2063

BONANZA PASS PROSPECT

GAL CLAIMS

CHRISTINA LAKE AREA, B.C.

by

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Gal, No. 1 claim post. Station D 1 at Walker Creek,

looking south.

BONANZA PASS PROSPECT

GAL CLAIMS

CHRISTINA LAKE AREA, B.C.

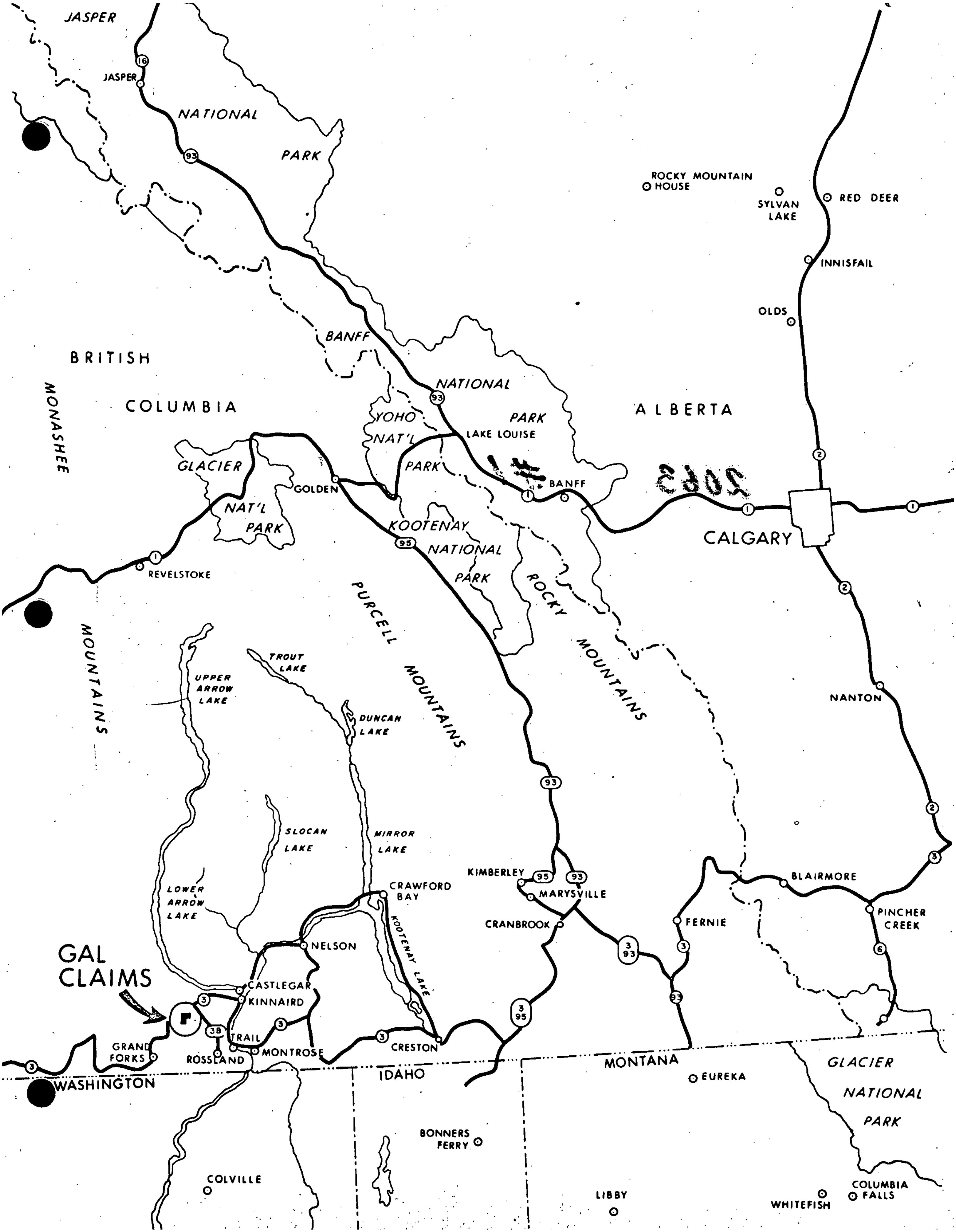
INTRODUCTION

This report summarizes the results of a photogeologic and field investigation of the Gal Claims, Christina Lake area, B.C.

The undersigned undertook a thorough photogeologic study of the Christina Lake area during the winter 1967/68. As a result, the area now covered by the Gal claims was considered favourable for mineral exploration. Galoco Exploration Ltd. bought the exclusive rights to use the photogeologic maps for one year, and authorized the undersigned to have the Gal claims staked on their behalf. Mr. Jack A. Millican (P.Eng.) was contracted to supervise the staking by Mr. John W. Carson of Grand Forks. 44 "GAL CLAIMS" were located on August 10 to 13, 1968 and recorded at Rossland, Trail Creek Mining Division, on August 19, 1968. Two claims, GAL 45 and GAL 46, were located by the undersigned on September 30, 1968, and recorded at Rossland on October 3rd, 1968.

A Mineral Lease was obtained for the "HIDDEN HAND", Lot 11139, effective October 8, 1968.

The undersigned carried out geological field investigations, and supervised an extensive soil sampling program between September 3 and October 3, 1968. Mr. Jack A. Millican, Grand Forks, carried out the geochemical analysis of the soil samples, and undertook a magnetic survey over some areas of the Gal claims. Several rock samples collected at random locations showed traces of mineralizations and were sent to TSL Laboratories Limited for a general semiquantitative assay by Spectrometer. This report summarizes the results of all of the above investigations.



JASPER
JASPER
NATIONAL
PARK
BANFF
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BRITISH
COLUMBIA
MONASHEE
MOUNTAINS
ALBERTA
ROCKY MOUNTAIN HOUSE
SYLVAN LAKE
RED DEER
INNISFAIL
OLDS
YOHO NAT'L PARK
LAKE LOUISE
GLACIER NAT'L PARK
GOLDEN
BANFF
CALGARY
KOOTENAY NATIONAL PARK
REVELSTOKE
PURCELL MOUNTAINS
ROCKY MOUNTAINS
TROUT LAKE
UPPER ARROW LAKE
DUNCAN LAKE
NANTON
SLOCAN LAKE
MIRROR LAKE
LOWER ARROW LAKE
CRAWFORD BAY
KIMBERLEY
MARYSVILLE
BLAIRMORE
CRANBROOK
FERNIE
PINCHER CREEK
NELSON
KOOTENAY LAKE
GAL CLAIMS
CASTLEGAR
KINNAIRD
TRAIL
GRAND FORKS
ROSSLAND
MONTROSE
CRESTON
WASHINGTON
IDAHO
MONTANA
EUREKA
GLACIER NATIONAL PARK
BONNERS FERRY
COLVILLE
LIBBY
WHITEFISH
COLUMBIA FALLS

Department of

Mines and Petroleum Resources

ASSESSMENT REPORT

NO. 2063 MAP #1

REGIONAL LOCATION AND GENERAL DESCRIPTION OF THE AREA

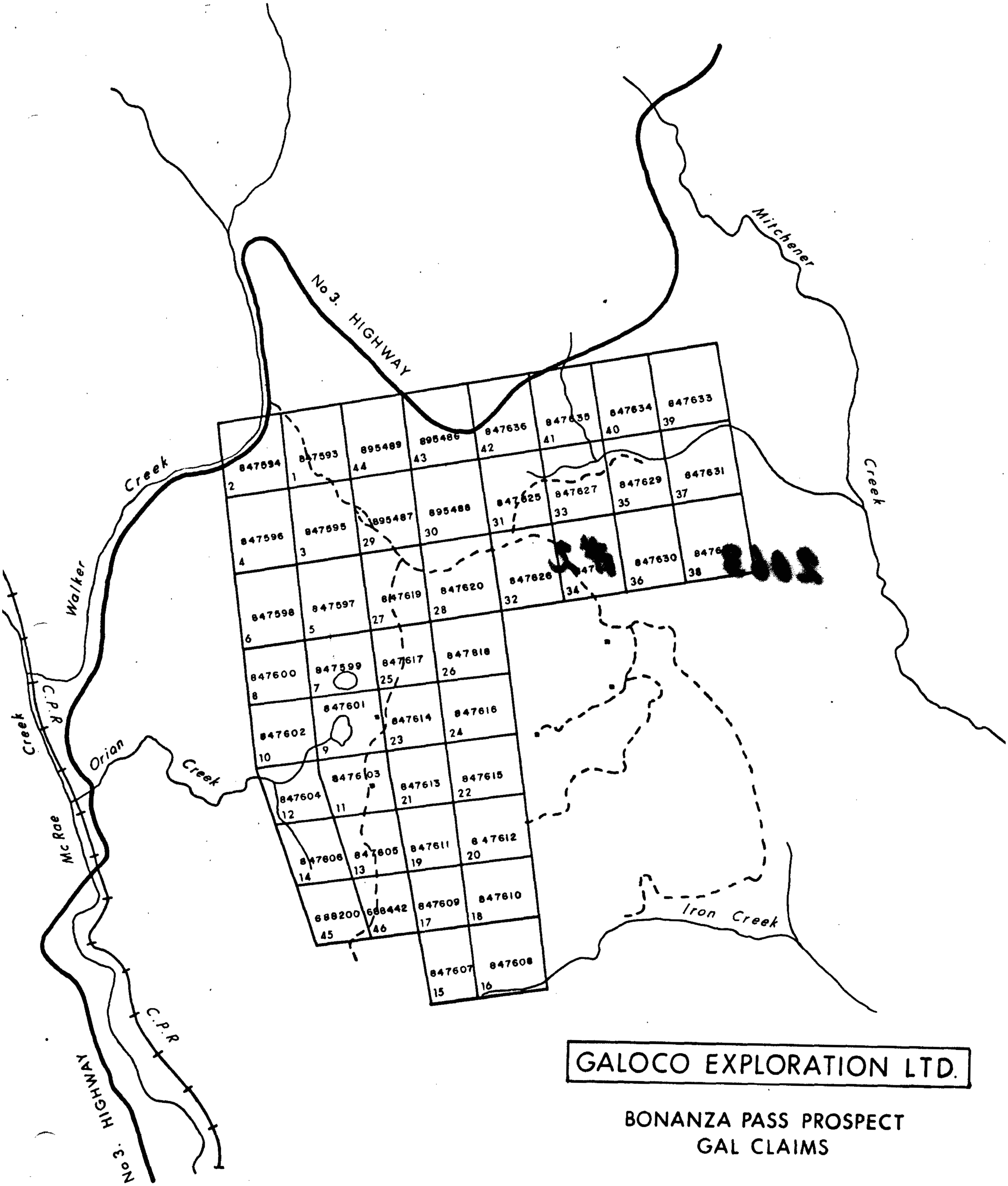
The Gal claims are located 12 miles northeast of Christina Lake, and 17 miles from Christina Lake along Highway No. 3, in the northeastern part of the Monashee Mountains. The area is characterized by high plateaus with moderate to low topographic relief, and deep valleys. (see Photocontour map, in pocket). Mt. Gladstone forms the highest point, at 7,300 feet above sea level. Christina Lake occupies a wide valley and its water level lies at 1470 feet. The water of the lake is relatively warm, and clear and thus provides an ideal summer resort. The settlement of Christina Lake has motels, one hotel, gas stations, stores and a post office. Many businesses are open during the summer season only. Grand Forks, 17 miles west of Christina Lake, is the closest business and administrative centre of the area. (See index map).

