5752

Assessment Report

GREAT PLAINS DEVELOPMENT
COMPANY OF CANADA, LTD.,

YEAR END REPORT SNIPPAKER PROPERTY
TAMI CLAIMS, BRITISH COLUMBIA.
N.T.S. 104-B-10 W

Liard Mining Division
Latitude: 56°36'
Longitude: 130°56'

G.L. Garratt
C.Q. Winter
M.D. McInnis

September, 1975.

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A. SUMMARY

The objective of the 1975 field program on the Tami claims was to map the property at a scale of one inch to 400 feet for the purpose of defining the goelogy in terms of alteration, structure, mineralization and lithologies. With this data and data from previous exploration programs, an evaluation of the property as a porphyry copper type prospect was to be made.

The mapping was carried out by G.L. Garratt and C.Q. Winter between August 1st and August 31st, 1975. The field work was preceded by two weeks of office preparation which included a literature review of past work on the claim group as well as a review of other properties in the Stikine region. At the end of the field season, another two weeks were spent in evaluating the data gathered and in report writing.

The 1975 mapping defined a series of intermediate volcanic flows and pyroclastics which have been intruded by a multi-phase intrusive body which ranges from quartz monzonite to diorite in composition. Mafic and felsite dykes cross-cut all lithologies and, with quartz veining, appear to form the last tectonic event. A weak ring structure of intense fracturing and shearing combined with a set of three major cross-cutting shear zones outline the diorite intrusive and define the structural pattern on the property. An alteration zoning was found to be correlative to structure and geology and consisted of a gradation from relatively unaltered or weakly propylitized rock through propylitic alteration and sausseritization to phyllic and argillic alteration.

By reviewing the data accumulated and fitting it into a porphyry system model, a program for further exploration was designed and recommended. This program has been outlined in two parts and is designed to be carried out over two field seasons. It is recommended that in 1976 a geophysical program of magnetic and pulse induced polarization surveys be carried out in an attempt to define the extent of the sulphide minerali-

zation. The geophysical program should be carried out in conjunction with further detailed mapping to the south of the Tami claims and on the Kim claims as well as reconnaissance mapping to the north and west of the Tami claims. Contingent upon the synthesis of the geological and geophysical results, a deep-hole diamond drill program would be implemented in 1977.

B. INTRODUCTION

1. History

In 1965, Silver Standard staked 500 Betty claims over the ground presently covered by the Kim and Tami groups. Silver Standard carried out geochemical sampling and prospecting. The results of this work are not known, but the claims were eventually allowed to lapse.

The Tami and Kim claim groups were staked by Great Plains in September 1971 after anomalous results were obtained from a reconnaissance silt and soil sampling program in the area. Sixty-three claims in two groups were staked to cover the anomalies.

In 1972, a program of linecutting and coincidental geochemical soil sampling was carried out between July 27 and August 14 on both groups. The program was designed to filter out areas within the claim blocks that would require a more detailed examination.

In 1973, geological mapping and additional soil sampling were undertaken on the Kim group. Five days of general reconnaissance and rock sampling of creek beds was the only work carried out on the Tami claims. An additional nine claims were staked to adjoin the Kim group on its western boundary.

