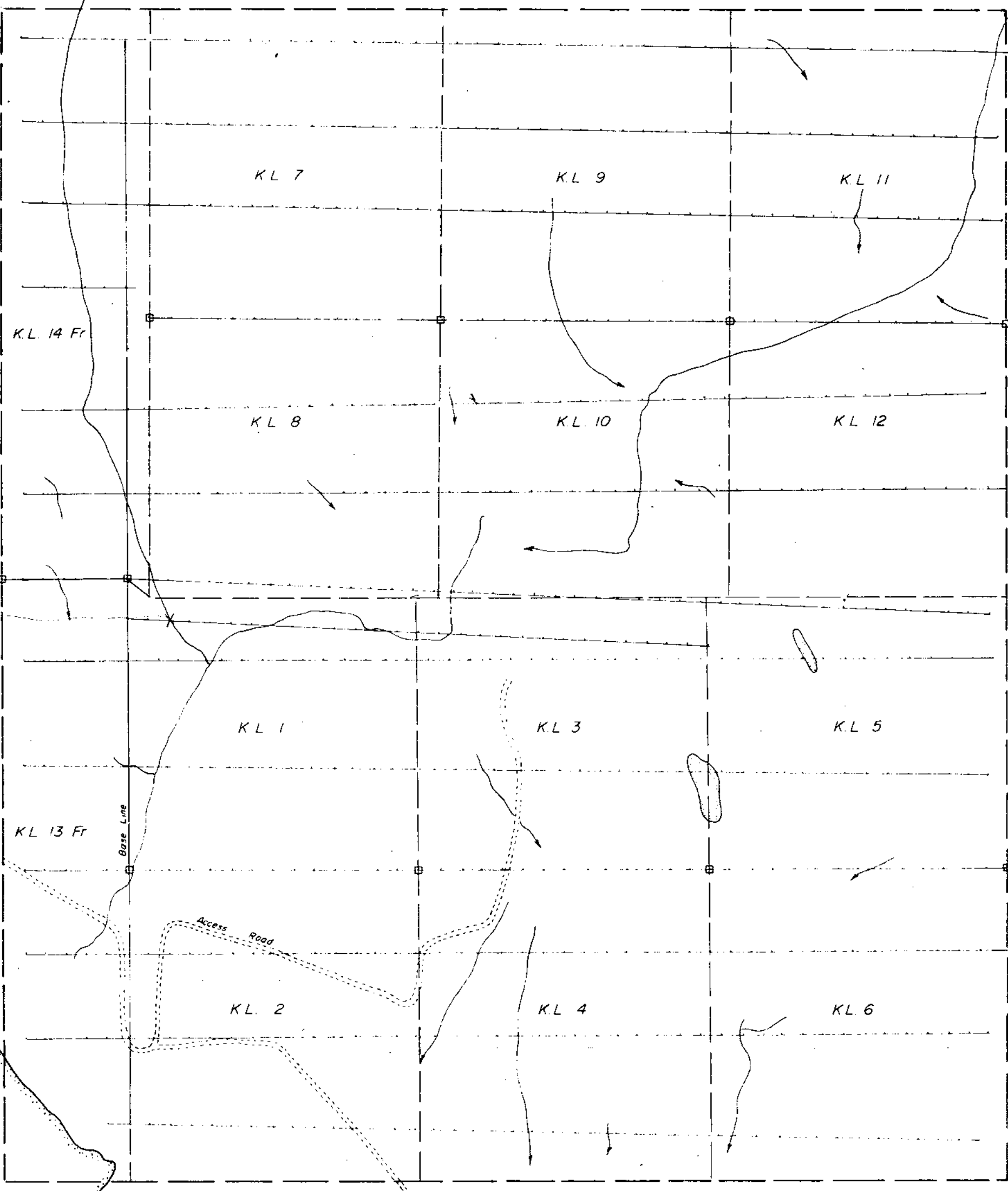
20N

10N

00N

10S

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0.02024 A.Y.



