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## **RAINEY MOUNTAIN RESOURCES INC.**

Summary Report on the Glacier Creek Mineral Claims

Latitude 58°58' North Longitude 129°55' West NTS 103-P/13W and 104-A/4W Stewart Area Skeena Mining Division British Columbia

Calgary, Alberta June 12, 1997

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## Summary and Recommendations

On June 1, 1997, Rainey Mountain Resources Inc. acquired four groups of claims totaling 45 Crowngranted claims and fractions covering some 1,630 acres from Pacific Cassiar Ltd. The claims are located in the Glacier-Albany Creeks area on the east side of Bear River valley, 4 miles northeast of Stewart, British Columbia. Stewart, served by all-weather highway from Terrace, is located at the north end of Portland Canal, 110 miles north of Prince Rupert, BC.

The Stewart area has been an active mining and exploration camp since the first lode silver and gold discoveries in 1902. Most of the discoveries and early attempts at development in the Bear River valley occurred during the period 1908-1916. The only production of note from the Glacier Creek area was from the Dunwell mine. Between 1926 and 1941, the mine produced 9,800 ounces of gold and 329,000 ounces of silver from 50,000 tons of ore.

The Glacier Creek area is a topographically rugged terrain accessible from Stewart via pack trails.

The claims area is underlain for the most part by north-trending west-dipping volcanics and argillaceous sediments of the Jurassic aged Hazelton Supergroup, intruded southwest of the claim group by a guartz monzonite pluton of Tertiary age.

A major north-trending structure, the Portland Canal fissure zone, a complex fault/shear system up to 1500 feet wide, strikes through the claims area and appears to control the location and erientation of mineralization.

The claims cover a number of mineralized, brecciated fissure veins and vein systems which for the most part are controlled by north-trending west-dipping fault and/or shear zone elements of the Partland Canal fissure zone. Veins are composed of quartz or quartz-calcite carrying variable amounts of pyrite, sphalerite, galena, chalcopyrite, freibergite, and minor native silver. All of the sulphides carry gold, but the distribution of values is erratic. None of the ores in the Stewart camp required roasting to extract gold or silver.

At least 14 prospects and occurrences are known, most of which were found prior to 1920. Twelve of these have been explored by underground workings ranging in size from short adits and cross-cuts to the 3,600-foot long Portland Canal Tunnel. A number of these workings were re-opened and re-assessed in 1955, 1981, and 1988. This work included chip and channel sampling, and some limited drilling. Assay results confirmed that, though zones carry economic gold values, distribution is erratic and a consistent economic grade could not likely be maintained. However, no bulk or panel sampling has been done which would confirm this supposition.

Exploration and evaluation work done to date in the claims has focused on assessing the commercial potential of prospects and occurrences found prior to 1920. Despite the known favourability of the area, no exploration programs employing up-to-date methods have ever been carried out to explore for new deposits. In view of the untested exploration potential of the claims, a preliminary program of underground panel sampling together with prospecting, sampling, and geological reconnaissance is proposed. Contingent upon the results of this work, an integrated program of geological mapping, geophysical surveying, and geochemical sampling will be designed and implemented to develop new targets for exploration drilling.

Cost estimate for the preliminary prospecting and sampling is \$50,000.

## 1.0 Introduction

At the request of Rainey Mountain Resources Inc., the writer was retained to prepare a summary report on the Company's mining claims (Figure 1) located 4 miles northeast of Steward, BC.

The writer has not visited the properties and the following report is essentially a synthesis of pertinent information contained in previous company reports together with relevant dats available from government publications and maps. Notwithstanding the assumed reliability and accuracy of this information, conclusions and recommendations contained herein must be considered as preliminary at this time.

## 2.0 Property Ownership and Status

The Glacier Creek gold properties comprise 45 Crown-granted mineral claims and fractions totaling some 1,625 acres. The claims are located in four separate groups as outlined in Table 1, below. A property map is presented in Figure 2.