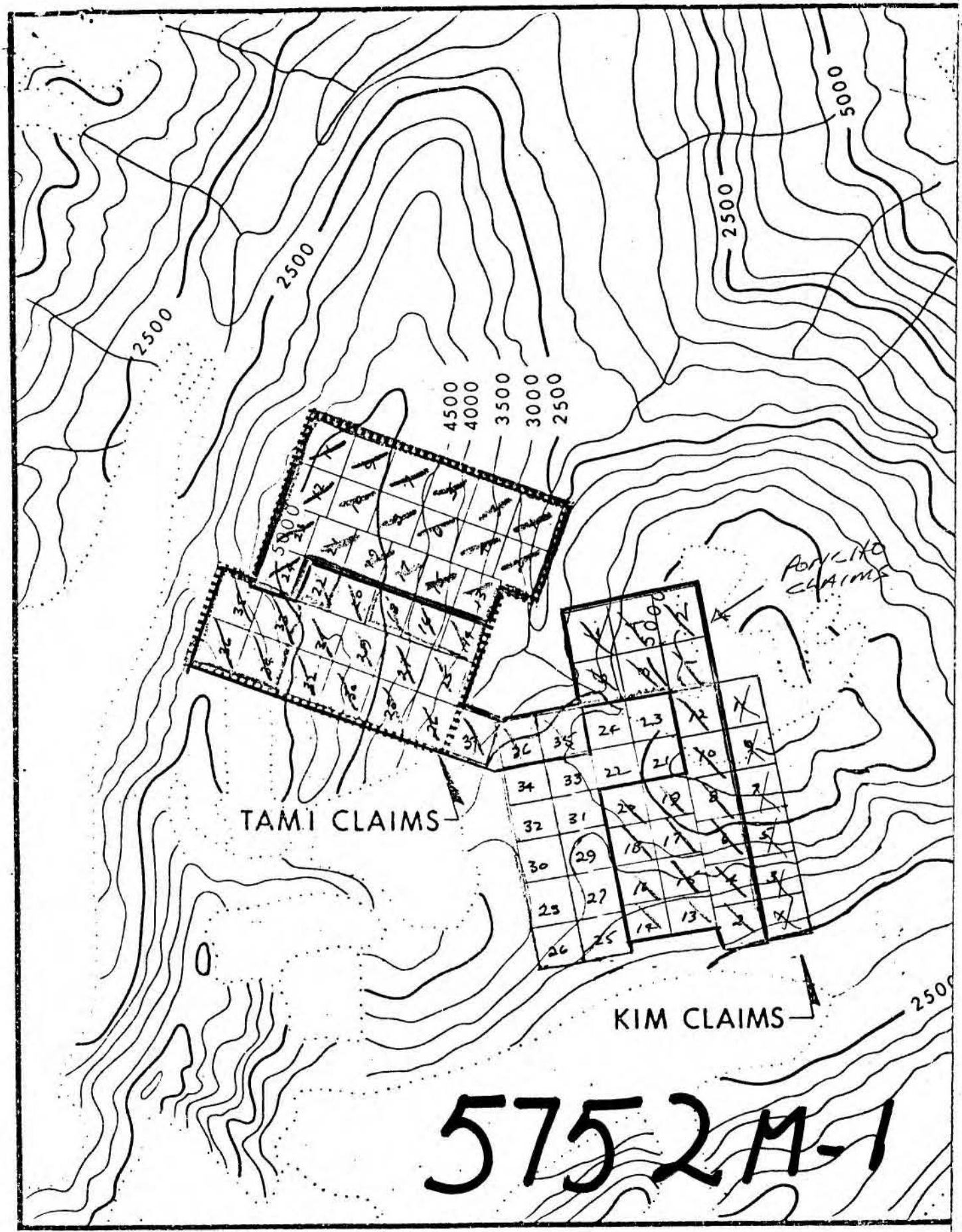
In 1974, a geophysical survey was conducted on the Kim claims and fill in mapping was carried out on both the Kim and Tami groups. Six Poncho claims and one Tami claim were staked on the northern boundary of the Kim claims. Kim claims I, 3, 5, 7, 9 and II on the east were allowed to lapse.

During the 1975 field season, Great Plains Development Company of Canada, Ltd., carried out geological mapping at a scale of one inch to four hundred feet over the Tami claims.

2. Ownership

A total of 73 claims are being held in ungrouped and grouped blocks. There are 30 Kim claims, 6 Poncho claims and 37 Tami claims. These claims and their anniversary dates are listed below:

Claims	Record Nos	Anniversary Date
Snippaker Group I:		
Poncho 1-6	72188-93	October 1st, 1975.
Kim 2	55863	September 28th, 1975
Kim 4	55865	September 28th, 1975
Kim 6	55867	September 28th, 1975.
Kim 8	55869	September 28th, 1975.
Kim 10	55871	September 28th, 1975.
Kim 12-20	55873-81	September 28th, 1975.
Kim 35, 36	70628, 29	September 24th, 1976.
Tami 14	55839	September 28th, 1975.
Tami 16	55841	September 28th, 1975.
Tami 18	55843	September 28th, 1975.
Tami 20	55845	September 28th, 1976.
Tami 22	55847	September 28th, 1975
Tami 25-36	55850-61	September 28th, 1976 (25-32) September 28th, 1975 (32-36)
Tami 37	71984	August 15th, 1975.
Total 40 Claims		
Snippaker Group II:		
Tami 1-13	55826-38	September 28th, 1975.
Tami 15	55840	September 28th, 1975.
Tami 17	55842	September 28th, 1975.
Tami 19	55844	September 28th, 1975.
Tami 21	55846	September 28th, 1975.
Tami 23	55848	September 28th, 1975.
Tami 24	55849	September 28th, 1975.
Total 19 Claims		
Ungrouped Claims:		
Kim 25,27,29,31,33	55886-88	September 28th, 1975.
Kim 26,28	70621-22	September 28th, 1975.
Kim 21-24	55882-85	September 28th, 1975.
Kim 30	70624	September 24th, 1976.
Kim 32	70626	September 24th, 1976.
Kim 34	70628	September 24th, 1976.



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SNIP GROUP I
II

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SCALE: 1:50,000

3. Location

The claim groups are located near the confluence of Snippaker Creek and the Iskut River and lie within the Liard Mining Division. The town of Stewart, B.C., is approximately 60 air miles to the south-east. The claims lie on the eastern flank of Snippaker Mountain at 130 degrees 56 minutes west longitude and 56 degrees 36 minutes north latitude and are in N.T.S. 104-B-10 W. They are situated at an elevation ranging from 2,500 feet to 5,500 feet in generally steep rugged terrain.

4. Economic Considerations

Supplies and equipment can be obtained from either Eddontenajon or Stewart and flown by fixed-wing aircraft to the head of Snippaker Creek and from there by helicopter to the property which is four miles away.

The Snippaker region is subject to heavy precipitation year round and the property is usually snow covered between September and the following July each year.