KEEFER LAKE

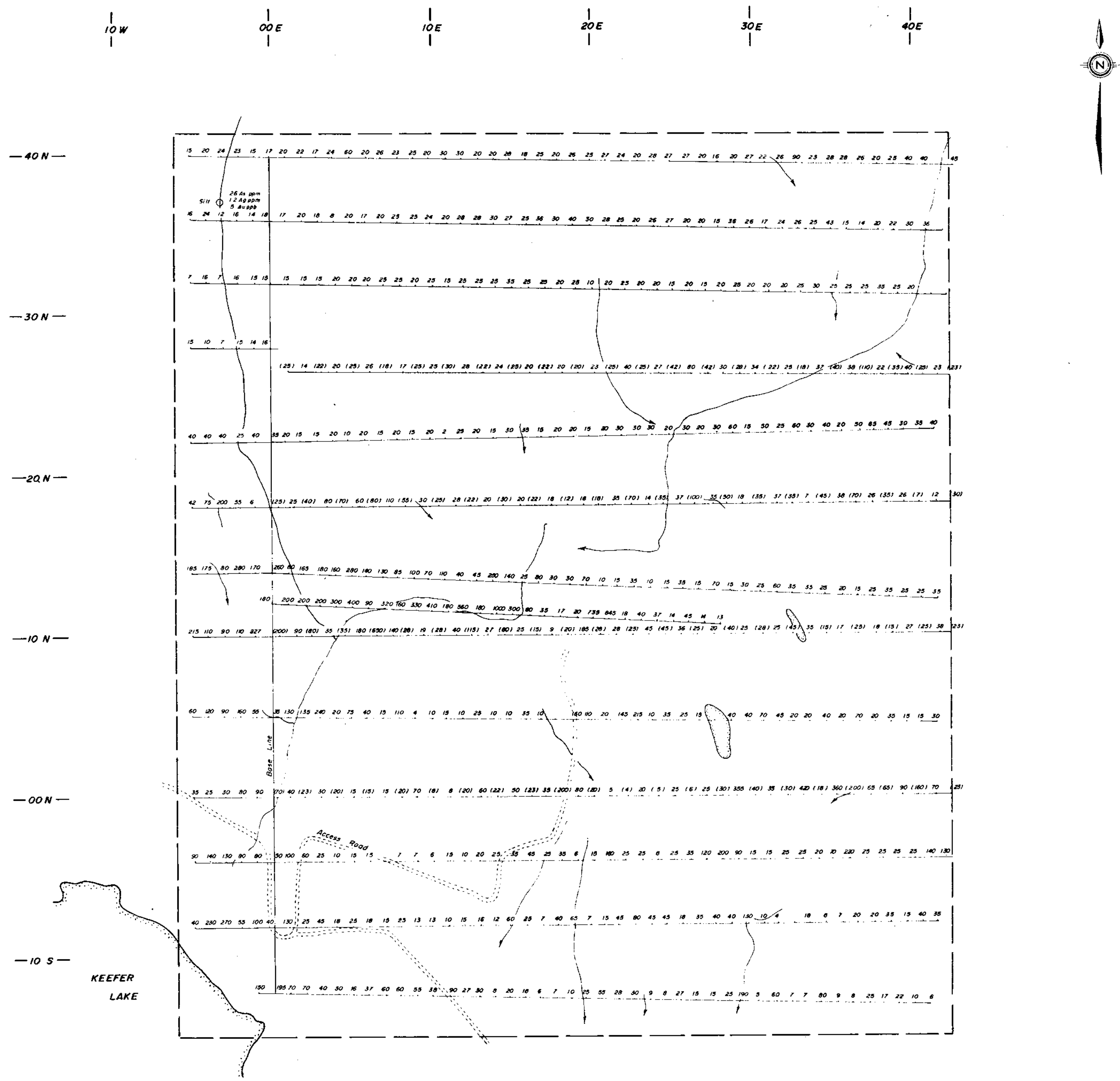
Department of
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ASSESSMENT REPORT
NO. 5279 MAP #2

DUCANEX RESOURCES LTD.
K.L. CLAIMS
CLAIM MAP
VERNON M.D. BC
NTS 82 L/1
Scale
0 250 500 1000 feet

Handwritten signature: M. Morrison

Oct. 1974

Figure No - 2



LEGEND

- 142) Arsenic in ppm (1973 Survey)
- 42) Arsenic in ppm (1974 Survey)

Department of
Mines and Petroleum Resources
ASSESSMENT REPORT
No. 5279 MAP #3

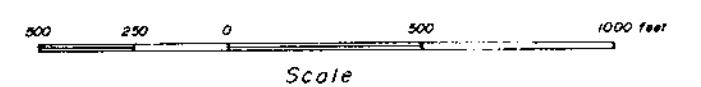
DUCANEX RESOURCES LTD.