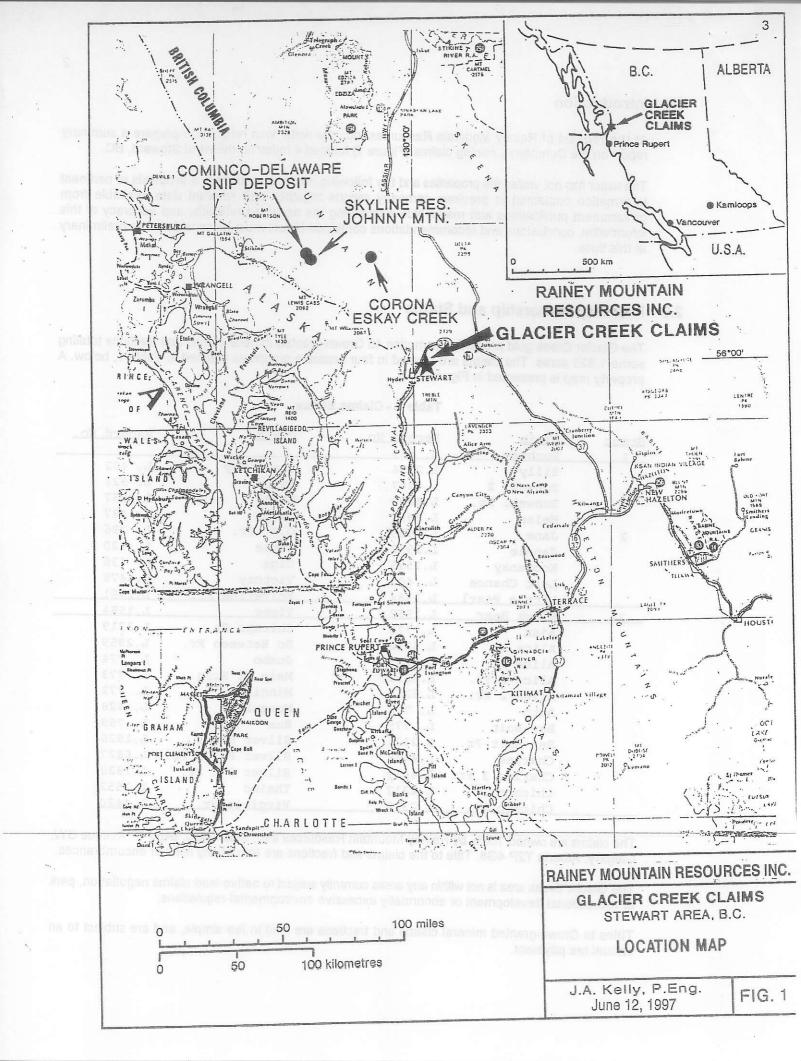
<u>Group</u> 1	<u>Claim</u> Sunbeam	<u>Record No.</u> L. 869	<u>Claim</u>	Record No.
	Billy	L.2954	Lucky Boy	L. 402
	Dunwell 2	L.4287	Lulu	L. 926
	Dunwell Fr.	L.4290	Mabel	L.2937
	Helen	L.2956	Melba	L. 437
2	Jane	L.2955	O.K. Fr.	L. 296
	Jennie	L.2958	Sadie	L. 420
	Kootenay	L.1385	Olga	L. 436
	Last Chance	L. 403	Victory	L.4476
. <u></u>	<u>Little Pearl</u>	L.1384	Wolverine Fr.	L.2961
3	<u>Black Bear</u>	L.1553	Tiger	L.1554
	Ajax	L. 770	Chicago Fr.	L.2319
	Alice 1	L.5252	Go Between Fr.	L.2959
	Alice 2	L.5253	Jumbo	L. 774
	Alice 1 Fr.	L.5251	Main of Erin	L. 773
	Alice 2 Fr.	L.5260	Minnie	L. 772
	Auto	L. 771	Mosquito	L. 428
	Ben Bolt	L. 775	Rex	L. 769
	Ben Bolt Fr.	L.2325	Silver Bar 1	L.1826
	Charles	L.4418	Silver Bar 2 Fr.	L.6827
	Charles 3 Fr.	L.4419	Silver Bar Fr.	L.1828
	Chicago 1	L.2317	Thelma	L.1552
·	Chicago 2	L.2318	Virginia Fr.	<u>L.4420</u>