Because only minor amounts of economic timber exist on the claim group, the area is deemed to have little economic potential other than mining and possible recreation use. Wildlife consists of a few black bear, grizzly bear and goat.

5. Previous Exploration

The following is a summary of all known exploration work carried out on the Kim, Tami and Poncho claims prior to 1975.

1965: Silver Standard - staking, geochemical sampling and prospecting.

1970: Great Plains - regional reconnaissance stream silt and soil sampling.

1971: Great Plains - staking.

1972: Great Plains - linecutting and geochemical soil sampling over all the claims.

1973: Great Plains - staking, geological mapping and soil sampling on the Kim group and reconnaissance geological mapping and sampling on the Tami group.

1974: Great Plains - Six Poncho and one Tami claims were staked. I.P. and Magnetometer surveys were carried out on the Kim claims and fill in geological mapping was conducted on both the Kim and Tami claim groups.

6. Objectives

The 1975 field program, conducted by Great Plains staff, consisted of detailed geological mapping on the Tami claims at a scale of one inch to four hundred feet. The objective of this mapping was to delineate the geology in terms of lithologies, alteration trends, mineralization and structural patterns for the purpose of (1) evaluating the potential of the Tami claims for hosting a porphyry copper type deposit, (2) correlating this data with previous geochemical surveys, (3) providing a basis for the planning of more detailed exploration programs.

C. EXPLORATION AND DEVELOPMENT

1. Geological Mapping

The Tami claims were mapped by G.L. Garratt and C. Winter at a scale of one inch to four hundred feet using altimeters, compasses and a topographic map at the same scale for control. The mapping was carried out between August 1st and August 31st, 1975. The claim group and geochemical grid have been tied into the geological mapping. The program was carried out with the aim of delineating the geology in terms of lithologies, mineralization, alteration and structure for the purpose of correlations with a previous geochemical survey and to determine the potential for finding a porphyry copper type deposit on the claim group.

This mapping resulted in the defining of the geology on the claim group and it was found that general correlations can be made between geochemical anomalies and the geology. A large sulphide and alteration system was delineated and the potential for finding porphyry copper type mineralization appears to be good.

D. GEOLOGY

1. General Geology

(a) General Geology

The Snippaker Creek property lies within the Intermontane Belt of northwestern British Columbia. This belt is composed principally of Later Paleozoic, Triassic and Jurassic eugeosynclinal volcanic and clastic rocks. The Intermontane Belt is bound on the west by the Coast Crystalline Belt which consists of a complex of metavolcanic rocks,

gneisses and granitoid rocks which were developed mainly between the Late Jurassic and Early Tertiary. On the east side of the Intermontane Belt is the Omineca Belt of Early Paleozoic and older metasedimentary rocks and derived gneisses.

The Intermontane Belt is divided transversely by the Stikine Arch adjacent to the northeast of the property and by the Skeena Arch to the southeast of the property. Between these arches, and fifteen miles east of the Snippaker group, lies the Bowser Basin, a structural depression which accumulated sediments during Jura-Cretaceous time. Batholithic sized Jurassic plutons and many stock size Tertiary plutons have intruded the belt and range in composition from quartz diorite to quartz monzonite.

The deformational style of the Intermontane Belt includes moderate folding, transcurrent boundary faults, thrusting and considerable normal faulting.

(b) Local Geology

(i) Summary:

The stratigraphy on the Tami claims consists generally of a series of intermediate volcanic flows and pyroclastics intruded by three distinct intrusive phases which vary from quartz monzonite to quartz diorite in composition. Mafic to felsic dykes and quartz veining cross-cut all the lithologies and appear to form the last tectonic event. Faulting and shearing are locally intense and appear to form a weak ring pattern around the intrusive body. Alteration grades from fresh rock through propylitic alteration and sausseritization to higher grade quartz-sericite alteration along zones of intense shearing. Mineralization is best defined by soil geochemical anomalies and surface mineralization consists primarily of pyritization with local patches of minor chalcopyrite and malachite.

(ii) Stratigraphy:

The oldest exposed rocks on the Tami claims are a series of Mesozoic, probably Triassic eugeosynclinal volcanics. This series consists of tuffs, flow breccias and flows, all of intermediate composition. They are found to outcrop predominantly across the north end of the property but can also be found along the 3,800 foot contour on the eastern side of the property, at the south end of the property, and near the center of the claim group. On the basis of mapping to date, the volcanics appear to occur as roof pendants and therefore true stratigraphic correlation is difficult. This volcanic series is usually lithologically distinctive but where it is proximal to areas of felsitization, difficulties arise in discerning between altered intrusive and metasomatized volcanic assemblages.

For the most part, however, reasonable confidence in lithological identification can be maintained when mapping these areas.