The distance from Grand Forks to Calgary via Highway No. 3 is 468 miles. The distance from Grand Forks to Vancouver along Highway No. 3 and the Trans Canada Highway is 332 miles. The closest air port served by Canadian Pacific Airlines, with daily scheduled flights is at Castlegar, 45 miles northeast of Christina Lake.

The annual precipitation in the Christina Lake area is 20 - 30 inches. The main daily temperature in January is 10° - 20° F at Christina Lake, and 0° - 10° F at the higher elevations. The main daily temperature in July is 60° - 65° F, and there are 50 to 100 frost free days in a year.

The vegetation is classified as Columbia Forest, and may grade to the subalpine Forest at higher elevations. The climax vegetation is characterized by Western Red Cedar, Western Hemlock and Western White Pine. The flora also shows Spruce, Fir, Pine, Aspen and Devil's Club.

The vegetation of the Gal claims showed Cedar, Spruce, Hemlock and Balsam at higher elevations, with scattered occurrences of White Pine and Larch. The lower and more swampy areas carried Spruce, Balsam and Hemlock, mainly. Areas covered by thick morainal deposits usually have second growth of Jackpine.



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BONANZA PASS PROSPECT
GAL CLAIMS

1968

PETER J. HAMAN

PLATE No. 1

Department of
Mines and Petroleum Resources
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NO. 2063 MAP #2

The original inhabitation of the area was by native indians of the Interior Salish Division, Okanagan and Lakes groups. The Lakes were a semi-nomadic group centered south of the international border, where they withdrew after European settlement. Their use of the Arrow Lakes region was mainly seasonal and apparently not exclusive. Kootenay, Shuswap and Okanagan indians also hunted there and in recent times have claimed the region as their own. (B.C. Atlas of Resources).

White settlers occupied the area between 1890 and 1920. The main attraction to early settlers was the discovery and exploitation of the lode mineral deposits in the Kootenay and Boundary districts during the latter part of the 1880's. Because of the more stable nature of this type of mining, the communities which grew up as supply centres were relatively permanent. The building of wagon roads and railroads created conditions favourable for the establishment of local industries and agricultural projects. Grand Forks became a prominent mining centre and had several smelters. These were laid down after the First World War.

A large portion of the population at Grand Forks are Dukhobors, a religious communistic sect. The sect was founded in Russia, about 1750, and when, in 1890, all Russians were being forced into the Greek Church, a large number of the Dukhobors emigrated to Manitoba, and some of them moved later to British Columbia. They have, at times, come in conflict with Canadian authorities over their refusal to abide by civil laws, in particular, school laws. In the late 50's and early 60's the "Sons of Freedom", a radical group of the Dukhobors, caused considerable trouble by blasting power stations, railroads, bridges, etc. No more conflict to speak of was noticed at the present time, after removal of the most radical elements.

THE PROPERTY

The Gal Claims comprise a block of 46 mineral claims held by location to the south and east of Highway No. 3, 12 miles northeast of the post office at Christina Lake, Trail Creek Mining Division, south central British Columbia. (Plate 1). The property consists of a contiguous group of mineral claims. The claims Gal 1 - 44 were located by John W. Carson, as agent for Peter J. Haman, as follows:

1) Gal 1 - 44, record nos. 3552 - 3595, tag nos. 847593-847620, 895486-895489, and 847625-847636, located August 10-13, 1968, and recorded at Rossland August 19, 1968.

2) Gal 45 and 46, record nos. 3617, 3618, tag nos. 688200 and 688442 were located by Peter J. Haman on September 30, 1968, and recorded at Rossland October 3, 1968. Final plotting of the position of the Gal claims indicated overstaking on some of the Crown granted mineral claims. The exact position of the Crown granted claims relative to the Gal claims will have to be legally surveyed if minerals of economic concentration are found within or near the Crown granted claims.

A mineral lease of the "Hidden Hand", lot 11139, was obtained by Peter J. Haman. The Mineral Lease No. is M-58, Map No. 82E/1E, Trail Creek Mining Division, Kootenay Land District, issued October 8, 1968.

LOCATION AND ACCESS INTO THE PROPERTY

Highway No. 3, runs through the northern part of the Gal claims (see geological map, in pocket). Two roads lead from the highway into the property. The first road leaves the highway near the northwest corner of the claims, and crosses Walker Creek over an old bridge. This bridge is not in service anymore and requires repair work to permit vehicular travel. (See Photo 2 - on Page 6).

The road leads to the south and is overgrown by shrubs and small trees and needs clearing by caterpillar. A second bridge, a few hundred feet to the south, and near the northern border of the property, also needs some repairs. (See Photo 3 - on Page 6).

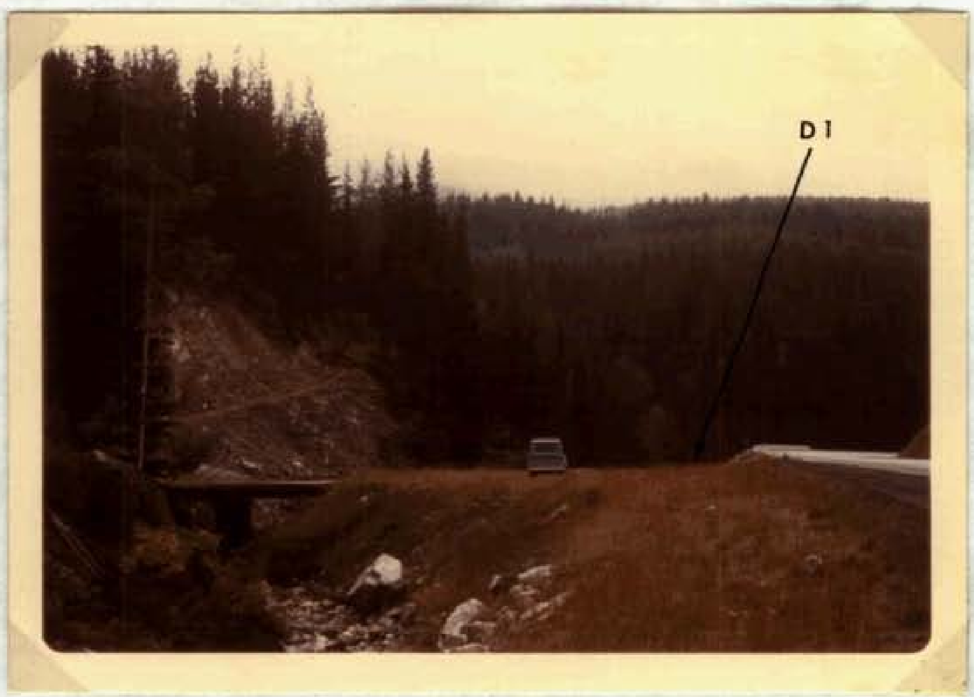

Photo 2. View to the South into the Gal claims from Highway No. 3, at Walker Creek. The road at the left leads into the Gal claim block. Station D 1 (claim post), is at Walker Creek.

Photo 3. Bridge of old road leading from Highway No. 3, to the south. Outcrop of ultrabasic dyke (D) in background. (Rock sample 1).

The southern half of the road is in good condition for 4-wheel drive vehicles, and can be entered from the east.

A second road leaves Highway No. 3 at Bonanza Pass and leads to the Inland Empire Mine (lot 3880), the Berlin Mine (lot 11157), and the Alice Mine (lot 4331). This road is in good condition and can be traveled by 4-wheel drive or car (Photo 4).

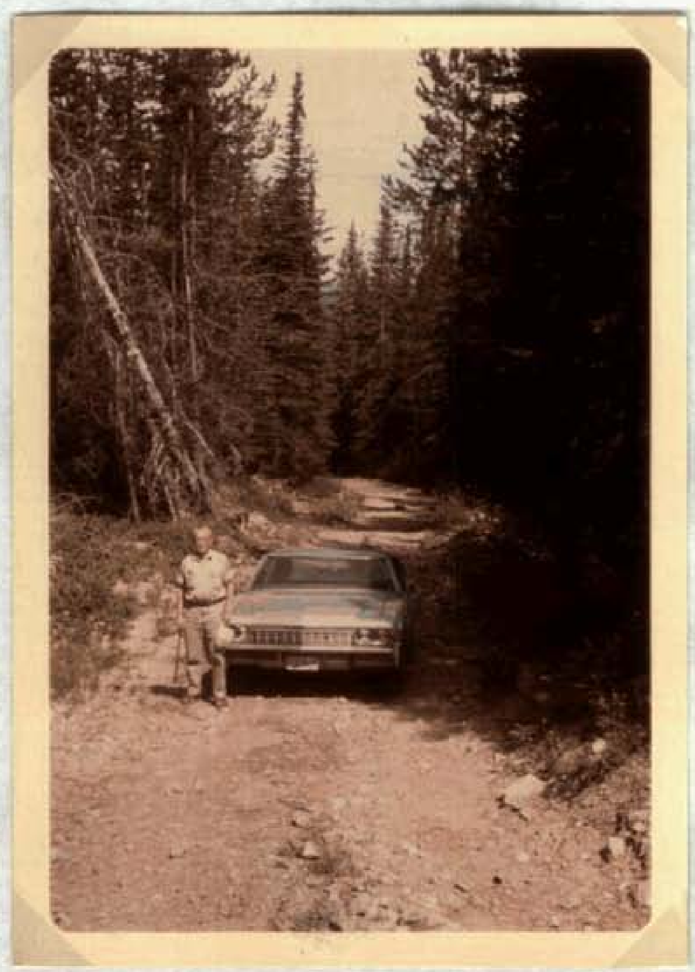

Photo 4.