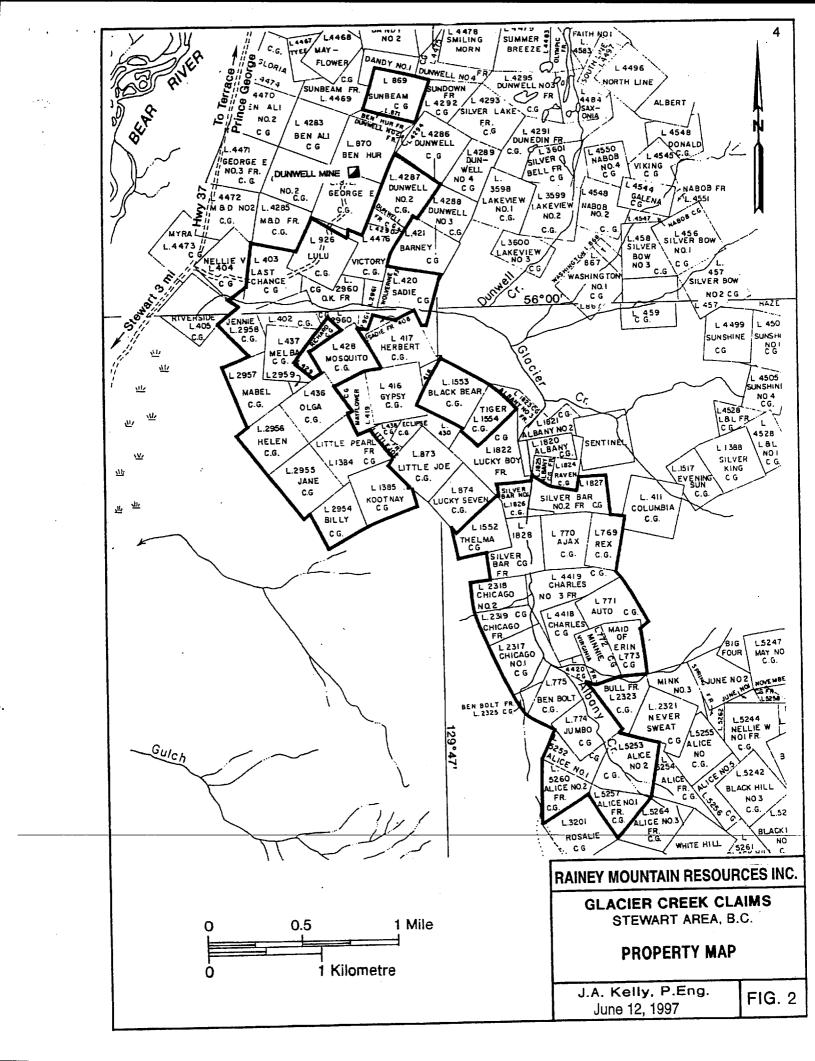
#### Table 1 - Claims Status

The claims are owned 100% by Rainey Mountain Resources Inc., Suite 2420, 645 - 7<sup>th</sup> Avenue SW, Calgary, Alberta T2P 4G8. Title to the claims and fractions are free of any liens or encumbrances.

The Glacier Creek area is not within any areas currently subject to native land claims negotiation, park or recreational development or abnormally excessive environmental regulations.

Titles to Crown-granted mineral claims and fractions are held in fee simple, and are subject to an annual tax payment.





## 3.0 Location, Access, Services

The four claim groups are located in the Skeena Mining Division, 4 miles north of Stewart, BC, on the east side of Bear River at elevations of 1000 to 3500 feet. Geographical coordinates are 55°58' North latitude and 129°55' West longitude (see Figure 2). The claims are shown on BC Ministry of Energy, Mines and Petroleum Resources claim sheets 103-P/13 West and 104-A/4 West.

The properties are accessible by road from Stewart to the Dunwell Mine, then via old wagon roads or trails to the various old workings (Figure 3). The condition of these routes is not known at this time.

Stewart, located about 110 miles north of Prince Rupert, is served by all-weather Highway 37 from Terrace, by sea from Prince Rupert and Vancouver, and by local charter air services. Services and supplies in Stewart are limited, and could support only short-term exploration programs.

## 4.0 History of Exploration

The Stewart area has been an active mining camp since the turn of the century, when adventurers traveled to the north end of the Portland Canal in search of placer geld. In 1902, John Stewart and partners located lode silver at American Creek, sparking a prospecting and staking rush into the area. Between 1904 and 1915, most of the exploration and development activity was concentrated in the Bear River area east and north of Stewart. This is when many of the original discoveries in the Rainey Mountain Resources claims were made. However, after 1918, attention moved to the Salmon River area, 10 miles northwest of Stewart, where discovery of high-grade gold/silver ore on the Premier property in 1918 led to the development of one of the richest mines (Silbak Premier) in BC history.

Between 1910 and 1967, the Stewart Camp produced a total of 1,895,000 ounces gold, 44,044,000 ounces silver, 4,483,000 pounds copper, 69,020,000 pounds lead, and 24,700,000 pounds zinc. The only production from the Glacier Creek area was from the Dunwell Mine, which produced 9,800 ounces gold from 50,000 tons of ore during the period 1926 to 1941.

Base metal exploration underwent a resurgence in the area in the early 1970s, but interest declined later int he decade as base metal prices fell.