K.L. CLAIMS

ARSENIC ppm

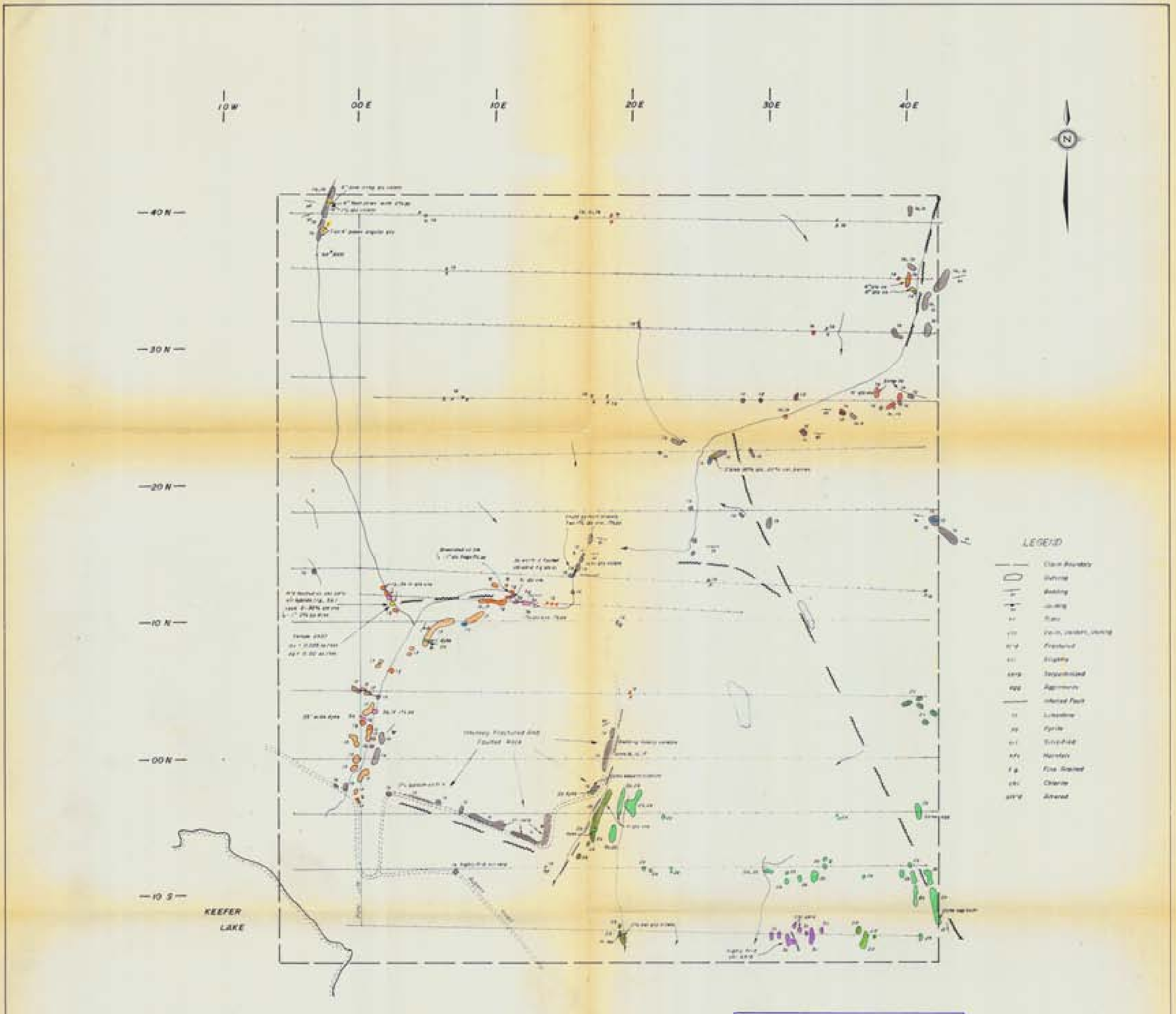
JERNON MD BC

NTS 82 L/1



Oct 1974

Figure No - 3



LEGEND

- Claim Boundary
- () Mining
- () Mining
- () Mining
- () Flow
- () Vein, contact, lining
- () Fracture
- () Fault
- () Deformed
- () Agglomerate
- () Infrared Fault
- () Lithology
- () Dyke
- () Intrusive
- () Quartzite
- () Marble
- () Fine Grained
- () Chlorite
- () Arsenic

**Permian - Cache Creek Group
(Division A)**

- (10) Basalt flow grained, angular, fresh, iron contents of pyrite locally
- (11) Lignite, but certain intervals massive (not thickly bedded type)
- (12) Lignite, but certain intervals angular fragments (black) in an argillite matrix
- (13) Sandstone, but angular fragments 2-20 mm, argillite agglomerate
- (14) Basalt, angular, but not 20% or more
- (15) Fine grained, dark argillite, slightly to moderately metamorphosed, shaly, generally fine amounts of disseminated pyrite
- (16) Marble, coarse to fine, disseminated pyrite

**Permian - Cache Creek Group
(Division B)**

- (17) Medium grained, argillite metamorphosed to granitic
- (18) Fine grained, argillite metamorphosed to granitic, slightly shaly
- (19) Argillite agglomerate with fine grained, argillite and fine grained fragments highly fractured
- (20) Fractured, argillite, 10% angular, 90% fine, 20% argillite, 80% quartzite, 20% shale

Jurassic and/or Cretaceous Intrusives

- (21) Medium grained quartz diorite
- (22) Quartz diorite, gabbro
- (23) Fine to medium grained diorite

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Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5279 MAP #4

DUCANEX RESOURCES LTD.

KL CLAIMS
GEOLOGY
JORDON, B.C.
N.T.S.
Scale
Oct. 1974 Figure No. 4

J. J. Morrison