Road near the Inland Empire Mine. Mr. Jack A. Millican is seen on picture.

One side road leaves the Inland Empire road to the east and crosses Bonanza Creek. This road is in good condition and can be travelled by 4-wheel drive or car.

Another road leads to the west where it joins the road coming from the northwest corner of the property. This road can be travelled by 4-wheel drive or truck. The road to the south, past the two little lakes, can be driven by 4-wheel drive only up to the sawmill dump. Numerous old lumber roads lead from there to the south. These roads must all be cleared by caterpillar to permit travel to the south end of the property.

MINING HISTORY

The general area has been thoroughly prospected since about the late 1890's, and numerous Crown granted mineral leases are scattered throughout the country. Exploration was restricted to bedrock outcrops only, and no extensive geophysical or geochemical investigations have been carried out so far.

There are no reports on any production from the Hidden Hand (lot 11139). The mineral lease was probably obtained because of some quartz veins carrying small amounts of lead.

The Inland Empire Mine (lot 3880), and the Berlin Mine (lot 11157), produced 4,612 tons of ore between 1912 and 1940. The ore contained 962 oz. gold, 7,036 oz. silver, and 1,247 lbs. copper. The Alice Mine (lot 4331) produced 366 tons of ore in 1939, containing 67 oz. gold, and 618 oz. silver. The mine site is kept in good shape and some work is still being done at the present time. (Photo 5).

Photo 5.
Adit of the Alice Mine.
Mr. Jack A. Millican is seen on picture.

The W.S. Mine lies approximately 1.5 miles to the southwest of the Gal claims, on the west side of McRae Creek. The Annual Report of the B.C. Minister of Mines reports in 1913 that a shaft has been sunk on a vein that lies in contact between granite and porphyry. In other places the vein leaves the porphyry and is wholly within the granite. The ore taken from the shaft has been piled in three dumps and average samples of each of these were taken as follows:

No. 1 dump	Gold 1 oz/t	Silver 7.0 oz/t
No. 2 dump	0.34 oz/t	2.3 oz/t
No. 3 dump	0.64 oz/t	0.2 oz/t
Average	0.56 oz/t	3.73 oz/t

Mr. J.A. Millican reported to the writer that the W.S. Mine produced in 1949:

14 tons of ore	125 oz. silver	3,562 lbs. Pb	4,106 lbs. Zn
	9 oz/t	254.4 lbs/t	293 lbs/t

And in 1949 - 1950:

18 tons of ore	20 oz/t silver	726 lbs./t Pb	308 lbs/t Zn

15 tons taken from a dump produced:

	25.3 oz/t silver	957 lbs/t Pb	207 lbs/t Zn

The occurrence of Galena in a skarn zone at a granite contact was reported in 1964 by Ajax-Christina Lake Mines Ltd. This property lies to the west of the W.S. Mine

GEOLOGY

The geological map sheet Kettle River (Map 6 - 1957, sheet 82 E, east half) shows the presence of a small northeasterly trending belt of the Pennsylvanian and/or Permian Mount Roberts formation near the Inland Empire Mine. Most of the area now covered by the Gal claims was mapped as Nelson intrusive. The photogeological study carried out by the undersigned indicated that the sedimentary and volcanic rocks of the Mount Roberts formation, forming a roof pendant, may have a considerably wider distribution than shown on the geological map sheet. It was suggested that the roof pendant may be very thin due the observation that the Mount Roberts formation was surrounded by intrusive rocks. These conditions are favourable for mineral exploration, and the Gal claims were staked to cover the entire spread of the Mount Roberts formation and its contacts to intrusive rocks. One purpose of the field survey, carried out by the undersigned in September 1968, was the mapping of outcrops within, and next to, the Gal claims. The hypothesis of the presence of volcanic and sedimentary rocks, as derived at by photogeology, was confirmed in the field. Some minor changes of the position of the intrusive contacts were necessary, in other places the mapping on the aerial photographs proved to be correct. (See geological map, in pocket).

Volcanic greenstones and schists of the Mount Roberts formation are present at Walker Creek, near the northwest corner of the Gal claims. Granodioritic rocks of the Nelson batholith are widely spread in the western part of the claim block. The contact to the Mount Roberts formation lies somewhat more to the east than previously mapped on the photographs. A smaller belt of intrusive rocks with abundance of feldspar (syenitic) occur at Walker Creek, and are classified as Coryell intrusive.

The central portions of the Gal claims have scattered outcrops of greenstones, peridotites (?), and schists of the Mount Roberts formation. The hill to the southeast of the claims is covered by crown-granted claims, and consists of granite of the Nelson batholith. The contact to the surrounding Mount Roberts formation was found to have been mapped precisely on the aerial photographs. To the south are greenstones and peridotites in contact with the granite (lot 5001). To the west (lot 13490) gneiss was found to overly the granite. The waste dump at the Inland Empire mine suggests that peridotites, greenstones and quartzites form the northern contact. From the above observations it can be inferred that the intrusive stocks cut obliquely across the overlying roof pendant so that different rocks are in contact with the intrusives. Because mineralizations favour certain rock types, one can expect that some contacts are better for economic emplacement of minerals than others. Previous experience has shown that gneiss is a very poor medium for mineralization. Better prospects can be expected within densely fractured greenstones and peridotites, and in carbonates.

The aerial photographs revealed a number of linear features which were interpreted as fractures. The undersigned has investigated several lineaments on the ground. Most fractures in the northwest corner of the claim block were identified on the ground by minor topographic depressions, little gullies, and distinct changes of the vegetation across the lineament. In the latter case the northerly trending lineaments may represent either faults, or a linear stratigraphic contact.

The prominent lineament trending east-west, in the southern part of the claim block (survey lines 19 - 21, on geological map) is expressed by a number of little creeks. One outcrop in a little gully, immediately north of the lineament, showed strongly fractured greenstone and peridotite (?) with pyrite and pyrrhotite. (rock sample 8).

One coarse grained ultrabasic dyke, trending north, was observed immediately north of the property, near Walker Creek (see photograph 3). It is assumed that the dyke may extend into the Gal claims. The dyke carries a fair amount of pyrite and pyrrhotite (?), and one rock sample (No. 1) showed some chrome, cobalt and silver.

GEOCHEMICAL ANALYSIS

<u>General Surface Conditions</u>

Most part of the Gal claims is covered by soil or glacial moraine, and outcrops are widely scattered. The best outcrops are found near Walker Creek, in the northwest corner of the property. In most of the area outcrops are found in some creeks, along road cuts, and underneath some fallen trees. The morainal cover is generally thin, and may not exceed 3 to 4 feet. A very thick overburden of gravel is present in the northern part of the claim block, from Bonanza Pass to the east. The thickness of the morainal cover may here exceed 100 feet making this area unfit for mineral exploration. Due to the sparse outcrops mineral exploration has to resort to geochemical and geophysical investigations.

Most part of the area is covered by timber, or very dense stands of second growth, with predominance of Jackpines..

The Survey Grid-System

The precise plotting of certain locations onto the map was very difficult, especially within the almost impenetrable second growth of Jackpines, Spruce and underbrush of Alder.

The entire area was subdivided, with letters in west-east and numbers in north-south directions. Every letter and every number is 500 feet apart. The soil sampling was carried out in 250 foot intervals, and the stations in between numbers, or letters, were described like A-B, 1-2, i.e., the station is 250 feet east of line A, and 250 feet south of line 1. (see Geochemical Map, in pocket).

The plotting of the survey system onto the base map is not very accurate. The base map was obtained by enlarging the Government topographic map, at a scale 1 : 50,000 to a scale 1 inch to 1,000 feet. Minor drafting and surveying errors become magnified on the enlarged scale.

Another major source of error are strong magnetic anomolies, which caused strong deviations of the grid system from meridional and latitudinal directions. All stations were marked on trees (photo 6) and the precise location of many sample locations was plotted onto aerial photographs.

(See Page 13 for Photo No. 6)

Photo 6.

Jock Wilkinson marks sample location on tree.

Regardless of the shortcomings of this survey system, it proved very valuable for finding certain locations by following the sample lines. Line cutting and surveying at approximately $500.00 per mile would have run into a considerable expense.

A greatly improved base map can be constructed by means of photogrammetry. This is done by ordering glass-diapositives of the aerial photographs, at the scale 2 inches to 1 mile. Topographic contours in 25 foot intervals can be plotted from the optical model. All roads can be drawn at their precise position, which will greatly facilitate orientation in the field. A considerable number of locations can be plotted from the photograph onto the base map. All prominent geological features, like contacts and fractures, can be drawn at their exact location, thus narrowing down primary targets for future exploration. The use of photogrammetry eliminates the rather expensive surveying in the field.

Soil Sampling

Reconnaissance soil sampling was carried out in 250-foot intervals. The sample depth is generally between 2 and 3 feet. The sample were analyzed by Mr. J. A. Millican, P. Eng., of Grand Forks. The samples were dried and screened using an 80-mesh screen. The Holman Method was applied with Ammonium Citrate buffer and Dithizone indicator. The soil type, and the vegetation was recorded on the sample bags. Four areas within the Gal claims showed soil anomolies.

1. The Walker Creek Anomoly

This anomoly is located in the northwest corner of the claims (see Geochemical Analysis Map, in pocket). Several samples of the reconnaissance survey showed readings between 150 and 450 ppm. It was followed up by a subsequent detailed soil sampling programme in 50-foot intervals. The area between the lines CD to DE, and 2A to 3A was covered. (Plate 2, upper part). Three small geochemical anomolies showed values up to 300 ppm. Granodiorite occurs in outcrops to the southwest. The soil anomolies may, however, be situated on a band of the more syenitic Coryell intrusive, which crops out at Walker Creek.