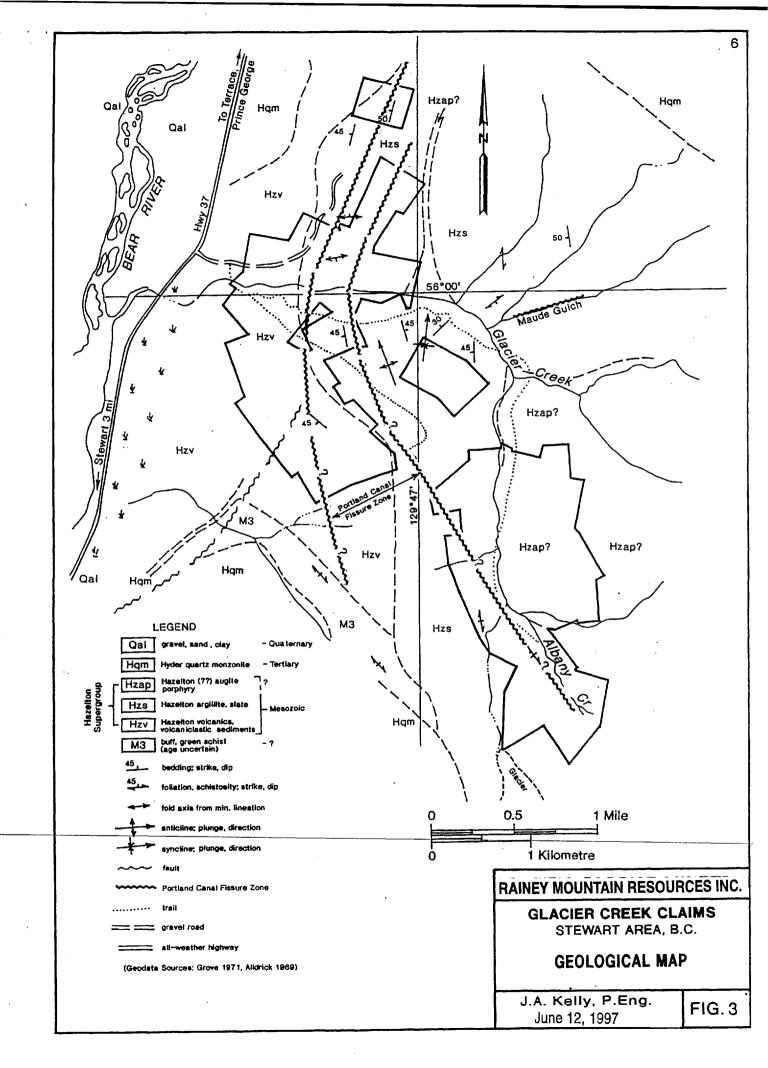
Rising gold prices and new discoveries by Reg Davis and Skyline Resources on an old Cominco prospect on Johnny Mountain 65 miles northwest of Stewart (see Figure 1), sparked new interest in the Stewart-Iskut district in 1982-83. In 1986-87, the Delaware Resources/Cominco joint venture delineated a commercial gold deposit, the SNIP deposit, on claims adjacent to the Skyline property to the north.

In 1987, Calpine Resources acquired the old McKay gold/base metal prospect at Eskay Creek, 50 miles north-northwest of Stewart (see Figure 1). Drilling programs carried out over the next two years resulted in the discovery and delineation of the now famous "21 Zone" gold deposit. The SNIP, Johnny Mountain, and Eskay discoveries sparked yet another staking rush to the Stewart/Iskut/Eskay area, and the so-called "Golden Triangle" (see Figure 1) is currently the most active exploration area in Canada.

Apart from property examinations and re-sampling carried out from time-to-time, no-long-term integrated exploration or development programs have been pursued on the Rainey Mountain Resources properties since the early days (1904-1916).

In 1955, Pacific Cassiar Limited (then named Cassiar Consolidated Mines) rehabilitated underground workings and conducted detailed sampling programs on the Jennie, Lucky Boy, Melba, Mosquito, OK fraction, and Ben Bolt claims. In view of prevailing metal prices at that time, further work was suspended.

In 1980, Silver Princess Resources carried out limited underground sampling and drilling programs on the OK and Mosquito claims.



Brief summaries of previous work on the various claims together with the results reported are included with the prospect and occurrence descriptions in Section 6.0 further on in this report.

On June 1, 1997, Rainey Mountain Resources Inc. acquired a 100% interest int he property from Pacific Cassiar.

## 5.0 Geology

#### 5.1 Topography and Physiography

The Stewart area lies within the Boundary Ranges of the northern Coast Mountains, a region of rugged mountainous topography at an early stage of maturity. Topographic relief is abrupt and considerable, with mountain peaks rising some 3500 to 600 feet above river valleys and fjords.

Stewart lies at the north end of Portland Canal, a 25-mile long trench-like fjord separating the southern extremity of the Alaska panhandle from British Columbia. This topographic feature continues north of Stewart as a linear valley drained by Bear River.

The company's claims are located on the east side of Bear River valley where moderate to steeply rising weoded slopes have been deeply and sharply incised by Glacier Creek, Albany Creek, and their various tributaries. Topographic relief in the stream valleys crossing the claims area ranges from 500 to 2500 feet (see Figure 3). Elevation variations, however, are considerable; from 750 feet MSL in the Jennie claim to over 4000 feet in the Alice 2 claim at the head of Albany Creek (see Figures 2 and 3). Several of the north/south-trending tributaries, such as Dunwell Creek, follow fault linears (see Figure 3).

