

840431

REPORT ON

STIRRUP CREEK PROJECT

LAT 51° 07 LONG 122° 15

NTS 92-0-1

CLINTON MINING DIVISION

BY T.E. LISLE, P.ENG.
FOR CHEVRON STANDARD LIMITED.
DECEMBER 23, 1974

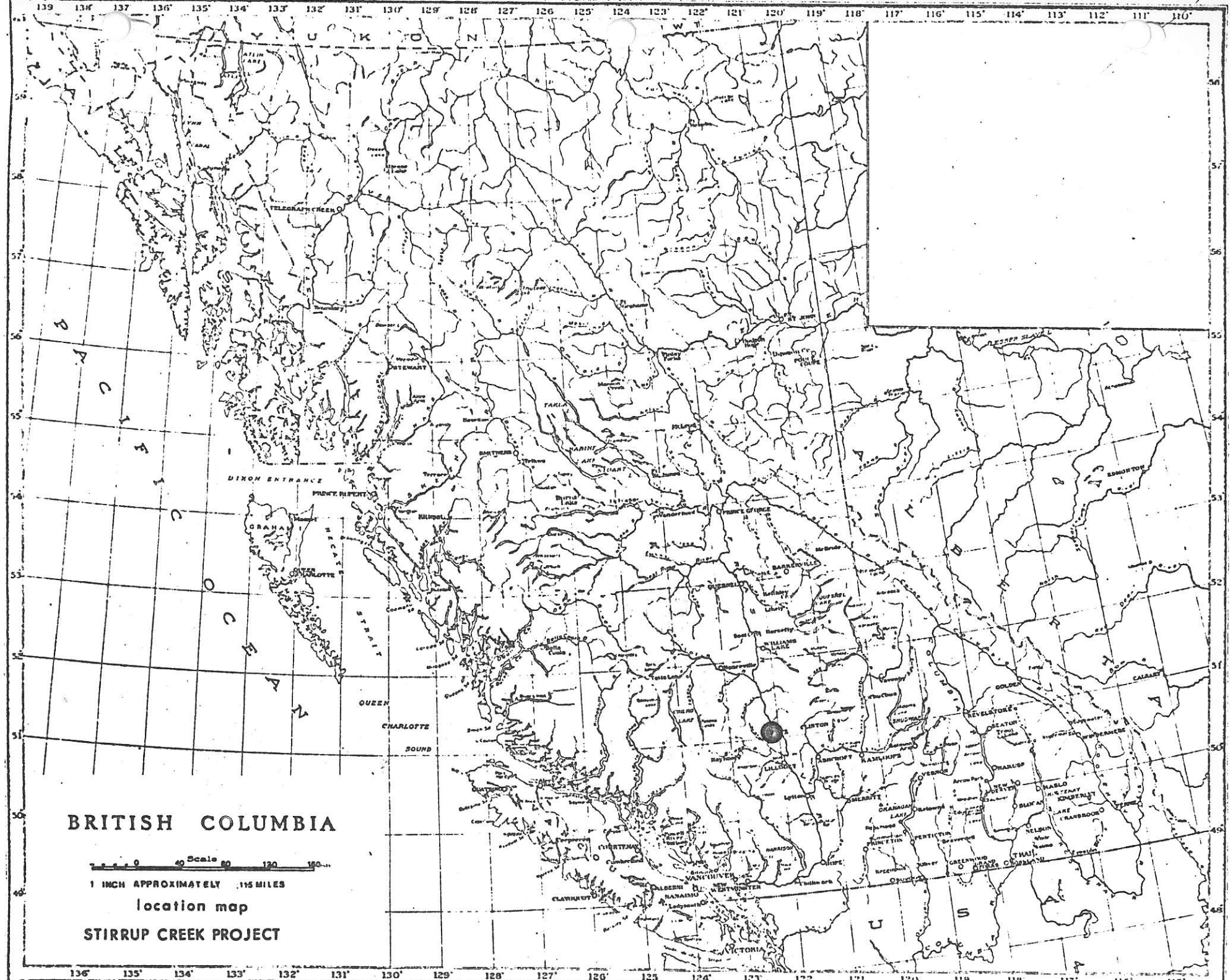
PROJECT FILE

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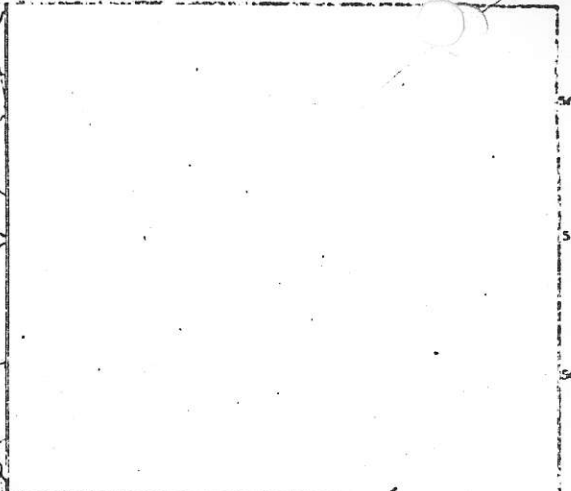
BRITISH COLUMBIA



1 INCH APPROXIMATELY 115 MILES

location map

STIRRUP CREEK PROJECT



SUMMARY:

The Stirrup Creek property, optioned from Dr. H. V. Warren and his associates, is in south central British Columbia in the Clinton Mining Division. It is situated about 60 miles by road west of Clinton and is comprised of 19 located and 6 Crown-granted claims.

The property is underlain by Lower Cretaceous sandstone, argillite and conglomerate of the Jackass Mountain group. The strata dip between 10° and 35° from southwest to north and are intruded by sills and dikes of feldspar porphyry.

High angle east-west faults are the dominant structural feature of the area and are the locus of much of the alteration on the property. Northeasterly faults and fractures are common on the northeastern side of the property and northwesterly faults are evident to the northwest.

Carbonate alteration is widespread on the property and is conspicuous as large rusty weathering zones around faults and fractured areas. Silicification is restricted to narrow zones. It occurs around faults, in localized fracture and breccia zones, and with stibnite and related sulphides along the ridge crest. For the most part, there is no indication of significant gold content in the quartz. Intrusive rocks near the southwest corner of the W3 claim are strongly bleached and adjacent argillites show weakly anomalous gold values.

Sulphide content, mainly related to intrusive rocks, is commonly well below 1.0%. It is comprised of pyrite and lesser pyrrhotite and chalcopyrite. Local concentrations, greater than 2%, occur on the W9 claim. Gold content is occasionally higher in well pyritized rocks but it is not significant.

Better gold values are found in (a) Fault gouge related to east-west faults; (b) With late N5⁰W quartz fractures locally associated with wehrlite; (c) To a minor extent in the quartz-stibnite veins; and (d) As minor disseminations in argillaceous rocks near the southwest corner of the W3 claim. The potential for these zones is low.

The geochemical survey to a large extent correlated well with earlier work. It was particularly valuable in the areas of glacial till on the lower slopes, where it showed that anomalous conditions in the till were related more to glacial transport rather than underlying bedrock.

CONCLUSION :

In the claim area, no gold has been found on the southern slope of Stirrup Creek, and very little placer gold has been recovered from the Ward Creek drainage north of the ridge. Because of these facts, and the indicated south to southeasterly direction of ice movement it is inferred that most of the Placer gold from Stirrup Creek originated between the creek and the ridge crest.

The recent survey covered in some detail approximately one mile of the upper part of Stirrup Creek. This work revealed some weak gold bearing structures but no significant zones of mineralization were found. As most of the gold was recovered from the upper four miles of the creek, there is a possibility that a continuation or repetition of these structures beyond the claims may have contributed significant amounts of gold to Stirrup Creek. In view of this, prospecting of the northerly creek slope to the northwest and particularly to the southeast beyond the claims might be profitable.