The lowest part of the volcanic section is found on the eastern slope of the property. It consists of a series of aphanitic, dark grey-green, finely laminated water lain tuffs. This unit carries approximately one to three percent disseminated pyrite. Attitudes vary from 5 degrees to 132 degrees with fairly constant dips of 42 degrees to the northwest. A similar unit of laminated tuffs outcrops on the 5,300 foot elevation on the west side of the claim group. These units have attitudes ranging from 260 degrees to 320 degrees with dips from 35 degrees to 70 degrees northwest and northeast respectively. The laminated tuffs on the eastern side of the property are overlain by a thin, coarse flow breccia, which is not of sufficient thickness to constitute a mappable unit. This flow appears to be less than ten feet in thickness and contains green, porphyritic, angular to rounded fragments up to several inches in diameter. This flow is overlain by a 300 foot section (maximum thickness) of poorly sorted crystal tuff with less than 25% foreign ejectiles in the form of angular fragments of aphanitic tuffs and porphyritic flow material. This tuff unit carries minor disseminated pyrite.

Topographically higher in the section, and outcropping at the north end of the property is a fine grained, grey-green, weakly pyritic andesite flow. This is overlain by a unit of coarse pyroclastic rock which has a sub-porphyritic and crystalline appearance at the base with irregularly shaped chloritic clots up to three inches in diameter representing the mafic constituent. The pyroclastic unit grades into a rock with monolithic porphyritic fragments of flow material reaching three inches in length. The author believes that the unit is a crystal tuff that grades upwards into an explosion breccia related to the same event. Approximately 200 feet north of this unit, a coarse, moderately sorted light green, reworked tuff outcrops. How this unit relates to the adjacent crystal tuff is not understood as the area between is overburden covered. Original bedding in the tuff is preserved in remnant blocks but the unit appears to have been reworked; possibly by gravity slumping.

Topographically above the tuff units on the north end of the claim group, is a series of porphyritic flows and flow breccias. The lowest topographically is an amygdaloidal flow with epidote, pyrite and zeolite filled amygdules. This unit is light green on fresh surface and is highly epidotized. Above this is a coarse flow breccia with irregularly shaped, generally well rounded-low sphericity fragments up to several inches in diameter. The fragments and groundmass are compositionally the same and are both porphyritic, containing quarter inch euhedral feldspar phenocrysts. The fragments show a sub-imbricate texture indicating flow alignment. Above this flow breccia a separate flow breccia occurs which is very similar in composition and texture. It is, however, finer

grained, with fragments reaching a maximum length of three inches.

One other group of outcrops has been put into the volcanic classification on the claim group. These rocks lie in the northwest, central, and southernmost parts of the property. They are in areas of intense fracturing and moderate to intense felsitization and therefore, their classification as volcanic rather than intrusive is a personal judgement by the authors and may be incorrect. It was felt that they were mappable as a separate unit on the basis of poor crystal development, fine grained texture and the appearance, locally, of fragmental material. Whether the fragmental material is due to a tectonic overprint rather than being a primary texture, is a debatable point. The unit is epidotized, heavily pyritized and oxidized. In the central part of the property, this unit appears to have a much more distinctive pyroclastic nature and is more confidently labelled as being volcanic.

Intrusives cover most of the claim group. Three separate intrusive bodies and five intrusive phases were mapped. The lowest in the section is a quartz monzonite and outcrops along the lower part of the hillside on the eastern side of the claim group. This body is typically coarse grained and epidotized. Feldspar phenocrysts consist of subhedral, pink orthoclase up to half inch in diameter. Anhedral quartz eyes are 1/8 to $\frac{1}{4}$ inch in diameter. Hornblende is the major mafic component and occurs as subhedral to euhedral phenocrysts, moderately altered to chlorite. Within the quartz monzonite a quartz diorite phase was mapped. This unit is fine to medium grained with anhedral to euhedral plagioclase phenocrysts and anhedral quartz eyes. Hornblende is subhedral to euhedral and is locally replaced by magnetite or partially by pyrite but is most commonly moderately altered to chlorite. Thin section work might prove this unit to be a granodiorite. The quartz diorite is quite limited in aerial extent.

A large body of diorite outcrops on most of the claim group. This unit varies from a coarse grained feldspar porphyry to a medium grained, weakly porphyritic rock. The feldspar phenocrysts are predominantly subhedral but do occur as euhedral laths. In shear zones the anhedral feldspars appear stretched and sausseritized and the mafics occur as smears of chlorite. Whereever hornblende is seen to occur it is subhedral to euhedral. Hornblende is often completely or partially replaced by magnetite, chlorite or pyrite. In some instances only remnant hornblende sites were observed and occasionally these are outlined with chlorite. The diorite is locally epidotized but alteration generally consists of sausseritization or kaolinitization.

Large zones of highly altered rock were identified as being felsitized intrusives. The author believes that this felsitized intrusive is an altered diorite and has seen a gradation between altered diorite and the felsitized intrusive. This unit is composed primarily of quartz and feldspar and appears to be generally restricted to areas of intense shearing and alteration

which in turn define the major drainages on the property. The felsitized intrusive is heavily pyritized and weakly porphyritic. Alteration assemblages consist of kaolin, pyrite, talc, sericite and quartz in varying amounts and are pervasive in areas of intense shearing.