#### 5.2 Stratigraphy

In the Stewart area, moderately folded Mesozoic-age volcanics and sediments which form the western margin of the Bowser Basin are intruded by a series of Tertiary plutons and related stocks of the Coast Crystalline Belt.

The east side of Bear River is underlain by sequences of Triassic to Middle Jurassic volcanic flows, pyroclastics, and epiclastics, which in turn grade into Middle/Upper Jurassic argillites and mudstones (Table 2). According to Alldrick (1989), the volcanics and sediments (formerly described as "Hazelton" and "Bowser" assemblages, respectively, in older publications) resulted from a continuous process of vulcanism and sedimentation in the western Bowser Basin. For the purpose of this report, the whole volcanic-sedimentary series is referred to as "Hazelton Supergroup" in Table 2.

Hazelton rocks are intruded by irregular plutons, stocks, and dykes, ranging in composition from quartz monzonite, augite diorite (augite 'porphyry'), and granodiorite. Table 2, modified from Alldrick (*op.cit.*), illustrates stratigraphic relationships in the Stewart area.

Published-geological maps (Grove, 1971) and property reports indicate that, except for the western part of the Group 2 claims, the Glacier Creek claims are underlain by argillite, slates, mudstones, and related pelitic sediments of the upper Hazelton Supergroup (see Figure 3). Dykes and sills of augite porphyry are reported to cut the sediments in many of the prospects.

An augite porphyry is shown on Groves' 1971 geological map as underlying the area east of Albany Creek (see Figure 3). However, Alldrick (*op.cit.*) suggests augite porphyry 'intrusives' in the Stewart area are actually volcanic flows. Thus, the nature and extent of this 'intrusive' is questionable.

## Table 2 - Table of Formations (modified from Alldrick, 1989)

Geological Age	Volcanic & Sedimentary Rocks	Intrusive Rocks
Tertiary		<b>Coast Plutonic Rocks</b> Hyder quartz monzonite, Boundary granodiorite Portland Canal dyke swarm
Middle & Upper Jurassic	Hazelton Supergroup argillite, siltstone, slate, sandstone, limestone	
Middle Jurassic (transition sequence)	black grits, sandstone, argillite, pumice	
Lower Jurassic	carbonaceous and pyritic felsic tuff, pumice, epiclastic conglomerate siltstone and felsic tuffs, 'Premier porphyry' andesite flows, augite porphyry flows, andesite flows	Mesozoic Intrusives 'Premier porphyry' intrusive, August porphyry intrusives, Texas Creek granodiorite
Late Triassic ?	andesite tuffs and siltstones	

#### 5.3 Structure

For the most part, sediments and volcanlcs underlying the claims area trend northerly and dip 35°-50° west. Locally, these sequences have been further deformed by what appears to be a series of interference folds (cross-fold systems) trenching north-northwest and east-west, respectively (see Figure 3). The north-northwest folds are generally broad, open anticlines and synclines plunging to the north. The east-west folds are similar but plunge directions are uncertain. Confused, large-amplitude isoclinal folds are reported (Groves, 1971) in the siltstone and in the argillite beds in the Glacier Creek / Maude Gulch area (see Figure 3), and may be related to structural deformation associated with the Portland Canal fissure zone.

Northwest-trending and north-trending fault systems have affected rocks underlying the claims area. The northwest-trending series is very local, and displacements are limited.

of the north-trending fault systems crossing the claims area, the most prominent is the Portland Canal fissure zone (see Figure 3), a major northerly trending complex fault/shear zone which can be traced over a strike length of at least 10 miles. At its south end, Groves' map (*op.cit.*) shows the fault to be a simple steeply-dipping strike-slip fault striking northeast. Where it passes from volcanics into sediments south of Glacier Creek (see Figure 3), the dip decreases to about 45° west and the structure suddenly becomes a north-trending complex fault/shear system nearly 1500 feet wide. However, Skerl (1955) indicates the eastern side of the fissure zone trends through the Ben Bolt claim and controls the Ben Bolt vein system. Thus, in Figure 3, the Portland Canal fissure zone is tentatively inferred to trend southeast through the Ben Bolt claim.

The fissure zone continues northward across Dunwell Creek where it decreases in complexity and width, and appears to die out some 5 miles north of the Dunwell mine. The possible economic importance of this structure is discussed further on in this report.

Cleavage related to folding, faulting, or intrusion is well developed in the thinly layered argillites and siltstone in the Glacier Creek area. Here, cleavage planes are generally steep and crosscut the axial planes of major and minor folds.