INTRODUCTION:

Previous work on the Stirrup Creek gold property had failed to locate the source of placer gold recovered from Stirrup Creek. Because of this and because the property contained many of the characteristics usually ascribed to the "Carlin type" low grade disseminated gold deposits of the American southwest, it was decided that further work was warranted.

The property was optioned from Dr. H.V. Warren and his associates in the spring of 1974. Between August 4 and October 11, 1974, a program consisting of mapping and sampling was undertaken and between October 2 and 11 some bulldozer trenching and road improvement was carried out.

The geological work was carried out by the author with the assistance of R. Thomas. The bulldozer work was contracted to Artomas Contracting Limited of Lillooet, B.C.

This report summarizes the results of the above program.

HISTORY:

The property was worked for placer gold to about 1940. Dr. Warren reports that to about that time the creek had produced between one quarter and one half million dollars worth of gold. At 20 dollars an ounce, this represents between 12,000 and 20,000 ounces.

More recently, Rio Tinto took the property in 1970 and conducted geochemical programs prior to drilling 9 percussion holes. Rio Tinto relinquished their option in 1972. Placer Development took the property in 1973 and conducted further geochemical surveys and bulldozer trenching. They obtained little encouragement and dropped their option on completion of the work.

LOCATION ACCESS AND TOPOGRAPHY:

The property is situated in the Clinton Mining Division in south central British Columbia some 60 miles by road from the village of Clinton. The claims are centered on latitude $51^{\circ}07'$ and longitude $122^{\circ}15'$ and are located in the N.T.S. 92-0-1. Access is by good gravel road from Clinton to the Big Bar Ferry on the Fraser River, then by good four-wheel drive road west to the claims.

The area has been glaciated and a prominent rounded ridge running northwest divides Ward Creek drainage on the north from Stirrup Creek or Watson Bar Creek drainage on the south. Both creeks drain to the Fraser River a short distance to the east.

Topography is developed between elevations of 5,400 feet in lower Stirrup Creek to about 6,650 feet on the upper ridge. The lower slopes, particularly the south facing slopes, are covered with till varying to about 10 feet in thickness, and the surface is locally covered with ash deposits up to 20 inches thick. The upper parts of the ridge have open grassy slopes but lower elevations, particularly north facing hillsides are forested with pine and lesser amounts of spruce, fir and balsam.

CLAIMS :

The property is comprised of six crown granted claims and 19 claims held by right of location. Six of the located claims were staked by the Company in September, 1974, and are subject to the terms of the option agreement. Three years work has been applied for assessment against the six claims and pertinent details on all claims are listed below:

Sun Fraction	C.G. Lot 8199)	
Astonisher	C.G. Lot 7979)	
Moniter	C.G. Lot 7980)	Taxes due July 2 each
Chevalier	C.G. Lot 7981)	year - next due date
Ajax	C.G. Lot 7982)	July 2, 1975
Monty	C.G. Lot 7983)	

<u>Claim Name</u>	<u>Record No.</u>	<u>Group</u>	<u>Expiry Date</u>
W1 to W12 Incl.	23370 - 23381 Incl.	Watson Bar	November 4, 1990
Last Chance	10538	" "	November 5, 1990
*W13 to W18 Incl.	32128 - 32133 Incl.	" "	September 25, 1978

* No certificates of work received to date.

GEOLOGY:

GENERAL STATEMENT

Regionally, the property is situated in the Lower Cretaceous Jackass Group of sedimentary rocks lying adjacent to the interior margins of the Coast Plutonic Complex. In the claim area, the group is bounded by northwesterly faults; The Ward Creek to the northeast and the Yalakom on the southwest, and is mapped as three separate lithologic units.

Division A, the lowest member, is comprised of marine and non-marine greywacke, shale and conglomerate some 3,000 to 4,000 feet thick. Division B is essentially a coarse conglomerate unit comprised of cobbles and boulders of medium and coarse-grained granite rocks, with minor sedimentary and volcanic debris, interbedded with greywacke. The conglomerates are overlain by greywacke, argillite and pebble conglomerate of Division C. Divisions B and C are non-marine and respectively attain thicknesses of about 2,000 and 5,000 feet.

In Upper Stirrup Creek, the claim area is underlain by rocks of Divisions B and C. Strata of Division C are intruded by sills and dikes thought to be of Tertiary age.

LITHOLOGIC DESCRIPTION:

In the central claims, argillite forms a thick band some 600 to 800 feet thick striking northeast and dipping between 10° and 30° northwest. The rocks are typically blue grey or brown grey and silty. The section is more massive on the upper slopes, thins rapidly and becomes interbedded with greywacke and arkosic sandstone on the lower northern slope of Stirrup Creek, and is found as float or thin interbeds on the lower southern slope. The main belt is overlain and underlain by greywacke and cut by numerous dikes and sills of intrusive rocks. In the western section of the claims, argillite, based mainly on float evidence, appears more regularly bedded with sandstone. It appears thickly interbedded with sandstone in lower Stirrup Creek but occurs only as a minor constituent of the Jackass group on the ridge southwest of Stirrup Creek.

Sandstone accounts for well over half of the underlying bedrock and is most abundant to the northwest and southeast of the main argillite belt. It is typically a grey green medium grained greywacke composed of feldspar, quartz and rock fragments. Beds about three feet thick have been observed in the eastern map area. In the interbedded area north of the creek, finer grained arkoses are more evident and in the vicinity of intrusives the beds are locally well pyritized. A 12 inch pebble conglomerate interbed is evident in the eastern claims in somewhat coarser sandstones, and pebble sandstones are found north of the road in the northwestern claim area.

The intrusive rocks occur only as sills and dikes within the claim area. They are medium grained feldspar rich porphyries of granodiorite composition. In unaltered rocks they may contain 10 to 25% feldspar and up to 10% hornblende phenocrysts in a grey fine grained groundmass. Occasionally very fine grained biotite is present. In the more altered intrusives, particularly along

the ridge, the rocks contain up to 10% prominent quartz eyes 2-5 mm in diameter.

The sills range in thickness to about 175 feet but are commonly less than 50 feet. They pinch and swell, apparently split, may terminate along strike and commonly show a marked preference for the Argillites or their contacts. Within the claim area the distribution may have been influenced by the thinly interbedded nature of the sandstone and argillite north of the creek. The dikes are not as abundant as the sills. They are more common along the ridge and like the sills are irregular in form. Those rocks containing quartz eyes may in part be related more to dikes rather than sills.

The intrusives are locally well mineralized with pyrite and in some cases pyrrhotite and chalcopyrite. Concentrations in excess of 2% are evident in exposures on the W9 claim to the northwest. Mineralization is usually disseminated but locally occurs on fractures both in intrusive and sedimentary rocks. In the hydraulic cuts on lots 7979 and 7983, sandstone beds along the trace of a discontinued sill are well mineralized but carry insignificant gold values. A mineral tentatively identified as arsenopyrite is evident in fine grained intrusive rocks near the northeast corner of lot 7981.

The conglomerate in the northern claims is comprised of cobbles and boulders of quartz rich granitic rocks averaging slightly better than 6 inches but commonly reaching 2 feet in diameter. The conglomerate is interbedded with sandstone. Beds vary to over 10 feet thick, strike about N15°W and dip between 25° and 30° southwest.

STRUCTURE :

Recent mapping by the Geological Survey in the Taseko Lake map area indicates a strong east-west fracture component between the Ward Creek and Yalakom Faults. The east-west structures are relatively short with limited displacement although block faulting is recognized.