Along the western edge of the claim group, a series of small intrusive plugs of hornblende diorite porphyry outcrop. This unit is typified by coarse, stubby hornblende crystals which reach a maximum diameter of ½ inch. Feldspar phenocrysts are generally two to three millimeters in diameter and occur as anhedral to subhedral grains which are moderately altered to kaolin. The unit carries one to three per cent disseminated pyrite and is weakly to moderately magnetic. The hornblende diorite porphyry can be seen to grade into a medium to fine grained diorite. The unit is locally epidotized and is heavily fractured and gossanous.

Near the northeastern corner of the property is an outcrop of intrusive breccia. This unit carries monolithic, angular quartz-eye feldspar porphyry fragments in a light brown aphanitic matrix.

The youngest rocks on the property appear to be in the form of dyke activity. Four types of dykes have been mapped. Two mafic dykes were noted in the south and eastern parts of the claim group. The southern one is a biotite feldspar porphyry. This dyke contains approximately thirty per cent iron rich biotite in fairly fresh books with one centimeter maximum diameters. Orthoclase phenocrysts, with ½ inch maximum diameters, and chlorite form the groundmass. This dyke is strongly magnetic.

The mafic dyke on the eastern part of the property is an aphanitic hornblende andesite and contains approximately twenty per cent euhedral, one to two millimeter hornblende crystals in a brownish aphanitic groundmass. Also in this area is a dyke of andesite feldspar porphyry. This dyke has a very fine grained green groundmass carrying anhedral, epidotized feldspar phenocrysts which reach a maximum dimension of ¼ inch.

The most extensive dyke activity is in the form of felsite dykes. These are weakly porphyritic and are composed primarily of quartz and feldspar with lesser amounts of sericite and minor pyrite. The felsite dykes are most abundant in the northwestern and northern parts of the property. The dykes trend generally north to northeast and most commonly have high angle dips.

Quartz veining is widespread on the property although it appears to be primarily directly related to zones of intense shearing. Attitudes on the veins are random and individual veins rarely exceed one inch in width.

One outcrop 1,200 feet north of camp is composed of an epidote rich mass of quartz veins carrying abundant magnetite. This vein system is approximately fifteen feet wide in its exposed surface. Quartz veining was noted to cut several of the felsite dykes and was probably the last phase of the dyke intrusion.

A barite vein outcrops on the northeastern end of the map area. This vein is one foot wide and is exposed over thirty feet with an attitude of 7 degrees/56 degrees S.E. The vein carries one to three per cent galena in localized patches. The wall rock appears bleached and minor slickensiding was noted. Minor epidote and hematite were observed on fractures in the vein.

(iii) Structure:

The Tami claims are cut by large areas of intensive shearing and fracturing. These all appear to be related to major intrusive forces and form a weak pattern that can be related to the geology. An overlay for the geology map has been drawn at a scale of one inch to 400 feet which has plotted on it the zones of shearing and fracturing and their attitudes where measureable; dykes; faults and quartz veining.

From this map it is apparent that a weakly defined ring pattern of shearing and fracturing exists around the periphery of the diorite intrusive body. These zones range in size from a few feet to tens of feet wide with lengths of up to several hundred feet.

Cross-cutting the diorite, and having generally east-west trends, are three zones of intense shearing which are all between 1,500 and 3,000 feet long. These zones define the major drainages on the upper east slope of the claim group. A direct correlation is also drawn between these shear zones and the felsitized intrusive unit which in turn outlines the areas of greatest alteration. The author interprets this as being a late stage fracture system in the diorite through which a late phase of hydrothermal fluids percolates to the outer edge of the intrusive body.

The felsite dykes and quartz veining appear to have followed similar paths but are interpreted as being later in the cycle.

A topographic high along the western ridge of the property can be related at least in part to the hornblende diorite porphyry plugs as well as the intensity of felsite dyke activity. It seems apparent that this area housed some sort of a feeder system.

(iv) Alteration:

Alteration on the Tami claims is widespread and appears to show strong structural control with respect to the diorite intrusive body. This structural development was described in the preceding section and consists generally of a weak ring of shearing around the periphery of the diorite and three crosscutting zones of intense shearing and fracturing.

The alteration mineral assemblages can be placed into four categories. These are:

1. Propylitic - An outer zone of epidotization with associated chlorite and pyrite.

2. Intermediate - An intermediate zone consisting of sausserite, chlorite, kaolin.

3. Phyllic - A central zone, following the areas of intense shearing, of quartz, sericite, pyrite and minor talc and kaolin.

4. An overprinted alteration consisting of quartz-magnetite and quartz-calcite veining.

The volcanics are generally fresh, showing weak to moderate propylitic alteration. This consists of patchy epidotization and extensive chloritization. Feldspars are often partially kaolinized. In the areas adjacent to zones of felsitization, the volcanics are altered to the point where original textures have been destroyed and higher grade alteration assemblages occur. The volcanics position on the periphery of the diorite, place them in the propylitic zone.

The quartz monzonite lies in the same alteration zone as the peripheral volcanic units. In this unit, however, epidotization appears to be more widespread and homogenous. The mafics are moderately altered to chlorite and the plagioclase feldspars phenocrysts show weak sausseritization whereas the potassic feldspars remains fresh.