A sample of granodiorite, taken near the contact to more syenitic rocks, carried a few very small sprinkles of galena (?). The soil samples showed, however, no heavy metals. A semiquantitative spectrographic analysis by TSL laboratories (sample 6) showed no lead, however, and less than .1 oz/ton silver.

A second detailed sampling programme was undertaken between the lines CD to D, and 4 to 5-6A (Plate 3). Though the reconnaissance survey had a few values up to 450 ppm, the detailed analysis could not confirm the presence of any continuous soil anomolies. The sample taken at station D 4-5 during the reconnaissance survey read 300 ppm. A second sample was taken 1 foot away from the previous sample and showed no heavy metals at all. It is difficult to explain why the results of the reconnaissance survey could not be reproduced by detailed sampling. It is possible that the presence, or absence, of small particles of galena within the sample is incidental.

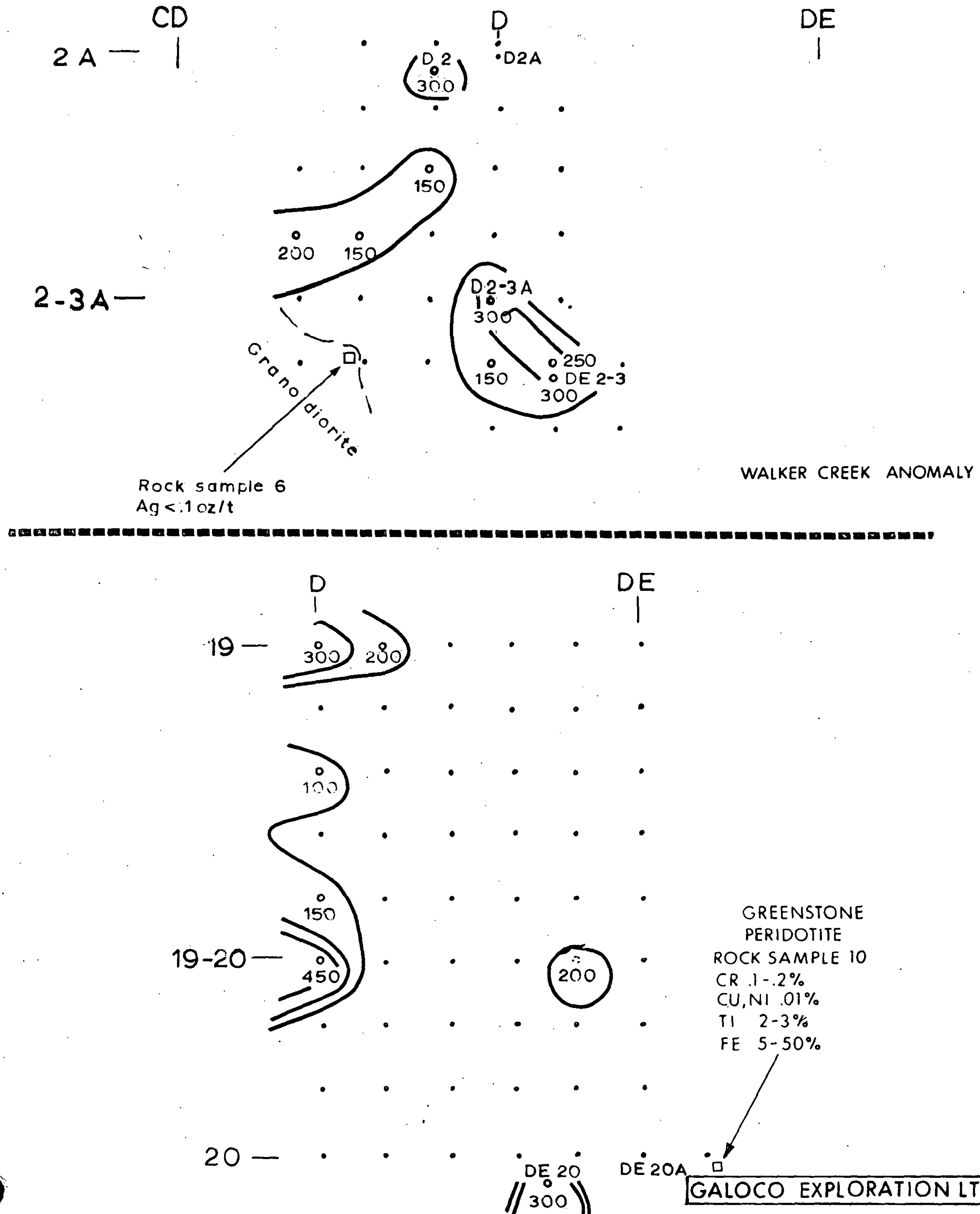

Plate 2

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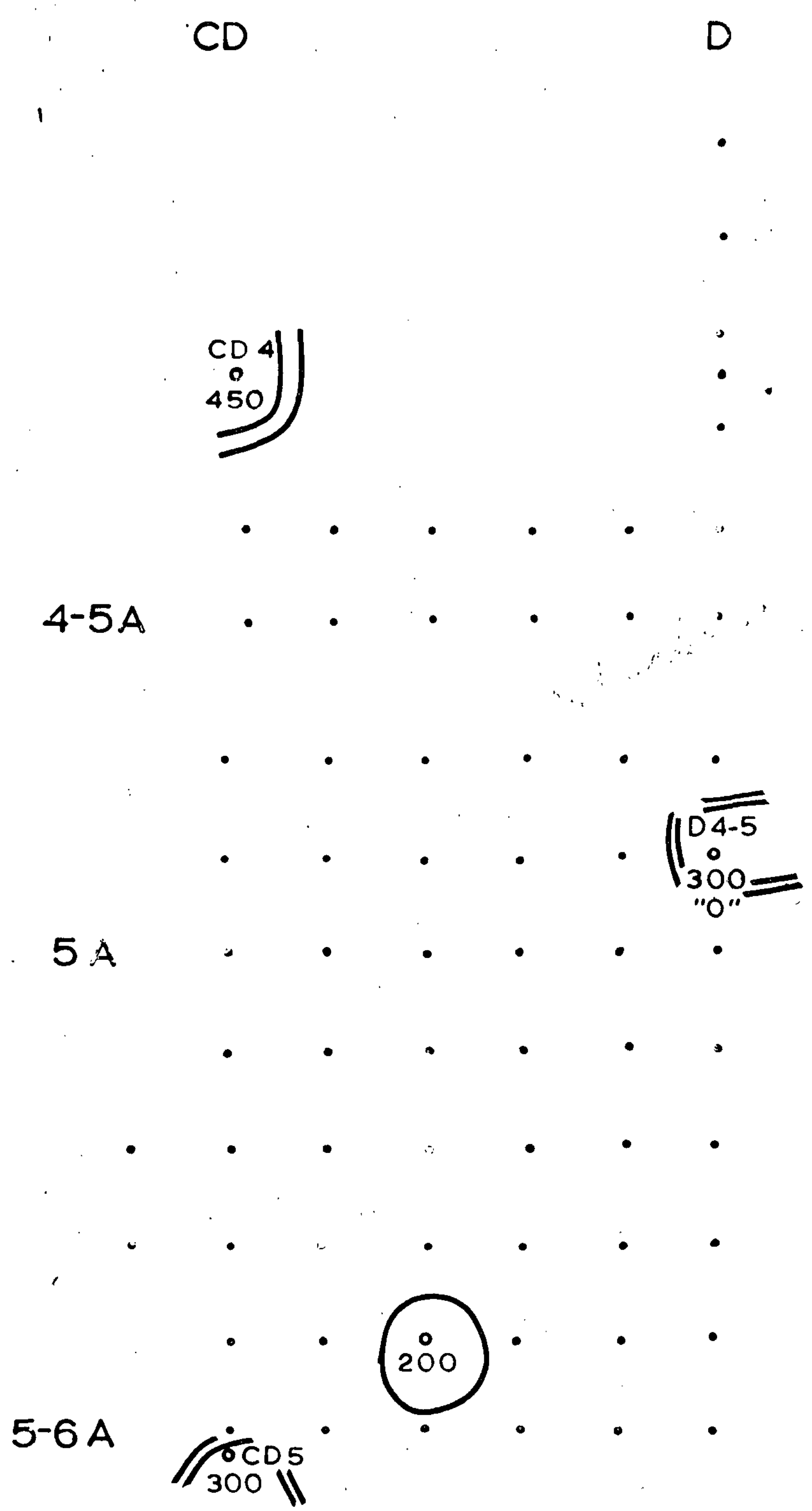
GAL CLAIMS

ORIAN CREEK ANOMALY

1968

PETER J. HAMAN PLATE No.



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BONANZA PASS PROSPECT
GAL CLAIMS
WALKER CREEK ANOMALY
1968

PETER J. HAMAN

PLATE No. 3

The relatively small extent, and the low readings of the soil anomolies at the Walker Creek anomoly do not warrant additional exploration at the present time. One may consider application of induced polarization, particularly across lineaments, in the future.

To the south of the Walker Creek anomoly is an outcrop of granodioritic Nelson intrusive, at station DE - 11. The soil samples carried no heavy metals, though a few sprinkles of galena (?) and pyrrhotite were noticed in the field. The spectographic analysis of sample No. 9, showed neither lead nor silver, but a relatively high content of titanium (2-3%).

2. <u>The Two Lakes Anomoly</u>

Two soil anomolies were found in the central part of the Gal claims. The first anomoly, at station G - 12, read 300 ppm. The sample was taken from a little ridge, which may have been formed by a dyke, or a greenstone layer. It is suspected that the major contact between intrusives and Mount Roberts formation lies somewhere to the west. The writer suggests to follow up by detailed soil sampling along the little ridge, at station G - 12, and induced polarization and magnetic surveys along the intrusive contact.

A second soil anomoly reads 150 ppm, at station I - 10-11. The anomoly lies immediately adjacent to a northwesterly trending outcrop of granodioritic Nelson intrusive. The writer suggests to follow up by magnetic and induced polarization surveys, over and around the intrusive.