At Stirrup Creek, a number of faults are aligned within 15 degrees of east-west and dip steeply to the south. They vary from single breaks to shear and fault zones in excess of 25 feet. One such zone marks the contact between Division B Conglomerate on the north, from Division C strata on the south. In this instance the fault is believed normal with the northern block having moved up relative to the southern block. The relative stratigraphic position of the two units has not been determined.

Other faults on the property are aligned about N20°W and (N45 to 50E). A strong system of fractures along the ridge crest is related to the northeasterly set. Rock alteration is directly related to fracturing and faulting and is most intense near the locus of intersecting structures.

In the claim area the strata commonly dip between 10° and 35° but are variable in strike from NW to east, reflecting fault movement. Near the sills, altitudes often show little or no variation from the norm, however, near dikes and in areas of faulting the rocks are distorted, locally brecciated and commonly altered.

ALTERATION :

Within the claim area, alteration is more evident to the north of Stirrup Creek and is characterized by carbonatization in the south, and both

carbonatization and clay alteration along the ridge. Silicification, mainly in the form of quartz veinlets, is widespread but comparatively weak.

Carbonate alteration on the lower slopes is conspicuous as large rusty weathering zones which occur most commonly in highly fractured rocks around east-west faults. The carbonate replaces mainly the matrix of the invaded rocks, and in comparable zones of Big Bar Canyon immediately to the east, has the composition of magnesiodolomite. (Trettin 1961, P98). Clusters of white carbonate fractures also occur along the lower slopes and in highly fractured argillaceous rock along the ridge. In the latter area, such zones may be highly altered and show a rusty mottled grey discoloration.

Along the ridge, the rocks are commonly weathered to a pale rusty brown colour which is most prevalent to the northwest around the W3 and W10 claims. The rocks are moderately well carbonatized, occasionally weakly silicified, and around some intrusive bodies show clay and sericitic alteration. In this latter case, the rocks, particularly intrusives, are irregularly bleached, more strongly along and north of the ridge, but perceptibly weaker to the southwest of the ridge. Broad clusters of ferruginous fractures exposed along the trenches on the ridge appear directly related, as does much of the alteration, to a strong system of northeasterly fractures in that area. These fractures are locally contrasted to late east-west limonite fractures paralleling the large east-west faults. Pyrite is weakly disseminated in the intrusives and occurs sporadically as fracture fillings in the surrounding rocks.

Strongly silicified zones, 25 feet and 15 feet wide occur respectively on the W13 claim and in lower Stirrup Creek. Such material is brecciated,

locally pyritized and veined by carbonate, and commonly occurs at or near faults. Other comparable zones located are less than four feet wide. Quartz occurs with stibnite and related sulphides in narrow widely separated fractures along the ridge. It occurs also as minor fracture fillings within and related to the carbonate alteration, and in northeasterly fractures around the mercury zone on the Last Chance Claim. A weak set of quartz fractures, apparently late and trending approximately N5°W is evident in the hydraulic cuts north of the Creek. Some gold occurs with this material and previous work suggests an association with wehrlite.

The argillaceous rocks adjacent to the altered intrusive (S.W. Corner W3 claim) have been brecciated, carbonatized and locally silicified. Silicification is most intense near local faults however field evidence suggests a more pervasive weaker silicification over the general section. Perhaps significantly, this area yielded anomalous but low gold values.

Away from the main centres of alteration, epidote is common and weak to moderately well developed in intrusive rocks. A barite occurrence south of the creek, thought to be related to an east-west fault, has been shattered and veined by quartz. Barite was reported in the ridge area by previous workers but was not encountered during the current study. Bedrock samples indicated significantly higher arsenic content along the ridge and more particularly around fractured and altered intrusive rocks. On the lower slopes, anomalous arsenic occurs with the late N5°W quartz fractures and sporadically near intrusives.

ECONOMIC GEOLOGY :

Stibnite deposits on the ridge and to the northwest and southeast of the property have been investigated in the past with little success. For the

most part the occurrences are small discontinuous veins a few inches wide dipping at low to moderate angles between west and north. They are comprised of quartz, stibnite, minor amounts of realgar, orpiment and locally carry minor gold values.

On the south slope of Stirrup Creek, mercury zones have been outlined by geochemical surveys and investigated in the past by H.V. Warren and his associates. Cinnabar occurs as minor disseminations in altered intrusive rocks. The occurrences are thought to be relatively small however they have not been fully investigated.

Previous and recent sampling at the property disclosed the following:

- (1) On the lower south facing slope in the trench 5 area a sample of fault gouge yielded 5.7 ppm gold.
- (2) In the same general area, two samples of a rusty weathering, N10°W quartz fracture yielded 3.05 and 6.75 ppm gold. Some visible gold associated with wehrlite has been reported from a nearby quartz vein of the same altitude.
- (3) Intrusive float with weak quartz fractures from the Trimble Adit area yielded 0.05 oz. gold. Previous values of 0.3 to 1.18 oz. gold are reported from the nearby winze. Also, a previous sample of a 3 inch quartz vein in the winze yielded 1.25 oz. gold. As four recent samples of dump material and overlying rocks yielded only trace amounts of gold, presumably the higher values are also of quartz.
- (4) Previous samples of gouge from a large east-west fault exposed on the northeast part of the Ajax claim yielded values to 0.08 oz. gold.

- (5) One of five stibnite veins (trench 1-S.W. corner of W3 claim) yielded 5 ppm gold when sampled. Argillaceous rocks immediately to the north and adjacent to the altered intrusive dike yielded anomalous but low gold values up to 0.52 ppm.

In the last instance the stibnite vein occurs in a northwesterly shear zone from which a previous sample of siliceous material yielded in excess of 0.60 oz. gold/ton. During the 1974 program, the best value obtained was 0.07 oz. gold over 18 feet of the trench floor. This sample was collected over the central part of the zone however, wall samples of the same material yielded substantially lower values. (See Trench 1 Assay Plan). This particular zone has been tested by two, 200 foot percussion holes. Hole three yielded values comparable to those found in trench 1 while Hole 4, a short distance south, yielded trace amounts.

Other zones along the ridge were trenched and sampled without significant results. All of the above occurrences are comparatively small restricted zones with limited potential. To date no significant target areas have been located.

The source of the Placer gold is still in some doubt. Some of the gold obviously has been eroded from the upper slopes and transported by glaciers towards Stirrup Creek. Dr. H.V. Warren reports that the Placer gold was recovered over the length of Stirrup Creek, a distance "somewhat less than four miles". The current survey was carried out only in the claim area and covered approximately one mile of the creek. The gold bearing structures located, presumably extend and/or repeat to the northwest and southeast. Collectively, over a length of four miles, they might account for more of the placer gold in Stirrup Creek than the

amounts currently indicated from the claims.

GEOCHEMISTRY :

Evidence of large blocks of conglomerate on the property which are directly traceable to the conglomerate formation to the north, gives a reliable indication of the direction of glacial transport. This coupled with the fact that most of the placer gold recovered at the property came from the south facing slope prompted earlier workers to undertake extensive geochemical surveys between the creek and ridge crest in an effort to trace its source. The results of those surveys, particularly in areas of thick glacial till, were considered inconclusive, and it was decided to obtain some additional soil samples from greater depths, and where possible to relate them to bedrock geology and assay values.

To this end a number of check samples were collected from cross lines to the 1973 work and plotted as closely as possible to known stations. The samples were collected from depths averaging 16 to 18 inches. In the hydraulic cuts on the lower slopes, two samples were collected in areas where the till was greater than two feet. The top sample was taken about 12 inches below the surface and the bottom sample taken six inches above bedrock. In the cuts showing relatively thin cover only one sample was cut about six inches above bedrock. A total of 158 samples were collected and analyzed for gold, tellurium, mercury, antimony and arsenic.