The propylitic peripheral zone grades into the intermediate zone of stronger sausseritization. No sharp boundaries can be drawn. The diorite is the only unit in the intermediate zone and this is due to its aerial extent and the proximity to areas of intense felsitizatio Generally, the intermediate zone shows a gradation into the phyllic zone but sharp boundaries do locally exist. This gradation is best shown by the alteration of the mafics, primarily hornblende. Hornblende goes from partial to complete alteration to chlorite, through pyrite and magnetite replacement, to complete destruction adjacent to the phyllic zone. Here, only remnant crystal sites can be observed. The feldspars show less of a gradation

and are generally sausseritized and occasionally kaolinized.

In the phyllic zone, the diorite has been completely altered to an assemblage of quartz, sericite, pyrite, kaolin and locally, minor talc. The pyrite occasionally occurs in thin veinlets but is most commonly finely disseminated as subhedral grains. This phyllic zone is restricted to the areas surrounding the three crosscutting zones of intense shearing described above.

Quartz, quartz-magnetite and quartz-carbonate veins are numerous and widespread on the claim group, although a greater percentage appear to occur on the periphery of the diorite. Bleaching occurs along these veins and rarely exceeds two inches in width from the vein.

Oxidation is extensive and in areas of heavy pyritization, gossanous hematite staining is well developed. This is particularly notable in the areas of intense shearing and felsitization.

Dyke activity appears to be post hydrothermal alteration and very little alteration appears to be associated with them other than quartz veining following the felsite dykes.

2. Mineralization

(a) Surface Mineralization

During the 1973 geochemical survey over the Tami claims, Great Plains staff noted copper mineralization in the central area of felsitized intrusive. This was noted to be a zone two feet by six feet carrying chalcopyrite, bornite, chalcocite, covellite and pyrite. Mineralization of this tenor was not located during the mapping in 1975. On the western end of the central felsitized intrusive, patchy zones of malachite staining were observed. Malachite was also noted to occur with minor chalcopyrite at the western end of the southernmost felsitized intrusive unit. A one foot wide barite vein carrying minor galena was mapped on the northeastern part of the property.

(b) Soil Geochemical Anomalies

Geochemical anomalies from the 1973 soil sampling survey outline two zones of major copper and molybdenum concentrations in soils. These anomalies peak at over 1,000 ppm copper and appear to show downslope dispersion trains of 1,000 and 2,400 feet. By correlating the topography with these anomalies it seems apparent that a geomorphic accumulation explains the excessively high values displayed. The two anomalies occur at a break in slope which delineates the tree line. This

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point on the hillside is an area of wet sub-swamp ground and ion accumulation could easily be envisaged. However, weaker anomalies exist topographically above these major anomalies, and together with the geological overview, they appear to be closer to source and give a more representative picture of possible mineralization. These anomalies peak at 200 and 400 ppm copper. It should be emphasized that the strength and size of the "accumulated anomalies are great enough to possibly indicate some up-slope sub-surface anomalous mineralization. It is impossible to put any potential values on this mineralization, or to accurately locate its presence, but it is import that it be taken into account when generalizing about mineralization on the property.

A weakly anomalous molybdenum zone occurs above and to the northwest of the northerly "accumulated" anomaly. The area surrounding this anomaly consists of overburden and the source mineralization has not been located.

It seems apparent that the geochemical anomalies are the result of sub-surface mineralization associated with, or on the periphery of the felsitized intrusive unit.

(c) Controls on Mineralization

As surface mineralization is minimal, a discussion in structural and geological controls on mineralization must be hypothetical. From surface mineralization and soil geochemical anomalies, it is deduced that copper and molybdenum mineralization is associated with the zones of felsitized intrusives. The relationship of this unit, both structurally and geologically, to the rest of the property has been described in detail in previous sections. Generally, the felsitized unit represents zones of tectonic shearing along which hydrothermal alteration has been localized. The unit shows phyllic alteration with an assemblage of quartz, sericite, kaolin, pyrite and minor talc. The relationship of the felsitized unit to mineralization lies in the relationship between the unit and a subsurface zone of greater alteration which is hypothetical. Weak surface mineralization is associated directly with the felsitized zones. As these zones are interpreted as being peripheral to a zone of porphyry copper type mineralization using a hypothetical model, and as the geochemical anomalies are indicative of subsurface mineralization adjacent or below the zones of felsitization, then these zones represent a surface projection, structurally controlled, of a larger mineralized zone at an undetermined depth.

E. CONCLUSIONS

1. Mapping defined a series of eugeosynclinal intermediate volcanics which have been intruded by a multi-phase pluton ranging from quartz-monzonite to diorite in composition.

2. The intrusive activity ended with localized and intense fracturing and shearing along which hydrothermal fluids migrated to the periphery of the pluton.

3. A late stage of dyke activity and quartz veining, predominated by felsite dykes, formed the last event.

4. Alteration observed during mapping ranged from weak propylitic through an intermediate zone of sausseritization to phyllic and argillic. These zones are defined by more or less regular boundaries and show gradations between zones.