With the exception of narrow zones proximal to the contacts of intrusions, foliation and/or schistosity are not commonly developed in the sediments.

#### 5.4 Metamorphism

Local metamorphic effects are reported in sediments proximal to intrusives. Generally, however, sedimentary sequences in the Glacier Creek area are only slightly metamorphosed. Alldrick (1984) indicates the regional metamorphic grade is lower to sub-greenschist facies.

#### 5.5 Mineralization and Alteration

Gold and silver with pyrite, pyrrhotite, and various combinations of base metal sulphides and sulfosalts occur throughout the Stewart district. Alldrick (1984) has categorized the mineral deposits of the camp as follows:

- a) stratabound (volcanogenic) sulphide deposits:
  - i) disseminated sulphide deposits (e.g., Big Missouri)
  - ii) massive sulphide deposits (e.g., Silbak Premier)
- b) shear zone-hosted massive sulphide vein deposits (e.g., Scottie Gold, Porter-Idaho)
- c) quartz/breccia fissure vein (epithermal) deposits (e.g., Dunwell, Chicago, Ben Bolt)

All of the known prospects and occurrences in the Rainey Mountain Resources claims are of the Category (c) quartz/breccia fissure vein variety. A generalized description of vein/breccia fissure deposits, modified from Alldrick (*op.cit.*), follows:

The veins consist primarily of quartz but carry angular wallrock fragments plus scattered coarse crystals and fine-grained blebs and pods of sulphide minerals.

Wallrock fragments within the veins are commonly silicified, but vein walls are sharp with little or no silicification of the wallrock. Drusy vugs are common. Sulphide minerals occur as euhedral crystals and as crystal aggregates of pyrite, sphalerite, galena, chalcopyrite, chalcocite, and freibergite; there is minor associated native silver. The sulphides are typically concentrated near the centre of the quartz vein, and sulphide crystals may be up to 3 centimetres across.

The veins cut volcanic, sedimentary, and intrusive rocks, thus they represent a very late-stage mineralizing event.

Gold occurs with all the common sulphide minerals but distribution of gold values tends to be erratic and the veins were usually mined for silver. Although there is no specific data with respect to mineral zonation in the Glacier Creek area, Groves (1971) suggests that in the <u>Stewart area Ag:Au ratios decrease with depth</u>. The Ag:Au ratio at the Dunwell mine averages 30:1 (Groves, *op.cit*.). At the Ben Bolt property, some 1000-1500 feet higher in elevation, Ag:Au ratios range from 30:1 to over 200:1.

None of the ores in the Stewart camp required roasting to extract gold or silver.

Fissure veins are classed as epigenetic-mesothermal. Alteration of the country rock is limited to narrow zones of silica-carbonate bleaching along the brecciated vein contact.

More detailed descriptions of the various prospects and occurrences are presented in Section 6, following.

## 6.0 **Prospects and Occurrences**

Figure 4 shows the minsralized vein zones on the claims, and Figure 5 shows the locations of the various adits and tunnels.

# 6.1 Sunbeam (L.896) AR, FF, ASS

This claim covers the Sunbeam vein, a mineralized quartz fissure vein outcropping at an elevation of 1780 feet on the north side of Dunwell Creek in the north-central area of the claim (Figure 6). Here, the vein is some 6 feet wide, strikes N to N10°E and dips some 50°-60°W. Mineralization comprises pyrite, galena, and sphalerite with lesser tetrahedrite, argentite, and native silver. The vein structure cuts argillite and greywacke sediments, but appears to follow a grey dyke (diorite porphyry). The zone was traced some 450 feet along strike by a series of pits and open cuts.

Approximately 100 tons of hand-sortod ore was shipped by leasers in 1932-33 (Minister of Mines, B.C., Annual Report 1937, p.B8).

A 500-foot cross-cut was driven S85°E to explore the down-dip part of the vein at an elevation of 1680 feet (see Figures 5 and 6). At 300 feet from the portal, a sparsely mineralized sheared vein about 4 feet wide was intersected. Whether or not this was the Sunbeam vein was never established.

The Sunbeam vein zone probably lies within the wostern margin of the Portland Canal fissure zone and is likely a northerly extension of the vein system exploited in the Dunwell mine (see Figure 6).