In areas where bedrock was exposed, principally on roads, trenches and the upper ridges, rock chip samples were collected and analyzed for gold and arsenic. A total of 129 samples were analyzed. In addition to the above, H.V. Warren collected 34 rock and soil samples and 10 biogeochemical samples from the

main cuts in the Trimble Winze area. These samples were analyzed for Au, Ag, As, Te and Hg. All sample results, except those by H.V. Warren are plotted on the enclosed maps.

SAMPLE RESULTS :

Gold - Contoured at 0.10 ppm the assays indicate a number of small irregular zones along the crest of the ridge. The anomalies are crudely aligned northeast. For the most part the underlying bedrock has been intermittantly exposed and rock assays are low. In the hydraulic cuts mainly on Lots 7979 and 7983 soil sample results can be correlated with rock chip assays as follows:

24 soil samples taken 12 inches below surface ave. 0.043 ppm

24 soil samples taken 6 inches above bedrock ave. 0.123 ppm

44 rock chips from underlying bedrock ave. 0.032 ppm

Numerous other rock chip samples taken from the property, with few exceptions, yielded a low range of values, commonly much less than 0.10 ppm Au. Exceptions are in the hydraulic cuts on Lot 7979 and 7983, where quartz vein material and fault gouge yielded substantially higher values; and in the main trench area near the southwest corner of the W3 claim. Here values ranged to 0.52 ppm with one extreme value of 15.5 ppm which could not be duplicated.

Results of cross line samples in general correlate with 1973 results by Placer Development Ltd.

Tellurium - Samples results do not differ markedly from those obtained during 1973. Samples from the earlier survey were analyzed to hundredths while the 1974 results are in tenths with a lower detection limit of 0.2 ppm. A few samples in the hydraulic cuts on Lots 7979 and 7983 yielded values to 0.5 ppm but the majority assayed 0.2 ppm or less.

Arsenic - Contoured @ 200 ppm, soil values show a series of relatively small anomalies along the ridge crest. They trend northeast or locally east-west and can be correlated generally with antimony and gold anomalies.

Samples collected from the hydraulic cuts on Lots 7979 and 7983 give interesting results, particularly in view of the contained arsenic in underlying bedrock. An average of 24, 1973 samples collected from the general vicinity of the cuts is approximately 37 ppm. An average of 24 samples collected during 1974, 12 inches below the surface is about 97 ppm. Twenty-four samples collected within 6 inches of bedrock averaged 317 ppm, and 39 bedrock samples from the same cuts averaged about 105 ppm.


Bedrock samples collected over the property indicate substantially higher values along the ridge crest and more particularly around the highly bleached rocks in the main trench area on the W3 claim. Cross line soil samples in general correlate with 1973 results although in some cases 1974 results are higher.

Antimony - A number of narrow stibnite veins are evident along the ridge crest and are reflected by anomalous conditions in the soils. The anomalies are small, have a crude northeastern alignment and do not differ markedly from those indicated previously.

Samples taken from the hydraulic cuts with the exception of one extreme result south of the winze averaged 6 ppm in the zone 12 inches below the surface, and 8 ppm taken 6 inches above bedrock. Samples from the cross lines were generally higher than 1973 results.

Mercury - Samples collected during 1973 indicated anomalous conditions (a) South of the creek near the Last Chance claim, (b) South of the creek

on the Ajax claim and (c) scattered highs along the ridge. Five samples of mineralized quartz from the stibnite veins along the ridge yielded values between 10,000 and 126,000 ppb Hg. Twenty-two soil samples from the hydraulic cuts on Lots 7979 and 7983 averaged 56 ppb taken 12 inches below surface and 292 ppb taken from 6 inches above bedrock. Bedrock was not sampled and no mercury minerals have been identified north of the creek. Samples collected from the cross lines in general were lower than the 1973 results. Line 10E samples yielded higher values and line 30E and baseline results correlated well with the earlier work.



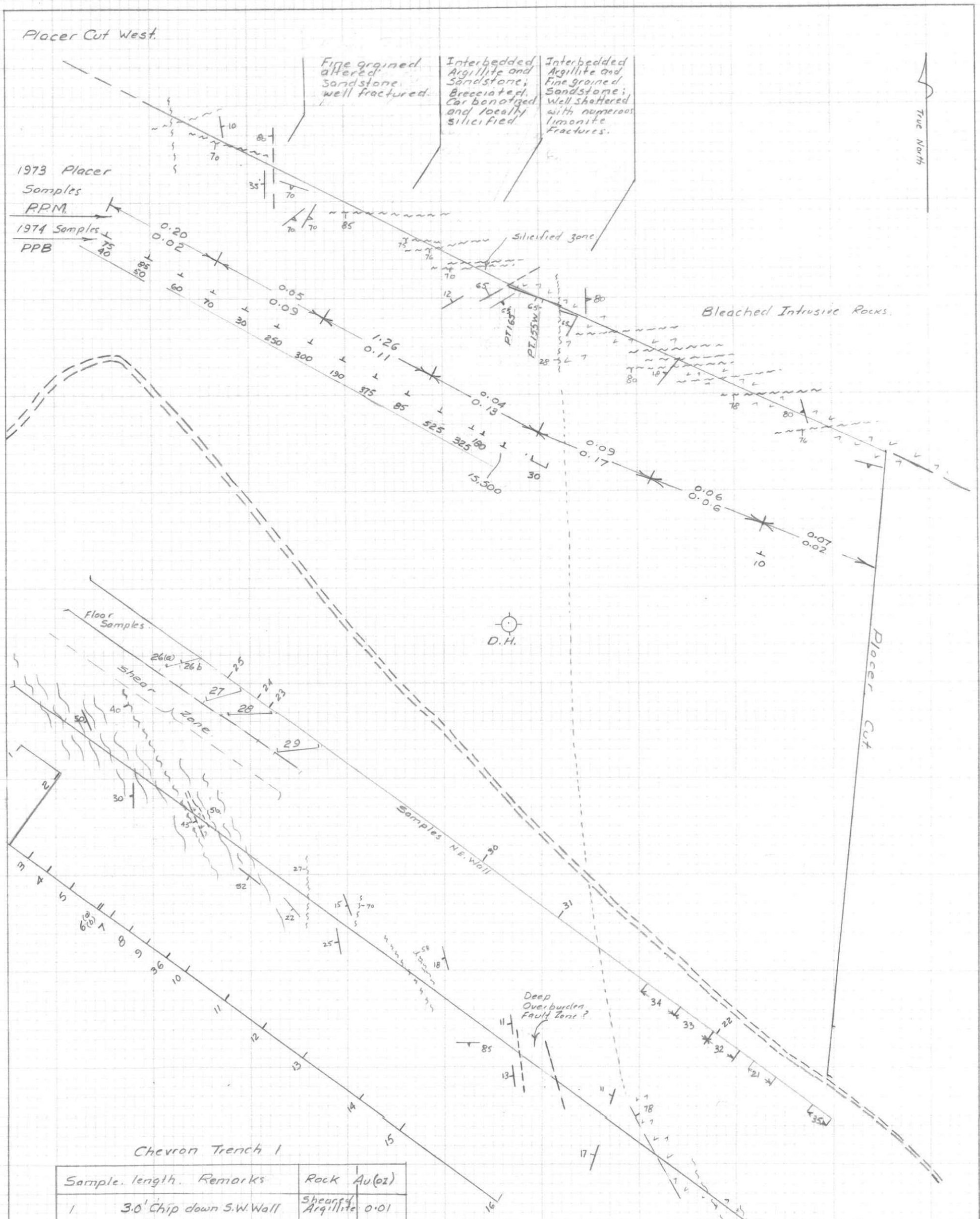
T. E. LISLE, P.ENG.