5. A weak ring pattern of fracturing and shearing with three major cross-cutting shear zones were observed around the diorite intrusive body.

6. Direct relationships have been determined to exist between structure, geology and alteration. This relationship is best defined by the felsitized intrusive bodies which are interpreted as being formed by ascending hydrothermal fluids along major structural breaks. This zone grades laterally into areas of weaker alteration and all are interpreted as being related to the intrusion of a large pluton.

7. The alteration system mapped is large and falls in an area approximately 4,000 feet by 7,000 feet which, when considering a porphyry copper type deposit of low grade, could house an economic deposit.

8. The area considered to show the greatest potential for further exploration work is defined on the west and north by the zones of felsitized intrusive on the Tami claims and on the south by the Snow Zone on the Kim claims. The eastern boundary of this high potential area is poorly defined because of a lack of geological data. Geochemical anomalies on the west facing slope of Snippaker Creek

and on the south slope of the Kim claims indicate that good potential continues in that direction; however, this area of high potential carries the zones of greatest alteration and surface mineralization as well as the most indicative geochemical anomalies. When considering the hypothetical porphyry system model, extrapolated economic mineralization would most likely be found to occur subsurface to this area.

9. The Snippaker groups of claims hold a reasonably good potential for the discovery of porphyry copper type mineralization.

F. RECOMMENDATIONS

It is recommended that a program be carried out that would test the potential of the Snippaker prospect for porphyry copper type mineralization at depth. This would involve conducting a geophysical program consisting of magnetometer and pulse induced polarization surveying in order to search out areas of high subsurface sulphide concentrations. This program should be carried out in conjunction with detailed mapping to the east of the Tami claims and north of the Kim claims in order to fill in the unmapped area of apparent high potential. Geological mapping should also be carried out to the south and north of the Tami claims to complete the geological picture and to check gossanous zones that may be related to the mineralizing event on the Tami claims.

APPENDIX I

REFERENCES

REFERENCES

1. Metallogeny of the Canadian Cordillera in CIM Transactions: Vol. LXXIV, pp. 121-145, 1971, by A. Sutherland Brown, R.J. Cathro, A. Pantaleyeu and C.S. Ney.

2. North Central Belt of the Cordillera of British Columbia by J.G. Souther and J.E. Armstrong in CIMM Special Volume No. 8, 1966- Tectonic History and Mineral Deposits of the Western Cordillera.

3. Map 9-1957: Stikine River Area - Geological Survey of Canada - Preliminary Map (I inch to 4 miles)

4. G.S.C. Paper 71-44 - Telegraph Creek Map Area, British Columbia by J.G. Souther. (1972).

5. Sillitoe, Richard H., The Tops and Bottoms of Porphyry Copper Deposits, in Economic Geology, Vol. 68, 1973, pp 799-815.

6. Lowell, J. David and Guilbert, John M., Lateral and Vertical Alteration - Mineralization Zoning in Porphyry Ore Deposits, in Economic Geology, Vol 65, 1970, pp 373-407.

APPENDIX II

STATEMENT OF QUALIFICATIONS

STATEMENT OF QUALIFICATIONS

I, Michael D. McInnis, with residence at 6550 Silver Springs Way, N.W. in the city of Calgary, Alberta, declare

1. that I graduated from the University of British Columbia in 1969 with an Honours B.Sc., in geology.

2. that since graduation I have been employed as an exploration geologist in British Columbia, Yukon and the Arctic Islands,

3. that I am presently Regional Geologist for Great Plains Development Company of Canada, Ltd.,

4. that I have successfully passed the exams necessary for entrance into the Professional Engineers Society of B.C. and have applied for membership in that society.

Michael D. McInnis
September, 1975.

STATEMENT OF QUALIFICATIONS
COLIN Q. WINTER

1. I graduated in 1972 from St. Peter's College of the University of Oxford with an Honours B.A. in Geology.

2. From September 1972 until the Spring of 1973 I attended the Graduate School of the Faculty of Geology at Calgary University. Course work there included two ore deposits courses and work towards an Economic Geology Master's Degree.

3. During the summers of 1970 and 1971 I was employed as an exploration geologist in Morocco and in Australia respectively.

4. After graduation I was employed with Union Oil of Canada Ltd., for fifteen months as an Arctic exploration geologist.

5. I was employed during the summer of 1975 as a field exploration geologist for Great Plains Development Company of Canada, Ltd.,

C.Q. Winter
September, 1975.

STATEMENT OF QUALIFICATIONS

I, Glen L. Garratt, am a qualified Geologist having graduated from the University of British Columbia in 1972 with a Bachelor of Science degree majoring in Geology. I have worked in the mineral exploration industry in British Columbia since 1969 and am presently employed by Great Plains Development Company of Canada, Ltd., as a geologist.

G.L. Garratt
September, 1975.