#### 6.2 Dunwell 2 (L.4287), Dunwell Fr. (L.4290)

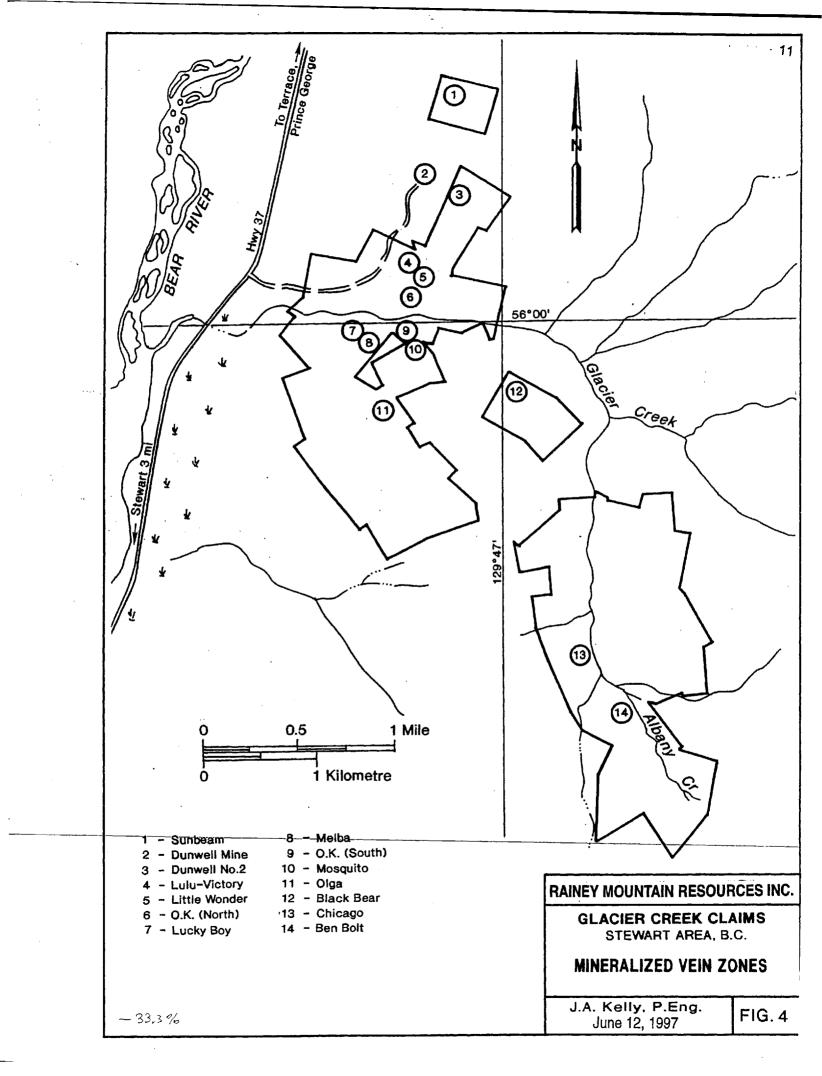
Between the period 1926-41, the Dunwell mine produced some 50,000 tons of ore containing a total of 9,816 ounces gold, 329,000 ounces silver, 27,000 pounds copper, and nearly 2,500,000 pounds zinc. Most of the production was from the '23' or 'Dunwell' vein, a simple quartz-calcite brecciated fissure vein with an undulating strike and dip of N30°W-20°E and 30°-50°W, respectively. The vein is associated with a grey augite porphyry dyke which in turn appears to be controlled by a north-trending fault zone within the Portland Cana fissure zone (see Figures 3, 6, 7, and 8).

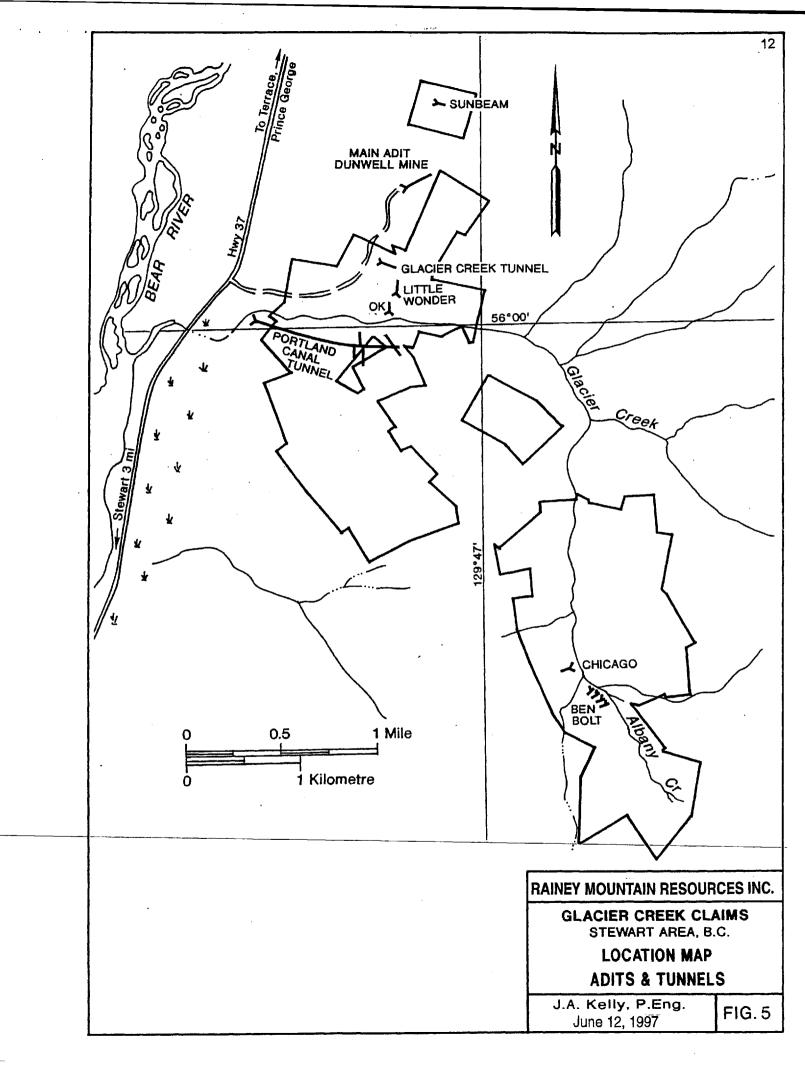
Gold-bearing sulphides in the vein occur as pods and layers forming discreet ore lenses raking 70° to the south (Figure 7). The vein structure is hosted by complexly folded argillites, siltstones, and greywackes of the Hazelton Supergroup. Although the north-striking dyke appears to be spatially related to mineralization, a genetic relationship is conjectural.