3. <u>The Orian Creek Anomoly</u>

This anomoly lies in the southern part of the claim block, south of line 18. Accessibility to the area is good, though the roads south of the sawmill dump must be cleared by caterpillar. Movement within the area is very difficult due to heavy deadfall. The area was lumbered many years ago, but the fallen lumber was never removed and is now a great hindrance to field crews.

The reconnaissance soil sampling survey shows a very wide spread of low readings, between 50 and 150 ppm, and some higher values up to 450 ppm. A detailed sample programme from line D to DE, and 19 to 20 (Plate 2, lower part) showed scattered anomolies in the east, and a relatively continuous zone with readings up to 450 ppm lead in the western part.

The prominent contact between intrusives to the west, and Mount Roberts formation to the east lies immediately to the west, and the prominent fracture running east-west occurs to the south. One sample of greenstone and peridotite (?) taken 50 feet east of station DE 20A was sent for a spectrographic analysis (sample 10) and showed relatively high values of chromium (.1 to .2%), copper and nickel (.01%), and a fairly high reading of titanium (2 - 3%). Another rock sample (Sample 8) was taken from greenstone and peridotite (?) at station DE 20 - 21. The outcrop occurs in a deep little valley, at the prominent east-west trending fracture. The rock is strongly fractured and impregnated with pyrite and pyrrhotite (?). The copper and nickel values are considerably lower than in sample 10. The titanium runs relatively high (2 - 3%) and it also contains .1 oz/ton silver. The soil samples in the vicinity run 50 - 150 ppm. One soil sample, approximately 500 feet to the east (station EF 20-21) is also located very close to the prominent fracture and showed 300 ppm. One rock sample of float (sample 5) was taken near the fracture, close to station FG 21. Dominance of medium crystalline hornblends suggests highly metamorphic rock, possibly near a skarn zone. The spectrographic analysis showed a little chrome (.02%), values slightly higher than normal of copper (.02%) and nickel (.005%), and less than .1 oz/ton silver.

The soil anomoly extends to the southeast, into the syenitic Coryell intrusive. Southwest of the anomoly are numerous small outcrops underneath fallen trees and show small amounts of galena, and possibly silver. The soil samples indicated no heavy metals. One rock sample was analyzed(sample 7), but showed no lead, a relatively low content of titanium (1%), and .1 oz/ton silver.

From the above description we conclude that the dominant commercial elements within the Orian Creek anomoly are lead and silver. One soil anomoly, reading 450 ppm, showed 450 ppm lead. The rock samples showed scattered small spots of galena, but the semiquantitative spectrographic analysis failed to indicate lead. The rock samples 7 and 8 carried .1 oz/ton silver, however. All rock samples were taken from areas where the soil analysis showed no, or small amounts of heavy metals only. It is, therefore, suggested that high readings on soil samples may indicate relatively high values of lead and silver.

It is recommended to undertake an additional detailed soil sampling programme between the lines C to D, and 19 to 21. It is also advised to gather additional information by magnetic and induced polarization surveys over the same area, and across the prominent fracture trending east - west.

The Hidden Hand Anomoly

This anomoly lies in the north-central part of the Gal claims, southeast of Bonanza Pass, and within the western part of the crown-granted claim Hidden Hand (lot 11139). Access to the anomoly is very good, along the road leaving Highway No. 3 at Bonanza Pass. (see Photo 4). The vegetation consists of mature Red Ceders, Hemlock, Balsam and Spruce, and the occassional wet spot is covered by Devil's Club. Due to the lack of underbrush walking is relatively easy within the area (Photo 7).

Photo No. 7.
The timber at the
Hidden Hand anomoly.

The anomoly was discovered by a number of high readings (up to 1,200 ppm) while doing reconnaissance sampling. The subsequent detailed soil sampling in 50 foot intervals between the lines O to P, and 8 to 9-10, indicated east-west to northeast trending soil anomolies (plate 4). The highest values appear to run in a northerly direction, along the line OP. The samples OP 8, OP 8-9, and 09-200 feet east, 50 feet south were checked for lead, copper and zink, and showed 600 ppm lead.

It was difficult in places to run parallel lines during the detailed soil sampling, and it became apparent that strong magnetic anomolies were present. It was recommended to carry out an additional magnetic survey over the same area.

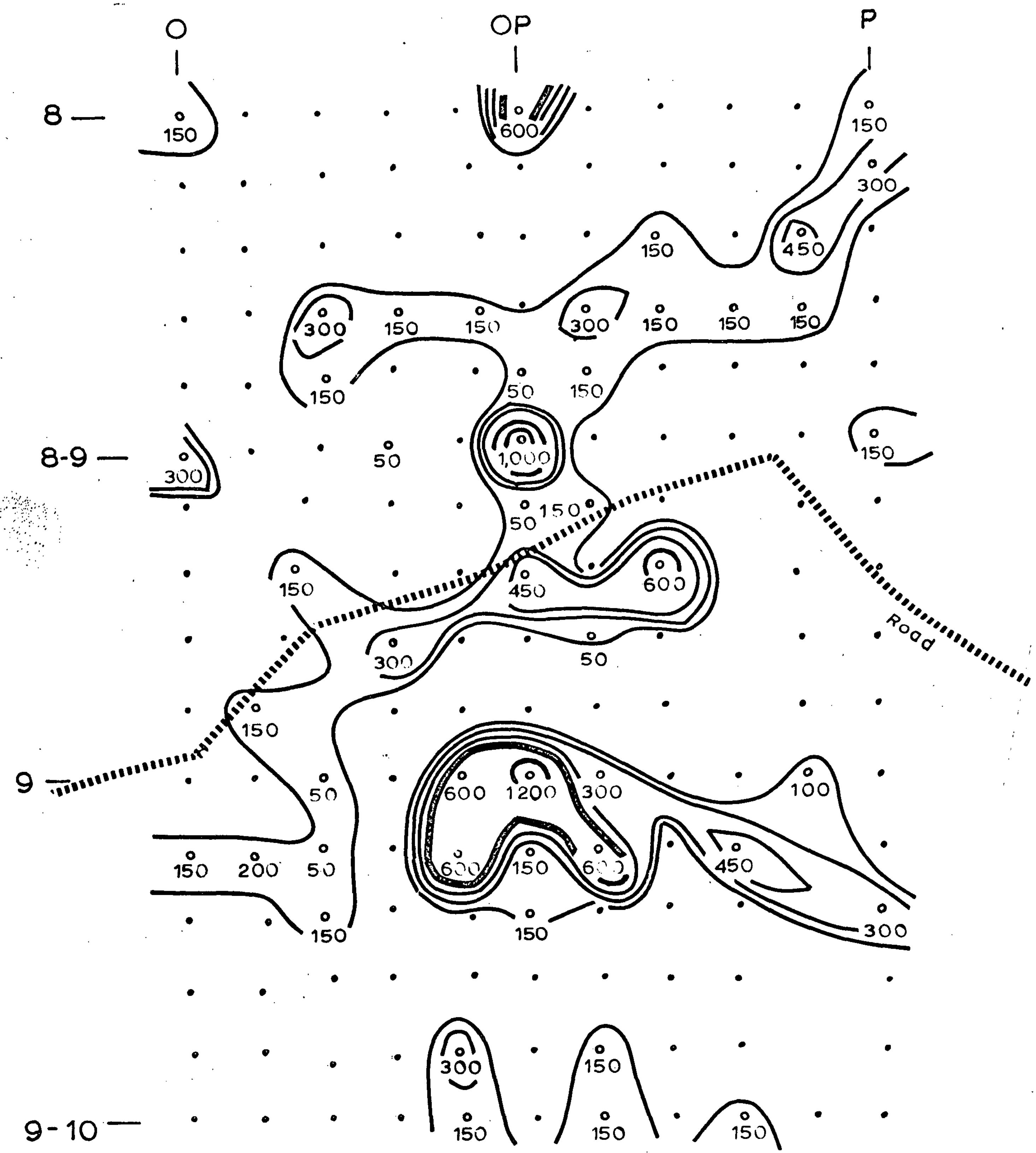
MAGNETIC SURVEY

Mr. Jack A. Millican, P. Eng. of Grand Forks undertook a magnetic survey in September 1968, using an AEM Magnetometer manufactured by L. A. Levanto OY, Helsinki. A reconnaissance survey was run in east-west directions between the lines L to RS, and 7 to 9, reading in 50-foot intervals. (See Magnetic Map, in pocket).

The western part of the area analyzed shows fairly high readings, the central portion has the highest values (up to 6,000 gammas) whereas the readings were very low in the east. This result correlates remarkably well with the soil analysis, which showed low anomolies in the west, a high anomoly in the centre, (Hidden Hand Anomoly) and no heavy metals in the east.

A detailed magnetic survey with stations in 50 foot intervals covered the area between the lines O to P, and 8 to 9. The magnetic data were superposed on the soil sample anomolies, on plate 5. Here again is a striking resemblence between magnetic and soil anomolies, whereby the magnetic anomolies are over, or immediately adjacent to the soil anomolies.