APPENDIX III

STATEMENT OF EXPENDITURES

EXPENDITURES

Salaries		
G. Garratt	65 days	$ 2,600.00
C. Winter	50 days	$ 2,000.00
N. Weber	21 days	$ 840.00
J. Helton	16 days	$ 640.00
R. Durfeld	2 days	$ 80.00
E. Reimer	3 days	$ 120.00
		$ 6,280.00
Supervision		
M.D. McInnis	5 days	$ 450.00
Travel and Expenses		$ 2,772.34
Helicopter Charter		$ 5,209.07
Truck and Radio rentals		$ 650.00
Food		$ 2,821.00
Miscellaneous Expenses		$ 1,657.59
		$19,840.00
Overhead @ 10%		$ 1,984.00
		$21,824.00

BALL CREEK CLAIMS

LORI CLAIMS

AS CLAIMS

TAMI CLAIMS

KIM, PONCHO CLAIMS

VV CLAIMS

5752
M-2

DEVELOPMENT COMPANY
OF CANADA, LTD.
BRITISH COLUMBIA

STIKINE REGION

LAND HOLDINGS

5 0 10 20
MILES

SCALE - 1:500,000

NTS : 104 E,W
NOVEMBER 1975

G.L. GARRATT

TAMI CLAIMS

PONCHO CLAIMS

KIM CLAIMS

SNOW

OVERBURDEN

SNOW ZONE

CRATER LAKE

ALTERED ANDESITE PORPHYRY

ALTERED CRYSTAL TUFF

ALTERED ACID FLOW

ALTERED ANDESITE

GRANITE PORPHYRY

TRAP DYKE

ALTERED FINE GRAINED TUFF

GRANODIORITE

KIM 14 - KIM 13

KIM 26 - KIM 25

N

REFERENCE

INTRUSIVES

1	QUARTZ MONZONITE (ADAMELLITE)
2	GRANODIORITE
3	QUARTZ DIORITE (TONALITE)
4	DIORITE
5	FELSITIZED INTRUSIVE
6	INTRUSIVE BRECCIA
7	HORNBLENDE DIORITE PORPHYRY

VOLCANICS

8	COARSE BRECCIA FLOW
9	FLOWS: ANDESITE, AMYGDALOIDAL
10	CRYSTAL TUFF
11	TUFFS
12	UNCLASSIFIED VOLCANICS

DYKES

13	FELSITE

DYKES (cont)

14	ANDESITE - FELDSPAR PORPHYRY
15	APHANITIC - HORNBLENDE ANDESITE
16	BIOTITE - FELDSPAR PORPHYRY

- GEOLOGICAL CONTACT (Observed, Inferred)
- ROCK OUTCROP
- × G-55 ROCK SAMPLE SITE
- GEOCHEM GRID BASE LINES
- FAULT (Steeply Dipping, Inclined, Vertical)
- FAULT (Unclassified)
- 55 THRUST FAULT (Defined, Assumed)
- 60 BEDDING (Steeply Dipping, Inclined, Vertical)
- 35/20 BEDDING (Defined - Strike, Dip)
- FRACTURING (Steeply Dipping, Inclined, Vertical)
- DYKE
- GOSSAN
- SNOW SNOWFIELD, GLACIER BOUNDARY
- ⊗ × MINERALIZATION (Inplace, Float or Talus)
  Gn - Galena Cpy - Chalcopyrite
  Az - Azurite Mal - Malachite

Department of Mines and Petroleum Resources
ASSESSMENT REPORT
NO. 5752 MAP 3

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD.
BRITISH COLUMBIA

SNIPPAKER CREEK
KIM AND TAMI CLAIMS
GEOLOGY

400 200 0 400 800 1200
FEET

LIARD M.D.
G. GARRATT
C. WINTER
R. VISAGE

NTS: 104B/10W
SEPTEMBER 1975

TAMI CLAIMS

N

PONCHO CLAIMS

KIM CLAIMS

LEGEND

Cu CONTOUR

Mo CONTOUR

BASELINES

MOLYBDENUM : Background 0 - 8 ppm
Threshold 9 - 22 ppm
Anomalous > 22 ppm
Contour Interval 10 ppm

COPPER : Background 0 - 98 ppm
Threshold 99 - 215 ppm
Anomalous > 215 ppm
Contour Interval 100 ppm

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD.

BRITISH COLUMBIA

SNIPPAKER CREEK

COPPER AND MOLYBDENUM GEOCHEMISTRY
CONTOURED RESULTS

400 200 0 400 800 1200
FEET

N.T.S. : 104 B/10
LIARD M.D.

M. McINNIS
JULY 1975

TAMI CLAIMS

PONCHO CLAIMS

KIM CLAIMS

N

LEGEND

ALTERATION

1 Phyllic

2 Intermediate

3 Propylitic

Fault

Shear

Intense fracturing, shearing

Quartz veining – 1/ft or greater

Dyke

Claim line

Geochemical Survey Grid – Base Lines

5752

M-5

GREAT PLAINS DEVELOPMENT COMPANY OF CANADA, LTD.

BRITISH COLUMBIA

SNIPPAKER CREEK

ALTERATION and STRUCTURE

400 200 0 400 800 1200

FEET

N.T.S. 104 B/6

LIARD M.D.

G.L.GARRATT

October, 1975

Department of Mines and Petroleum Resources

ASSESSMENT REPORT

NO. 5752 MAP 5