Vancouver, B.C.
December 23, 1974.

REFERENCES

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2. Geology of the Fraser River Valley Between Lillooet and Big Bar Creek - H.P. Trettin - 1961, B.C.D.M. Bulletin 44
3. G.S.C. Paper 67-54 - Upper Jurassic and Cretaceous Rocks of Taseko Lakes Map Area and Their Bearing on the Geological History of Southwestern B.C. - 1968 J.A. Jaletsky & H.W. Tipper
4. An Attempt to Discover a "Carlin-Cortez" Type of Gold Deposit in British Columbia. A paper by H.V. Warren and T.H. Hajek printed in Western Miner, October 1973
5. Miscellaneous File Reports including previous exploration reports on property, principally a report and drill logs by Rio-Tinto 1971, and Placer Developments 1973 report

APPENDIX 1 - TRENCH ASSAY PLANS



Chevron Trench 1

Sample	length	Remarks	Rock	Au(oz)
1	3.0'	Chip down S.W. Wall	Shearified Argillite	0.01
2	5.0'	" " " "	"	0.005
3	4.0'	" " " "	"	0.005
4	4.0'	" " " "	"	Tr.
5	5.0'	" " " "	"	Tr.
6(a)	2.0'	" h. wall of Sill	Silic. Arg.	Tr.
6(b)	3.0'	" S.W. Wall	Rusty Arg.	0.005
7	7.0'	Across Sill	Q.F. Par.	0.005
8	6.0'	chip down S.W. Wall	Rusty Arg.	0.01
9	6.0'	" " " "	"	0.02
10	6.0'	" " " "	T.B. Arg.	0.005
11	6.0'	" " " "	"	0.005
12	6.0'	" " " "	"	0.02
13	6.0'	" " " "	"	Tr.
14	5.0'	" " " "	"	0.005
15	6.0'	" " " "	"	Tr.
16	5.0'	" " " "	"	0.005
17	5.0'	" " " "	Rusty T.B.A.	0.005
21	10.0'	" Along trench Floor	Q.F.P.	0.005
22	4.0'	" down N.E. Wall	Argillite	0.005
23	4.0'	" " N.E. Wall - E. Wall	Rusty Arg.	0.02
24	4.0'	" " " "	Argillite	0.02
25	5.0'	" " " "	Q.F.P.?	Tr.
26(a)	6.0'	Chips Trench Floor	Argillite	0.005
26(b)	8.0'	" " " "	"	Tr.

Chevron Trench No. 1

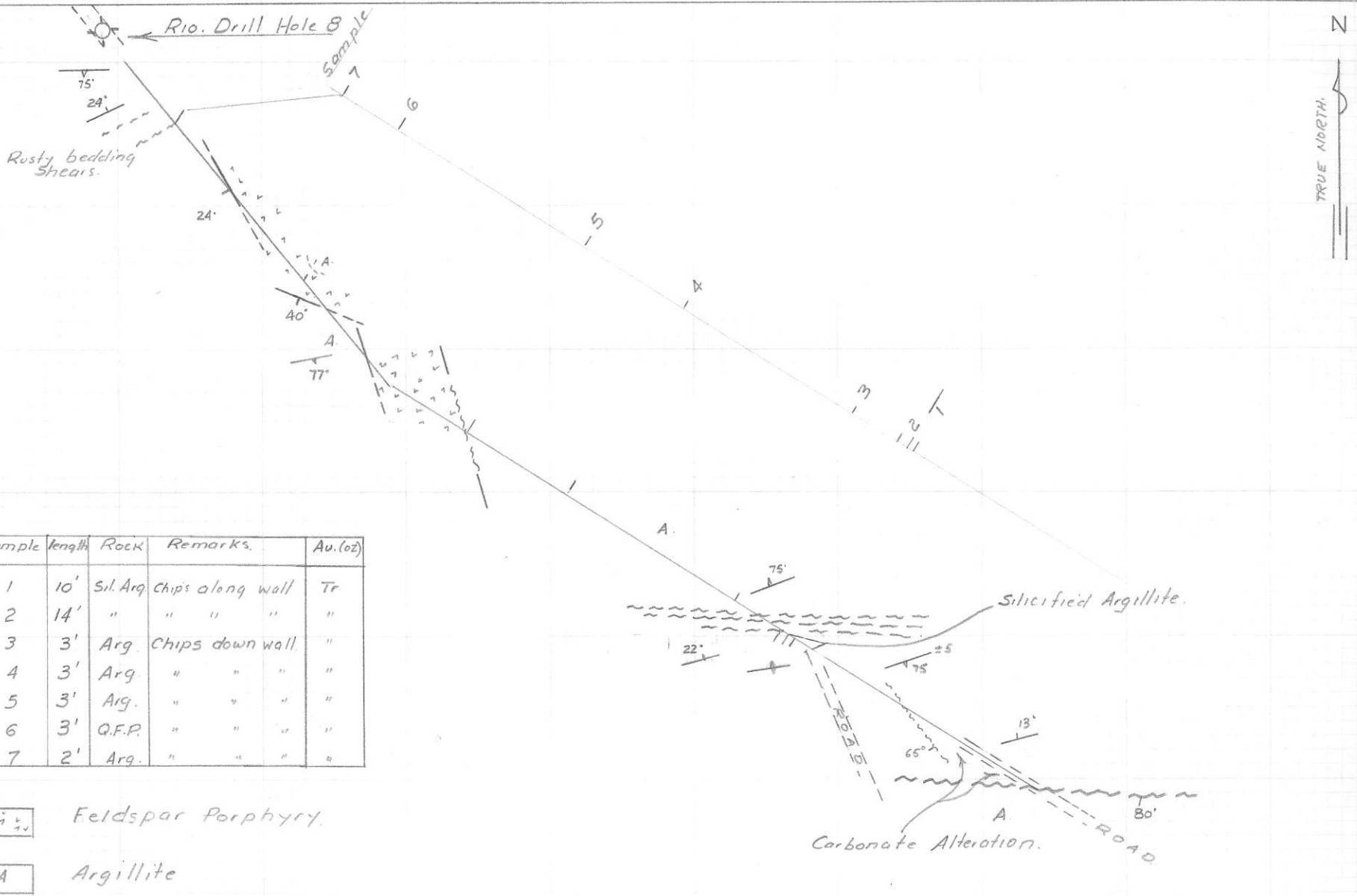
No	length	Remarks	Rock	Au. (oz)
27	16.0'	Chips across Trench Floor	Argillite	Tr.
28	18.0'	" " " "	Arg. & Q.F.P.	0.07
29	19.0'	" " " "	Argillite	0.01
30	5.0'	Chips down N.E. Wall	"	Tr.
31	6.0'	" " " "	"	Tr.
32	15.0'	" along trench Floor	"	0.04
33	18.0'	" " " "	"	0.005
34	17.0'	" " " "	"	0.005
35	10.0'	" " " "	Q.F.P.	0.005

Placer Trench Samples

No	length	Remarks	Rock	Au.	As. PPM
155W	6.0'	Chip down Face > 10 lbs.	rusty Arg.	Tr.	
165W	7.0'	" " " "	"	0.01	
50W	6.0'	Chip down Face	Q.F.P.	10	360
146-152W	6.0'	Chip Along "	"	30	400
165 W	6.0'	" down Face	Arg.	15,500	>1000
175 W	3.0'	Siliceous Fault zone	Arg.	180	140
180W	6.0'	chips, fractured, siliceous Carb. ss.	Arg.	325	>1000
195W	6.0'	Chips. Some quartz veins	S.S.	525	>1000
210W	6.0'	" locally siliceous	SS & Arg.	85	400
225W	6.0'	" Minor qtz. veining	Carb. ss.	375	>1000
240W	6.0'	" Minor Argillite	S.S.	190	>1000
255W	6.0'	" Altered "	SS.	300	>1000
270W	4.0'	" Rusty	Arg.	250	>1000
285W	6.0'	" Siliceous	Arg.	30	850
300W	6.0'	" V.F.G. Sulphide	Arg.	70	900
315 W	6.0'	" Tr. Sulphide	Arg.	60	800
330W(a)	4.0'	" Sill.	Q.F.P.	85	600
330W(b)	4.0'	" Footwall Seds.	Argillite	50	360
350W(a)	5.0'	" Sill.	Q.F.P.	75	450
350W(b)	4.0'	" Footwall Seds.	Argillite	40	360

Note - Samples are down Face unless otherwise indicated.