It was observed that the highest soil anomolies line up in a northerly direction, along the line OP. The magnetic anomolies appear to terminate, or



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GAL CLAIMS
HIDDEN HAND ANOMALY
1968

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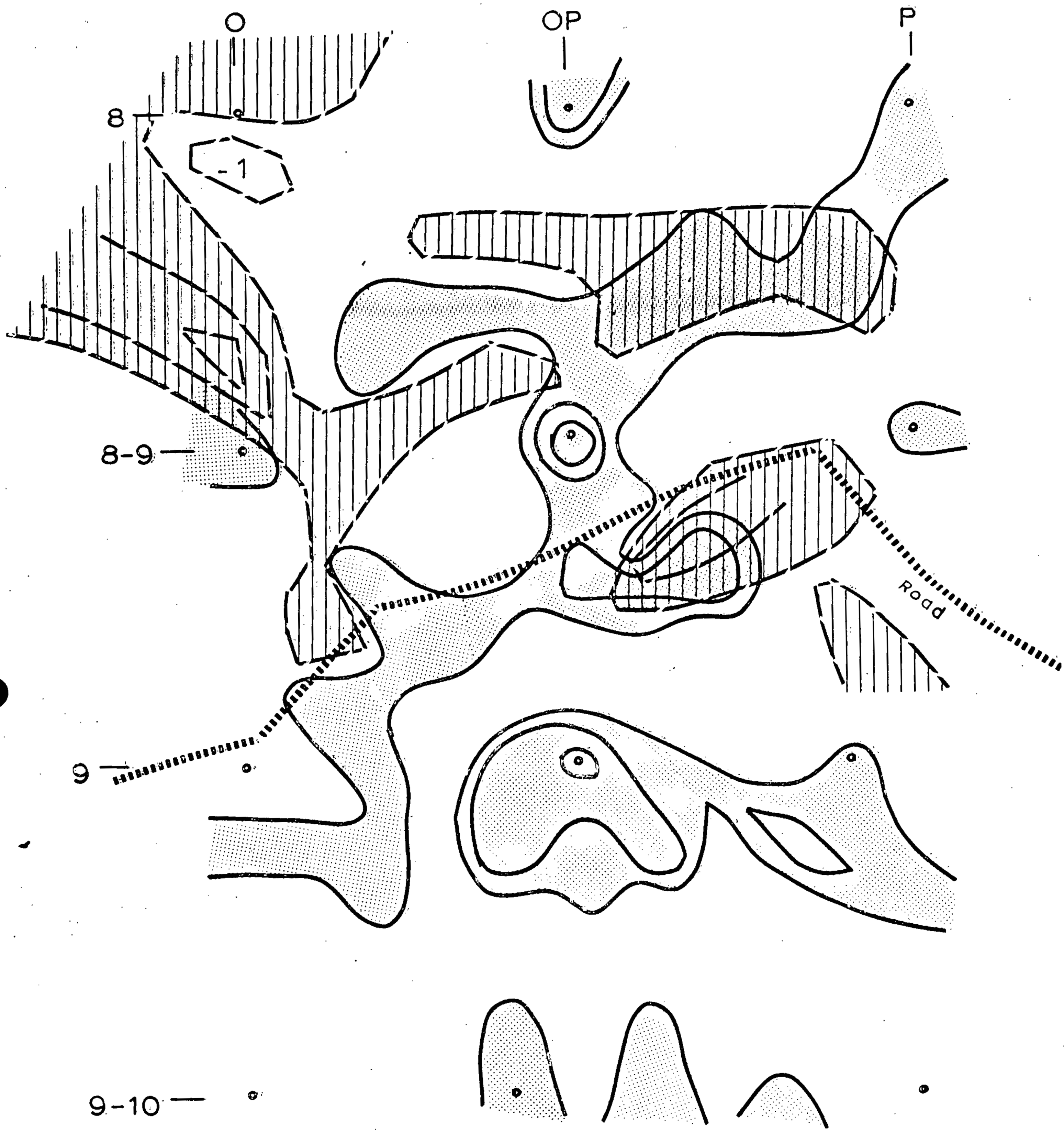
PLATE No. 4



Geochemical Anomalies

Magnetic Anomalies

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GAL CLAIMS
HIDDEN HAND ANOMALY
1968

PETER J. HAMAN

PLATE No. 5

widen, across the same line. Though no geological evidence is at hand at the present time, we may interpret the geological conditions from the correlation of magnetic and geochemical investigations. The northerly running line "OP" may indicate a fault which may have been used as a feeder channel for minerals. The east-west to northeasterly trending anomolies may represent various types of strata of the Mount Roberts formation. The strata carry high values of pyrrhotite, and cause magnetic anomolies, other strata carry lead (and possibly silver) and cause soil anomolies.

The Hidden Hand anomoly has so far rendered the best results within the entire claim block. Trenching through the high geochemical anomolies and across the line OP is highly recommended. Future detailed magnetic surveys, preferably to the south and west, but also to the north, may extend the Hidden Hand anomoly considerably. The magnetic survey should be followed up by soil sampling adjacent and over the magnetic anomolies.

SUMMARY

A photogeological study was carried out in the Christina Lake area, B.C. The area now covered by the Gal claims was interpreted to be underlain by relatively thin sediments of the Mount Roberts formation, surrounded by intrusives. These conditions were considered favourable for mineral exploration, and 46 Gal claims were staked in August and September 1968.

Access into the claim block is generally good along two roads leaving Highway No. 3, in a southerly direction. The undersigned carried out some geological mapping and supervised soil sampling, during a field survey in September 1968.

The presence of sediments and volcanic rocks of the Mount Roberts formation was confirmed, and the contacts versus intrusive rocks were established. Four geochemical anomolies became apparent, namely:

1) The Walker Creek anomoly lies in the northwest corner of the claim block. Detailed soil sampling indicated the presence of a number of minor anomolies, possibly related to a small stock of the Coryell intrusive. Small sprinkles of galena were observed in one outcrop of granodiorite, but spectrographic analysis failed to indicate lead, and showed less than .1 oz/ton silver. No subsequent work is suggested for the near future.

2) The Two Lakes anomoly, in the central part of the Gal claims, read 150 and 300 ppm on a reconnaissance soil analysis. Additional exploration by soil sampling, magnetic and induced polarization is recommended over and along intrusive contacts.

3) The Orian Creek anomoly lies in the southern part of the Gal claims. Geochemical analysis showed a wide spread of low contents of heavy metals, with a few readings up to 450 ppm. Rock samples taken from greenstone and peridotite (?) of the Mount Roberts formation showed some chrome, copper, nickel and silver. Samples from the Coryell intrusive carried small spots of galena but spectrographic analysis failed again to indicate lead, though it showed .1 oz/ton silver. The soil samples from the same location carried no heavy metals. It is suggested that geochemical anomolies with relatively high readings may indicate commercial concentrations of lead and silver. Subsequent geochemical, magnetic and induced polarization surveys along intrusive contacts, and across a prominent fracture, is highly recommended. The potential for economic concentration of metals is considered high within this area.

4) The Hidden Hand anomoly lies in the north-central part of the Gal claims, in the western part of the crown-granted claim "Hidden Hand". Soil sampling indicated very high values of heavy metals, up to 1,200 ppm lead. A magnetic survey showed good correlation between geochemical and magnetic

anomolies. A north trending fault may have been used as a feeder channel, and lead, silver or pyrrhotite may have been deposited in adjacent strata of the Mount Roberts formation. Trenching the high geochemical anomolies and across the suggested fault is highly recommended. It is thought that additional geochemical and geophysical exploration may extend the anomoly considerably. The possibility of finding economic concentrations of lead and silver is rated high.

The Gal claims appear to be located in an excellent strategical position. The generally good accessibility, proximity to railroad and Highway No. 3, the closeness of the smelter at Trail, the abundance of water for drilling and mining operations render favourable economical and technical conditions in addition to the positive results by geological, geochemical and geophysical investigations.

Respectfully submitted,

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
PETER J. HAMAN
Expiry Date: March 26, 1978

Peter J. Haman,
Ph.D., P.Eng. (B.C.)

REFERENCES

BRITISH COLUMBIA DEPARTMENT OF MINES AND PETROLEUM RESOURCES — Annual Reports of the Minister of Mines, VICTORIA, for the years: 1901, 1902, 1913, 1946, 1965

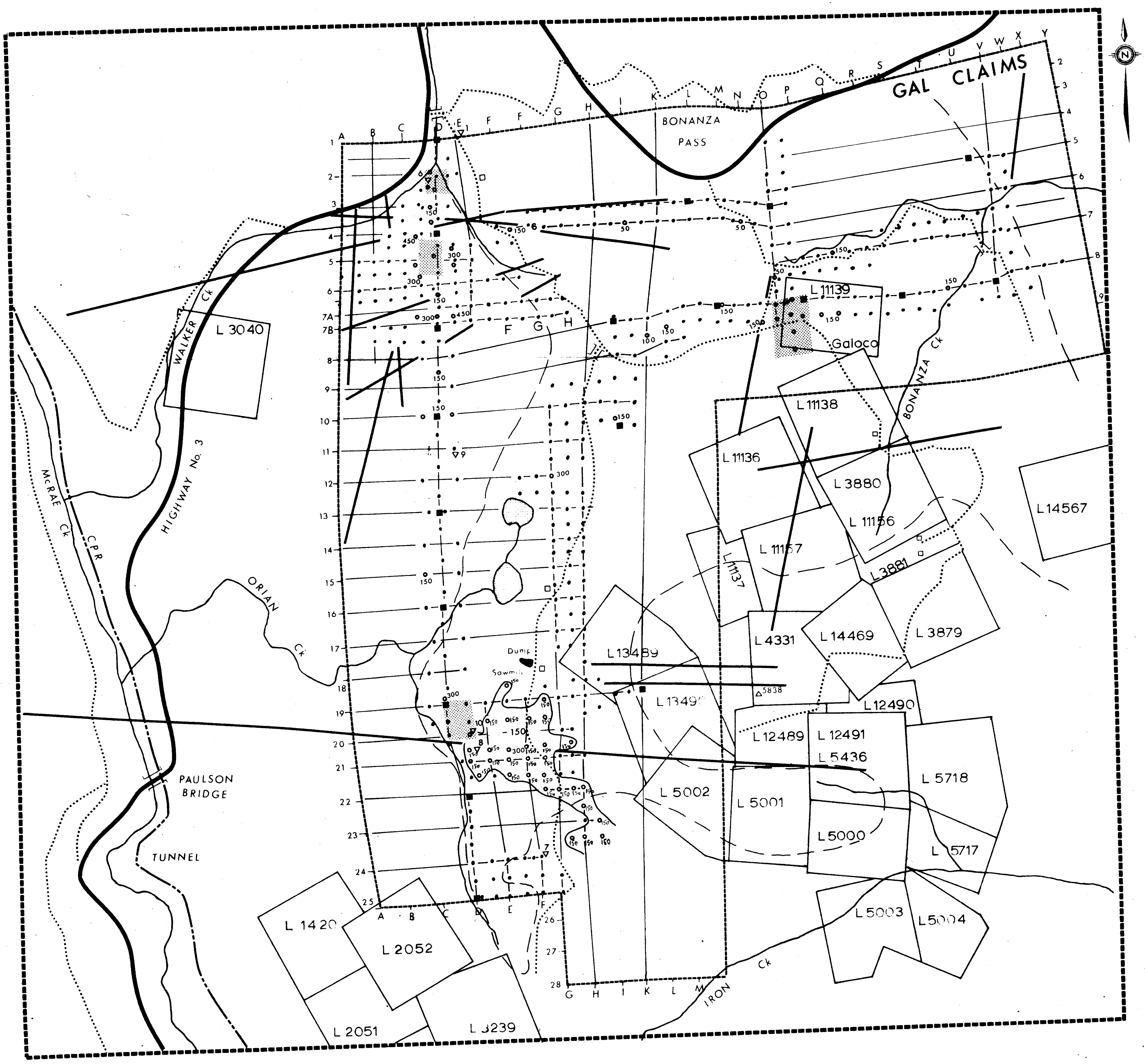
B.C. NATURAL RESOURCES CONFERENCE — (1965) British Columbia Atlas of Resources, Smith Lithograph Co. Ltd., VANCOUVER, B.C.