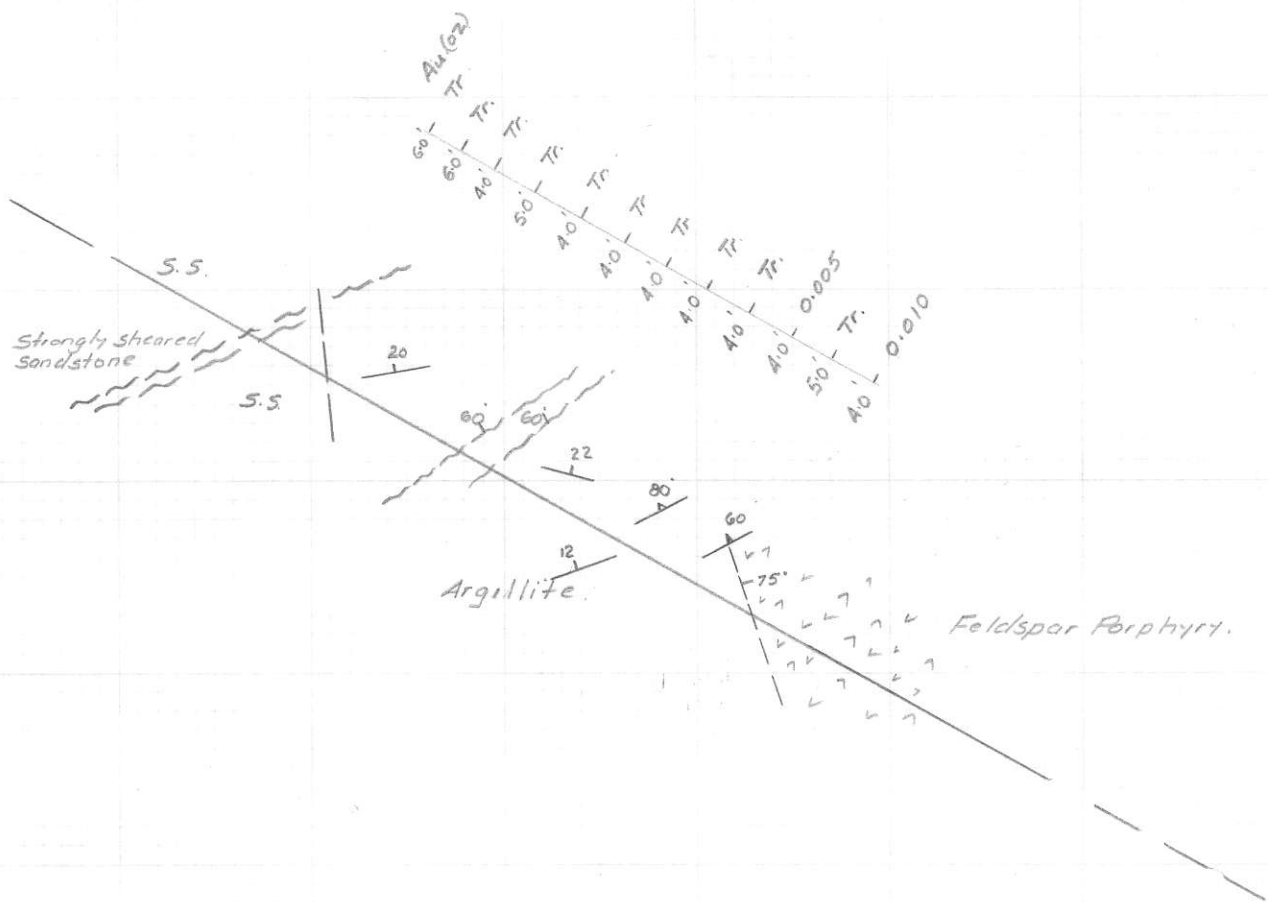
CHEVRON STANDARD LIMITED
 GEOLOGY & ASSAY PLAN
 TRENCH 1 AREA
 STIRRUP CREEK OPTION
 Clinton M.D.
 Scale 1 inch = 40 feet - October, 1974.
 T.E.L.



Sample	length	Rock	Remarks.	Au. (oz)
1	10'	Sil. Arg.	chips along wall	Tr
2	14'	"	" " "	"
3	3'	Arg.	chips down wall	"
4	3'	Arg.	" " "	"
5	3'	Arg.	" " "	"
6	3'	Q.F.P.	" " "	"
7	2'	Arg.	" " "	"

- Feldspar Porphyry.
- A Argillite

Stirrup Creek Option.
 Trench No 4
 Geology & Assay Plan
 1 inch = 100 feet October 1974.



Stirrup Creek Option
Geology & Assay Plan of
Section of Inverarity Cut.
Scale 1 inch = 40 ft. Oct. 74.

APPENDIX 2 - THIN SECTION REPORT

STIRRUP CREEK - C422

Thin Section Report
Sample Locations

- S.C. 1. Hydraulic cut 2300 - 420 feet south of Stirrup Creek
- S.C. 2. Main placer trench - Claim W3 - 50 feet west of cut.
- S.C. 3. Astonisher mineral claim - road to upper ridge.
3215 feet southeast of cut to placer trench
- S.C. 4 Same as S.C. 2. - 165 feet west of cut
- S.C. 5 Inverarity cut - northwest corner of Lot 7979.
- S.C. 6. Same as S.C. 2., S.C. 4. - 225 feet east of cut
- S.C. 7. Hydraulic cut 3000 - Monty Crown Grant. Approximately
265 feet south of ditch.
- S.C. 8. Specimen R-12. Silicified zone in stibnite trench
ridge crest.
- S.C. 9. Specimen 46. Road switchback northeast corner of
W7 mineral claim

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SURREY, B. C.,
CANADA

PETROGRAPHIC REPORT
ON NINE THIN SECTIONS
PROJECT C-422

for

B. D. PEARSON, P.ENG.
CONSULTING GEOLOGIST
743 LINDSAY ROAD
RICHMOND, B.C.

by

D. L. Cooke, Ph.D., P.Eng.

December 19, 1974.

D. L. COOKE AND ASSOCIATES LTD.

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INTRODUCTION

The nine specimens of Project C-422 were examined in thin sections on the instruction of Mr. B. L. Pearson, Consulting Geologist. This petrographic examination was done to determine the rock types, origin of and alteration within the various specimens.

The textures, primary minerals, and the secondary alteration products were identified optically. The percentages of minerals were visually estimated, and each section described and classified separately.

CONCLUSIONS

The specimens represent a wide range of rock types and textural features. The intrusive rocks are porphyritic granodiorites (SC-1 and SC-9), and granite porphyry (SC-2). Another two sections represent fine grained cherts (SC-4 and SC-5). The remaining four are trachyte flow (SC-3), tuffaceous greywackes (SC-6 and SC-7), and tuffaceous breccia (SC-8), all derived from parent material of similar composition.

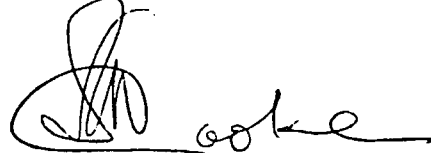
Alteration is variable and generally inconspicuous. The granodiorites are unaltered, while the granite porphyry exhibits moderate clay and sericite alteration. The rocks of volcanic derivation appear to be only weakly altered, possibly by deuteric agents. Carbonate, chlorite, leucoxene, and minor sericite and pyrite are the typical secondary

minerals. The breccia has been intensely silicified.

No copper sulphides were observed in any of the sections. Neither was hydrothermal alteration significant in more than three sections (SC-2, SC-7 and SC-8).

Respectfully submitted,

D. L. COOKE & ASSOCIATES LTD.

A handwritten signature in cursive script, appearing to read 'D. L. Cooke', written over a horizontal line.

D. L. Cooke, Ph.D., P.Eng.

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PETROGRAPHIC REPORT

NUMBER: SC - 1

LOCALITY: Project C-422

DATE: December 16, 1974

NAME AND CLASSIFICATION: PORPHYRITIC GRANODIORITE

MEGASCOPIIC DESCRIPTION: The specimen appears medium grained, grey, and slightly lineated because of the orientation of the mafic minerals.

MICROSCOPIC DESCRIPTION:

Minerals	%	Remarks
1. Plagioclase	40	An _{30±5} . Euhedral plagioclase phenocrysts are well twinned and zoned. These are up to 6 mm. in length.
2. Quartz	25	Quartz is equigranular, and it is restricted to the groundmass.
3. Orthoclase	15	This is also confined to the groundmass, but may be up to 2 mm. in size.
4. Hornblende	15	Prisms of green pleochroic hornblende are abundant.
5. Magnetite	4	Magnetite grains are widely distributed.
6. Sericite	1	Minor alteration of plagioclase to sericite is apparent.
7. Chlorite	Tr.	Chlorite is secondary after hornblende.

TEXTURE: The plagioclase and hornblende occur as euhedral phenocrysts in a medium grained, equigranular, groundmass consisting of orthoclase and quartz. Magnetite is accessory. The medium grained nature of the groundmass somewhat masks the porphyritic texture.

CONCLUSION:

This intrusive mass has a composition which straddles the granodiorite-quartz monzonite boundary. It is classified as a granodiorite on the basis of colour index and composition. No appreciable alteration is in evidence. The specimen represents a stock-like intrusive body.

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PETROGRAPHIC REPORT

NUMBER: SC - 2

LOCALITY: Project C-422

DATE: December 16, 1974

NAME AND CLASSIFICATION: GRANITE PORPHYRY

MEGASCOPIIC DESCRIPTION: The hand specimen has the appearance of a leucocratic quartz porphyry.

MICROSCOPIC DESCRIPTION:

Minerals	%	Remarks
1. Plagioclase (?)	55	Phenocrysts, 1 - 4 mm. in size, have in the main part been plucked from the section during polishing. Remnant patches are inferred to be An _{10±} because of negative relief and positive sign. Partially altered to clay minerals.
2. Quartz	20	Euhedral phenocrysts range in size from 2 - 4 mm. Some quartz also occurs in the groundmass together with untwinned, low R.I. alkali feldspar mosaic.
3. Sericite	13	Minute sericite grains occur throughout the groundmass.
4. Clay Mineral(s)	10	This appears to be secondary after both phenocryst and groundmass feldspar.
5. Leucoxene	2	Leucoxene seems to be derived from the weathering ^{of} grains of iron oxide.
6. Apatite	Tr.	A few minute apatite crystals are evidently accessory.

TEXTURE: Alkali plagioclase and quartz phenocrysts are uniformly dispersed within a fine grained, equigranular groundmass of untwinned alkali feldspar (plagioclase ?) and quartz. Sericite and clay minerals are secondary after these feldspars.

CONCLUSION:
The composition is that of a soda granite rather than of a dacite. Alteration is moderate, consisting entirely of sericite and clay minerals. The environment of emplacement is hypabyssal, and possibly dike-like in form.

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PETROGRAPHIC REPORT

NUMBER: SC - 3

LOCALITY: Project C-422

DATE: December 16, 1974

NAME AND CLASSIFICATION: TRACHYTE

MEGASCOPIIC DESCRIPTION: The general appearance is one of a grey feldspar porphyry.

MICROSCOPIC DESCRIPTION:

Minerals	%	Remarks
1. Plagioclase	25	An ₇₊₃ . Euhedral sodic plagioclase phenocrysts are 1-3 mm. in length. Partial alteration is to chlorite and sericite. Feldspar needles in the groundmass may also be sodic plagioclase.
2. Alkali Feldspar	25	Anhedral, but equigranular and untwinned alkali feldspars (potash?) are less than 1 mm. across.
Anorthoclase	15	Euhedral tablets of anorthoclase appear as simple twins.
4. Chlorite	15	Chlorite has replaced parts of the major constituents. It is conspicuous between alkali feldspar grains in the groundmass where it probably replaces glassy material.
5. Carbonate	7	Irregular patches of carbonate are associated with the chlorite derived from hornblende crystals.
6. Sericite	6	Minor amounts of fine white mica are secondary after the feldspars.
7. Quartz	4	A few subrounded primary, as well as some "feathery" secondary quartz, have been observed.
8. Leucoxene	1	Granular leucoxene is secondary.
9. Apatite	1	Needles of apatite are an accessory mineral.
10. Pyrite	1	Granular pyrite occurs in accessory amounts.

TEXTURE: The plagioclase and anorthoclase phenocrysts give the specimen its porphyritic appearance. Smaller alkali grains and hornblende pseudomorphs account for the bulk of the groundmass. Interstitial chlorite (after glass) and feldspar microlites give a fine flow texture.

CONCLUSION:
The specimen is interpreted as an extrusive trachyte, which has undergone moderate chloritization. The presence also of carbonate, sericite and pyrite may be viewed as the result of deuteric or propylitic alteration.

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PETROGRAPHIC REPORT

NUMBER: SC - 4

LOCALITY: Project C-422

DATE: December 16, 1972

NAME AND CLASSIFICATION: CHERT

MEGASCOPIIC DESCRIPTION: Limonite cracks transect this fine grained, light grey, rholitic or cherty unit.

MICROSCOPIC DESCRIPTION:

Minerals	%	Remarks
1. Quartz	60	Angular clasts of quartz range in size from $\frac{1}{10}$ - $\frac{1}{4}$ mm. The different sizes occur in different layers.
2. Chlorite	20	Fine secondary chlorite appears to be recrystallized argillaceous matrix material.
3. Carbonate	15	Irregular ankeritic carbonate is scattered throughout.
4. Leucoxene	5	Limonite-impregnated leucoxene is also uniformly distributed.

TEXTURE: The texture is definitely clastic. It consists of laminated fine ($\frac{1}{10}$ mm.) to coarse ($\frac{1}{4}$ mm.) quartz fragments cemented by very fine grained chloritic matrix. Granular ankerite and leucoxene are common constituents.

CONCLUSION: Although this section is clastic in origin, it is classified as a chert rather than a cherty sandstone, because of its very fine grained texture. The finer layers contain relatively few quartz fragments and are more truly argillaceous and cherty.

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PETROGRAPHIC REPORT

NUMBER: SC - 5

LOCALITY: Project C-422

DATE: December 17, 1974

NAME AND CLASSIFICATION: CHERT

MEGASCOPIIC DESCRIPTION: This is a medium grey, "cherty" sediment with the bedding offset by minute fractures.