AFFIDAVIT ON APPLICATION FOR CERTIFICATE OF WORK

Expenses between September 2 and October 31,1969

J. A. Millican Exploration and Drilling Co.		
Geophysical Magnetometer Work - 3 days	$334.10	$334.10
Total		$334.10
J. A. Millican Exploration and Drilling Co.	$642.00	
	760.00	
Geochemical Testing, Drying, Screening and	226.18	
Labour: John G. Greenall $390.00 - 19½ days		
Samuel Skillings $140.00 - 7 days		
Henry J.G. Wilkinson $180.00-9 days		
Wages: $20.00 per day		$1628.18
Peter J. Haman, Transportation, Rental of Four-Wheel Drive	$ 579.12	
Peter J. Haman, Geochemical Sampling,	2,325.00	
Supervision, Geological	2,170.00	
Interpretations	1,893.91	
Professional Fee - $125.00 per day		
Expenses - 25.00 per day		$6968.03
Total		
TSL Laboratories, Analysis of Rock Samples	150.00	$ 150.00
Total		$8746.21

Dr. Peter J. Haman, P. Eng.



Galoco Exploration Ltd.,

BONANZA PASS PROSPECT

GAL CLAIMS

Christina Lake Area, B. C.

Scale : 1 inch to 1,000 feet

GEOCHEMICAL ANALYSIS MAP

TOTAL HEAVY METALS in parts per million.

LEGEND

Highway

Road, Trail

Railroad

Bridge

Lake

Claim Post

Sample Location, no heavy metals

"C horizon was sampled with 1" drill using TSL sample bags

Soil anomaly, 300 ppm.

Area covered by detailed soil sampling in 50' intervals.

Rock sample

prepared by:

STEREOGRAMMETRY LTD.

Peter J. Haman, Ph.D., P. Eng.

OCTOBER 1968

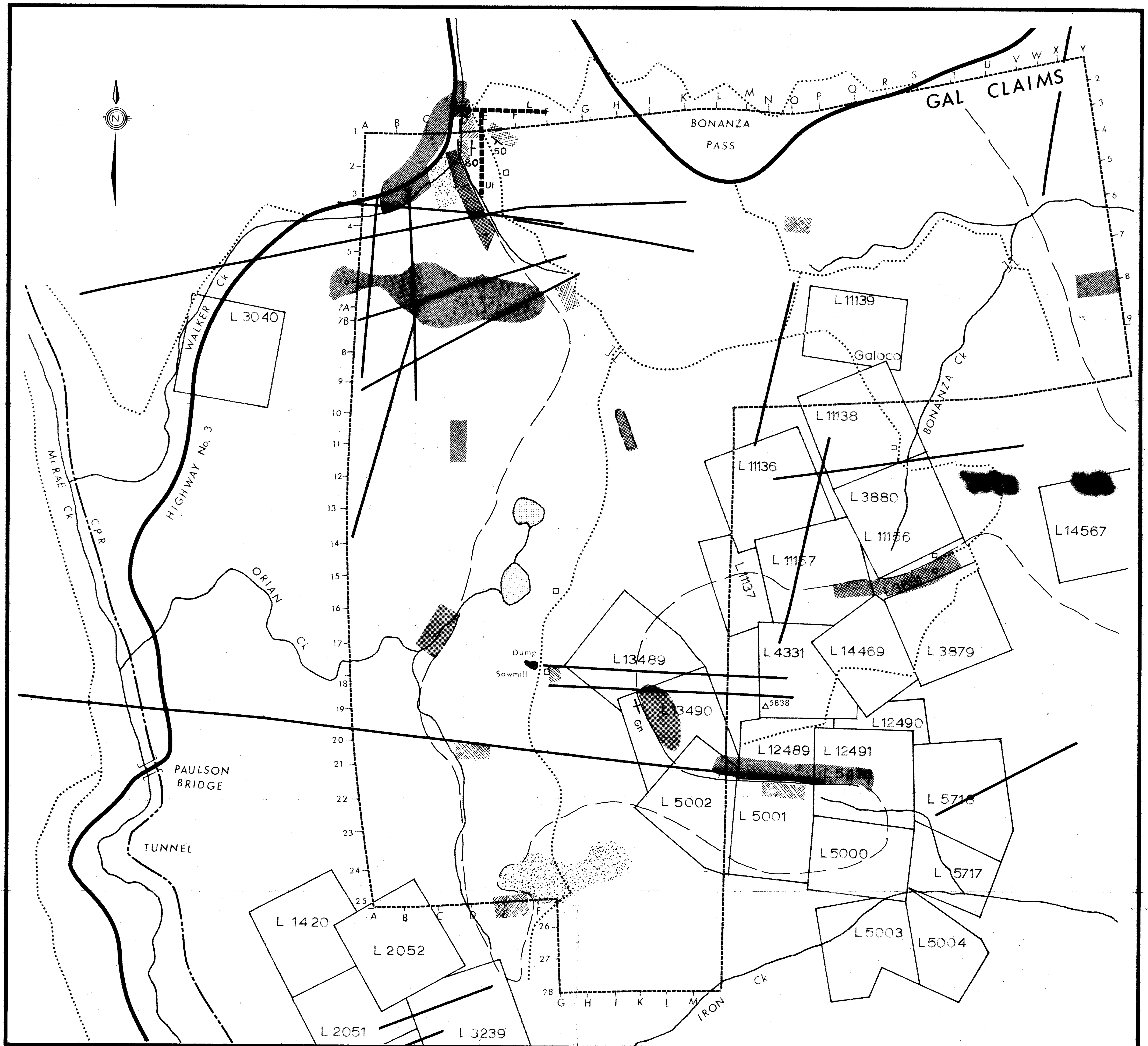
TO ACCOMPANY GEOLOGICAL REPORT BY DR. PETER J. HAMAN, P. ENG., ON THE GAL CLAIM BLOCK, CHRISTINA LAKE AREA, TRAIL CREEK MINING DIVISION.

DATED. OCTOBER 31, 1968

2063

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2063 MAP #4

Peter J. Haman, P. Eng.



2063

TOPOGRAPHICAL - L E G E N D S - GEOLOGICAL

HIGHWAY
ROAD, TRAIL
RAILROAD
BRIDGE
LAKE

GEOLOGICAL BOUNDARY
NELSON INTRUSIVE
CORYELL INTRUSIVE
MT ROBERTS FMN. (GREENSTON, PERIDOTITE, SCHIST)
GN GNEISS
FRACTURE
L LAMPROPHYRIC DYKE
UL ULTRABASIC DYKE

TO ACCOMPANY GEOLOGICAL REPORT BY DR. PETER J. HAMAN, P. ENG., ON THE GAL CLAIM BLOCK, UINSTIUA LAKE AREA, TRAIL CREEK MINING DIVISION.

DATED. OCTOBER 31, 1968

GALOCO EXPLORATION LTD.

BONANZA PASS PROSPECT
GAL CLAIMS
GEOLOGICAL MAP

(TOTAL HEAVY METALS IN PARTS PER MILLION)

SCALE : 1" = 1,000'

PREPARED BY :
STEREOGRAMMETRY LTD. PETER J. HAMAN, Ph. D., P. Eng.
1968

Peter J. Haman, P. Eng.

2063

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 2063 MAP #5

TO ACCOMPANY GEOLOGICAL REPORT BY DR. PETER J. HAMAN, P. ENG., ON THE GAL CLAIM BLOCK, UINSTIUA LAKE AREA, TRAIL CREEK MINING DIVISION.

DATED. OCTOBER 31, 1968

GALOCO EXPLORATION LTD.

BONANZA PASS PROSPECT
GAL CLAIMS
MAGNETIC MAP

SCALE 1"=100' CONTOUR INTERVAL 1000 GAMMAS

FIELD SURVEY J.A. MILLICAN
COMPILATION P.J. HAMAN
1968

Peter J. Haman, P. Eng

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CERTIFICATE OF ANALYSIS

Semiquantitative Spectrographic

SAMPLE(S) FROM WEST CANADIAN RESEARCH PUBLICATIONS

REPORT NO. V-5012

SAMPLE(S) OF ROCK Submitted on October 21, 1968.