MICROSCOPIC DESCRIPTION:

Minerals	%	Remarks
1. Quartz	45	Angular fragments of quartz range in size from $1/20$ to $1/4$ mm.
2. Clay (?)	25	Fine clay minerals occur in the matrix together with chlorite.
3. Chlorite	15	Abundant fine grained chlorite seems to be derived from recrystallization of a fine argillaceous matrix.
4. Carbonate	5	Iron carbonate, occurring as grains and vein fillings, weathers to semi-opaque yellow-brown masses.
5. Leucoxene	5	Granular leucoxene is moderately abundant.
6. Limonite	5	This occurs mainly in seams.

TEXTURE: Like section SC-4, this unit consists of angular quartz clasts within a matrix of very fine grained clay minerals and chlorite. Moderate amounts of carbonate and leucoxene are present. Graded bedding is apparent on a microscopic scale. These beds are offset by / minor faults.

CONCLUSION: This is a cherty clastic sediment, which has been subsequently fractured on a microscopic scale.

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PETROGRAPHIC REPORT

NUMBER: SC - 6

LOCALITY: Project C-422

DATE: December 17, 1974

NAME AND CLASSIFICATION: LITHIC TUFFACEOUS GREYWACKE

MEGASCOPIIC DESCRIPTION: This is a fine grained, medium grey rock containing black as well as grey minerals ($\frac{1}{2}$ mm.).

MICROSCOPIC DESCRIPTION:

Minerals	%	Remarks
1. Carbonate	30	Irregular grains of carbonate are scattered throughout. Lesser amounts occur within feldspar fragments and within the matrix.
2. Plagioclase	20	Alkali plagioclase fragments (An ₅₋₂₀) occur in major proportions. There is moderate alteration to sericite, chlorite and carbonate.
3. Chlorite	20	The matrix is permeated by abundant secondary chlorite, probably derived from argillaceous material. Fragments of biotite and hornblende are also altered to chlorite.
4. Sericite	15	The feldspars are partially replaced by fine flakes of sericite.
5. Quartz	10	Angular clasts and clusters of secondary quartz are relatively common.
6. Leucoxene	4	Granular leucoxene occurs in abundance about the edges of rock fragments.
7. Hematite	1	Hematite stains are associated with weathered carbonate and leucoxene.
8. Magnetite	Tr.	A few irregular granules of magnetite are unevenly distributed.

TEXTURE: Angular fragments of alkali plagioclase ($\frac{1}{4}$ - 1 mm.), carbonate and quartz are as abundant as trachytic rock fragments. These are cemented by abundant chlorite, with lesser amounts of carbonate and leucoxene. The matrix constitutes about 30% of the section.

CONCLUSION: The specimen is a massive tuffaceous greywacke. No bedding or sorting is apparent. Carbonate, chlorite, and sericite seem to be deuteric in origin.

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PETROGRAPHIC REPORT

NUMBER: SC - 7

LOCALITY: Project C-422

DATE: December 18, 1974

NAME AND CLASSIFICATION: ARKOSE

MEGASCOPIIC DESCRIPTION: The hand specimen is massive, grey, and fine to medium grained.

MICROSCOPIC DESCRIPTION:

Minerals	%	Remarks
1. Alkali Feldspar	30	These subangular feldspar fragments are riddled with fine sericite, chlorite, and patches of carbonate. They appear to be sodic plagioclase and potash feldspar.
2. Sericite	20	Sericite permeates the feldspar grains.
3. Chlorite	15	The matrix, as well as altered biotite and other mafic mineral(s), consists mainly of chlorite.
4. Carbonate	15	Irregular patches of carbonate occur separately, within feldspar grains and in the matrix.
5. Quartz	13	Sub-angular quartz fragments are uniformly distributed.
6. Clay	5	Patches of fine clay mineral(s) are common but not abundant.
7. Pyrite	1	Granules of pyrite are irregular in outline.
8. Leucoxene	1	Minor amounts of cloudy leucoxene is evident.
9. Apatite	Tr.	A few crystals are present.

TEXTURE: Average grain size is $\frac{1}{4}$ - $\frac{1}{2}$ mm. The fragments are sub-angular alkali feldspar, quartz and altered ferromagnesian. The fragments are closely packed and uniform in size. The matrix is sparse and consists mainly of chlorite, carbonate and clay.

CONCLUSION:
Some sorting has resulted in the general uniformity of grain size. Derivation may be from acid intrusive or volcanic source. Moderate alteration is characterized by the development of sericite, carbonate and pyrite.

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PETROGRAPHIC REPORT

NUMBER: SC - 8

LOCALITY: Project C-422

DATE: December 18, 1974

NAME AND CLASSIFICATION: SILICIFIED BRECCIA

MEGASCOPIIC DESCRIPTION: Buff coloured "fragments" are cemented by a dark aphanitic matrix.

MICROSCOPIC DESCRIPTION:

Minerals	%	Remarks
1. Quartz	60	The three habits of quartz are: fine grained matrix material, feathery breccia cement, and subangular grains.
2. Sericite	20	Fine sericite appears to be pseudomorphs after feldspar crystals and/or fragments.
3. Iron oxides	8	Both yellow and brown limonitic material impregnates the rock fragments throughout the section.
4. Leucoxene	7	Cloudy leucoxene is like the iron oxides in habit and distribution.
5. Chlorite	5	Irregular chlorite patches are common.
6. Malachite (?)	Tr.	The occasional semi-opaque green grain may be malachite.

TEXTURE: Rounded and subangular fragments are up to a few centimeters in size. They consist of sericitized and silicified feldspathic rock impregnated with secondary iron oxides and leucoxene. These are cemented by vein type comb quartz.

CONCLUSION:
The original rock type has lost most of its primary texture, because of extensive silicification and sericitization. Brecciation is post formational. The unit may have been a tuff or similar textured feldspathic rock.

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PETROGRAPHIC REPORT

NUMBER: SC - 9

LOCALITY: Project C-422

DATE: December 18, 1974

NAME AND CLASSIFICATION: PORPHYRITIC GRANODIORITE

MEGASCOPIIC DESCRIPTION: This has the appearance of a medium grey feldspathic intrusive.

MICROSCOPIC DESCRIPTION:

Minerals	%	Remarks
1. Plagioclase	35	An _{30±5} . Euhedral plagioclase phenocrysts (2-6 mm.) exhibit zoning and characteristic multiple twinning. These are unaltered.
2. Alkali Feldspar	15	Small equigranular alkali plagioclase and/or orthoclase constitute the greater portion of the groundmass.
3. Quartz	15	The occasional quartz phenocryst is present, but most occurs as small equigranular grains in the groundmass.
4. Hornblende	10	Euhedral hornblende crystals (1-3 mm.) are partially replaced by secondary minerals.
5. Chlorite	8	Chlorite is secondary after hornblende and biotite.
6. Epidote	7	Sulphide grains are surrounded by granules of epidote. Minor epidote also occurs within the feldspar phenocrysts.
7. Carbonate	5	This mineral occurs as a secondary replacement of the mafics.
8. Pyrite/Pyrrhotite	3	Irregular patches of sulphide are in evidence and are considered accessory.
9. Sphene/Leucoxene	2	Small grains are associated with the alteration of the mafics.
10. Apatite	Tr.	Minute needles are a common accessory mineral.

TEXTURE: The plagioclase and hornblende phenocrysts occur within an equigranular mosaic of alkali feldspar and quartz. The texture is porphyritic. Alteration products are subsidiary.

CONCLUSION:

The porphyritic texture suggests that the granodiorite intrusion is of a near surface stock-like body. Alteration is minor. The sulphide therefore is believed to be a primary accessory mineral.