	Sample 10	Sample	Sample
Antimony	–		
Arsenic	–		
Barium	.1%		
Beryllium (BeO)	–		
Bismuth	–		
Boron	–		
Cadmium	–		
Cerium (CeO_2)	–		
Caesium	X		
Chromium	.1-.2%		
Cobalt	.005%		
Columbium (Cb_2O_5)	–		
Copper	.01%		
Gallium	.001%		
Germanium	–		
Gold	–		
Hafnium	–		
Indium	–		
Iridium	–		
Lanthanum (La_2O_3)	–		
Lead	–		
Lithium (Li_2O)	–		
Manganese	.2%		
Mercury	–		
Molybdenum	–		
Neodymium (Nd_2O_3)	–		
Nickel	.01%		
Palladium	–		

	Sample 10	Sample	Sample
Phosphorus	–		
Platinum	–		
Rhenium	X		
Rhodium	–		
Rubidium	X		
Ruthenium	–		
Silver	–		
Strontium	.05%		
Tantalum (Ta_2O_5)	–		
Tellurium	–		
Thallium	–		
Thorium (ThO_2)	–		
Tin	–		
Titanium	2-3%		
Tungsten	–		
Uranium (U_3O_8)	–		
Vanadium	.01%		
Yttrium (Y_2O_3)	.005%		
Zinc	–		
Zirconium (ZrO_2)	.01%		
ROCK FORMING METALS			
Aluminum (Al_2O_3)	MH		
Calcium (CaO)	MH		
Iron (Fe)	MH		
Magnesium (MgO)	5-10%		
Silica (SiO_2)	H		
Sodium (Na_2O)	5%		
Potassium (K_2O)	.5%		

Figures are approximate:

CODE

H — High	— 10 — 100% approx.	LM — Low Medium	— .5 — 5% approx.
MH — Medium High	— 5 — 50% approx.	L — Low	— .1 — 1% approx.
M — Medium	— 1 — 10% approx.	TL — Trace Low	— .05 — .5% approx.
		T — Trace	— .01 — .1% approx.
FT — Faint Trace	— approx. less than .01%.		
PT — Possible Trace	— Presence not certain.		
— — Not Detected	— Elements looked for but not found.		
X — Not looked for			

DATE October 21, 1968.

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REPORT NO. V-5012

SAMPLE(S) OF ROCK Submitted on October 11, 1968.

	Sample 7	Sample 8	Sample 9		Sample 7	Sample 8	Sample 9
Antimony	–	–	–	Phosphorus	–	–	–
Arsenic	–	–	–	Platinum	–	–	–
Barium	.2%	.1%	.2%	Rhenium	X	X	X
Beryllium (BeO)	–	–	–	Rhodium	–	–	–
Bismuth	–	–	–	Rubidium	X	X	X
Boron	–	–	–	Ruthenium	–	–	–
Cadmium	–	–	–	Silver	.1 oz:t	.1 oz:t	–
Cerium (CeO_2)	–	–	–	Strontium	.1%	.05%	.1%
Caesium	X	X	X	Tantalum (Ta_2O_5)	–	–	–
Chromium	–	–	–	Tellurium	–	–	–
Cobalt	–	.005%	.005%	Thallium	–	–	–
Columbium (Cb_2O_5)	–	–	–	Thorium (ThO_2)	–	–	–
Copper	.001%	.005%	.001%	Tin	–	–	–
Gallium	.001%	.001%	.001%	Titanium	1%	2-3%	2-3%
Germanium	–	–	–	Tungsten	–	–	–
Gold	–	–	–	Uranium (U_3O_8)	–	–	–
Hafnium	–	–	–	Vanadium	.01%	.02%	.01%
Indium	–	–	–	Yttrium (Y_2O_3)	–	.005%	.005%
Iridium	–	–	–	Zinc	–	–	–
Lanthanum (La_2O_3)	–	–	–	Zirconium (ZrO_2)	.02%	.02%	.01%
Lead	–	–	–	**ROCK FORMING METALS**			
Lithium (Li_2O)	–	–	–	Aluminum (Al_2O_3)	MH	MH	MH
Manganese	.1%	.1%	.1%	Calcium (CaO)	5%	5%	5%
Mercury	–	–	–	Iron (Fe)	5%	MH	MH
Molybdenum	–	–	–	Magnesium (MgO)	2%	5%	5%
Neodymium (Nd_2O_3)	–	–	–	Silica (SiO_2)	H	H	H
Nickel	.001%	.001%	.001%	Sodium (Na_2O)	5%	5%	5%
Palladium	–	–	–	Potassium (K_2O)	2%	1%	1%

Figures are approximate:

CODE

H — High — 10 — 100% approx.
MH — Medium High — 5 — 50% approx.
M — Medium — 1 — 10% approx.
LM — Low Medium — .5 — 5% approx.
L — Low — .1 — 1% approx.
TL — Trace Low — .05 — .5% approx.
T — Trace — .01 — .1% approx.
FT — Faint Trace — approx. less than .01%.
PT — Possible Trace — Presence not certain.
— — Not Detected — Elements looked for but not found.
X — Not looked for

DATE October 21, 1968. **SIGNED** ________

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SAMPLE(S) FROM WEST CANADIAN RESEARCH PUBLICATIONS

REPORT NO. V-5012

SAMPLE(S) OF ROCK Submitted on October 11, 1968.

	Sample 4	Sample 5	Sample 6		Sample 4	Sample 5	Sample 6
Antimony	-	-	-	Phosphorus	-	-	-
Arsenic	-	-	-	Platinum	-	-	-
Barium	-	.2%	.2%	Rhenium	X	X	X
Beryllium (BeO)	-	-	-	Rhodium	-	-	-
Bismuth	-	-	-	Rubidium	X	X	X
Boron	-	-	-	Ruthenium	-	--	-
Cadmium	-	-	-	Silver	.1 oz:t	<.1 oz:t	<.1 oz:
Cerium (CeO_2)	-	-	-	Strontium	-	.1%	.1%
Caesium	X	X	X	Tantalum (Ta_2O_5)	-	--	-
Chromium	.3-.5%	.02%	-	Tellurium	-	-	-
Cobalt	.005%	.005%	-	Thallium	-	-	-
Columbium (Cb_2O_5)	-	-	-	Thorium (ThO_2)	-	-	-
Copper	.001%	.02%	.001%	Tin	-	-	-
Gallium	-	.001%	.001%	Titanium	.05%	1-2%	1%
Germanium	-	-	-	Tungsten	-	-	-
Gold	-	-	-	Uranium (U_3O_8)	-	-	-
Hafnium	-	-	-	Vanadium	.01%	.03%	.01%
Indium	-	-	-	Yttrium (Y_2O_3)	-	.005%	-
Iridium	-	-	-	Zinc	-	-	-
Lanthanum (La_2O_3)	-	-	-	Zirconium (ZrO_2)	-	.02%	.02%
Lead	-	.05%	-	**ROCK FORMING METALS**			
Lithium (Li_2O)	-	-	-	Aluminum (Al_2O_3)	LM	MH	MH
Manganese	.05%	.1%	.1%	Calcium (CaO)	.5%	MH	MH
Mercury	-	-	-	Iron (Fe)	M 5%	MH	5%
Molybdenum	-	.001%	-	Magnesium (MgO)	MH	5%	2%
Neodymium (Nd_2O_3)	-	-	-	Silica (SiO_2)	H	H	H
Nickel	.1-.2%	.005%	.001%	Sodium (Na_2O)	-	3%	5%
Palladium	-	-	-	Potassium (K_2O)	-	2%	2%

Figures are approximate:

CODE

H — High — 10 — 100% approx.
MH — Medium High — 5 — 50% approx.
M — Medium — 1 — 10% approx.
LM — Low Medium — .5 — 5% approx.
L — Low — .1 — 1% approx.
TL — Trace Low — .05 — .5% approx.
T — Trace — .01 — .1% approx.
FT — Faint Trace — approx. less than .01%.
PT — Possible Trace — Presence not certain.
– — Not Detected — Elements looked for but not found.
X — Not looked for

DATE October 21, 1968.

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Semiquantitative Spectrographic

SAMPLE(S) FROM WEST CANADIAN RESEARCH PUBLICATIONS
Dr. P.J. Haman

REPORT NO. V-5012

SAMPLE(S) OF ROCK Submitted on October 11, 1968.

	Sample 1	Sample 2	Sample 3		Sample 1	Sample 2	Sample 3
Antimony	–	–	–	Phosphorus	–	–	–
Arsenic	–	–	–	Platinum	–	–	–
Barium	.3%	.3%	.2%	Rhenium	X	X	X
Beryllium (BeO)	–	–	–	Rhodium	–	–	–
Bismuth	–	–	–	Rubidium	X	X	X
Boron	–	–	–	Ruthenium	–	–	–
Cadmium	–	–	–	Silver	.2 oz:t	.1 oz:t	.1 oz:t
Cerium (CeO_2)	–	–	–	Strontium	.2%	.2%	.1%
Caesium	X	X	X	Tantalum (Ta_2O_5)	–	–	–
Chromium	.1-.2%	–	.01%	Tellurium	–	–	–
Cobalt	.01%	–	–	Thallium	–	–	–
Columbium (Cb_2O_5)	–	–	–	Thorium (ThO_2)	–	–	–
Copper	.001%	.001%	.001%	Tin	–	–	–
Gallium	.001%	.001%	.001%	Titanium	1-2%	1-2%	1-2%
Germanium	–	–	–	Tungsten			
Gold	–	–	–	Uranium (U_3O_8)	–	–	–
Hafnium	–	–	–	Vanadium	.02%	.01%	.01%
Indium	–	–	–	Yttrium (Y_2O_3)	.001%	.001%	.001%
Iridium	–	–	–	Zinc	–	–	–
Lanthanum (La_2O_3)	–	–	–	Zirconium (ZrO_2)	.02%	.03%	.03%
Lead	–	–	.01%	**ROCK FORMING METALS**			
Lithium (Li_2O)	–	–	–	Aluminum (Al_2O_3)	MH	MH	MH
Manganese	.1%	.05%	.05%	Calcium (CaO)	MH	2%	1%
Mercury	–	–	–	Iron (Fe)	MH	M 5%	M 5%
Molybdenum	–	–	–	Magnesium (MgO)	MH	5%	5%
Neodymium (Nd_2O_3)	–	–	–	Silica (SiO_2)	H	H	H
Nickel	.005%	.002%	.002%	Sodium (Na_2O)	5%	MH	MH
Palladium	–	–	–	Potassium (K_2O)	2%	5%	4%

Figures are approximate:

CODE

H — High	— 10 — 100% approx.	LM — Low Medium	— .5 — 5% approx.	FT — Faint Trace	— approx. less than .01%.
MH — Medium High	— 5 — 50% approx.	L — Low	— .1 — 1% approx.	PT — Possible Trace	— Presence not certain.
M — Medium	— 1 — 10% approx.	TL — Trace Low	— .05 — .5% approx.	– — Not Detected	— Elements looked for but not found.
		T — Trace	— .01 — .1% approx.	X — Not looked for	

DATE October 21, 1968.

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