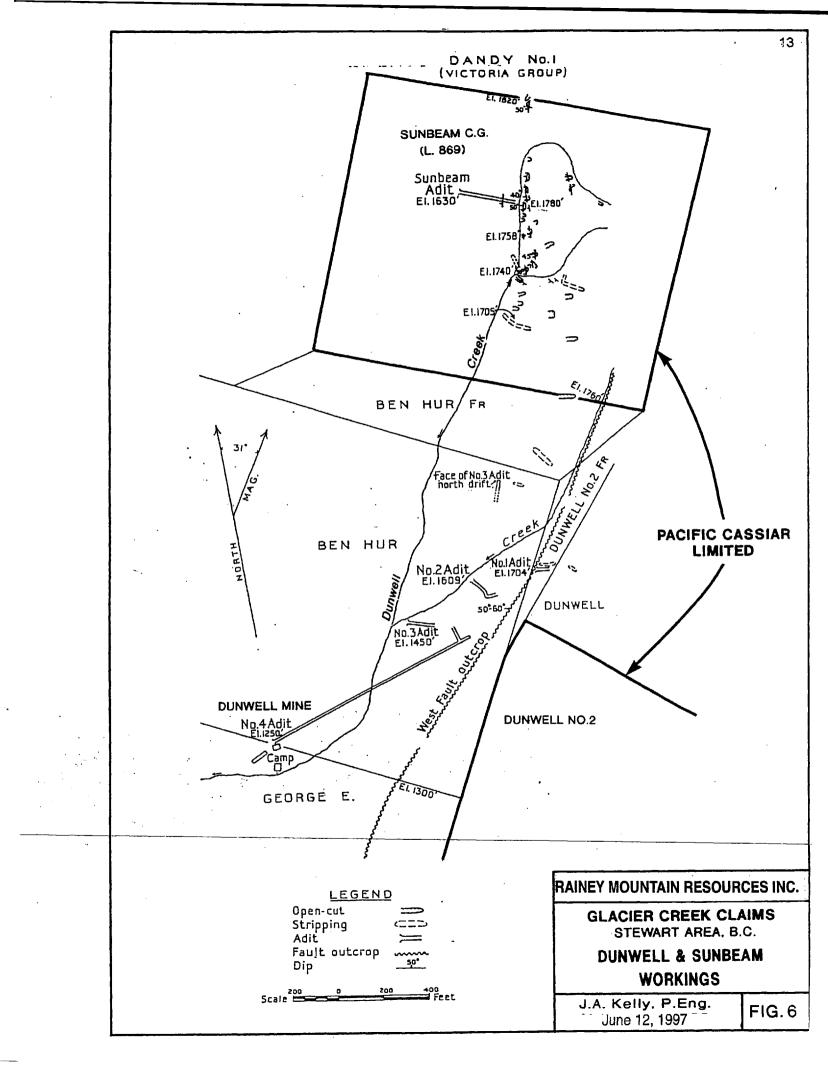
According to mine records, the '23' vein was followed on the No.1 Level (1450 feet elevation) to the Dunwell 2 boundary (see Figure 7). Here, the vein either stops(?) or the drift was driven off line into the hanging wall for whatever purpose(?).

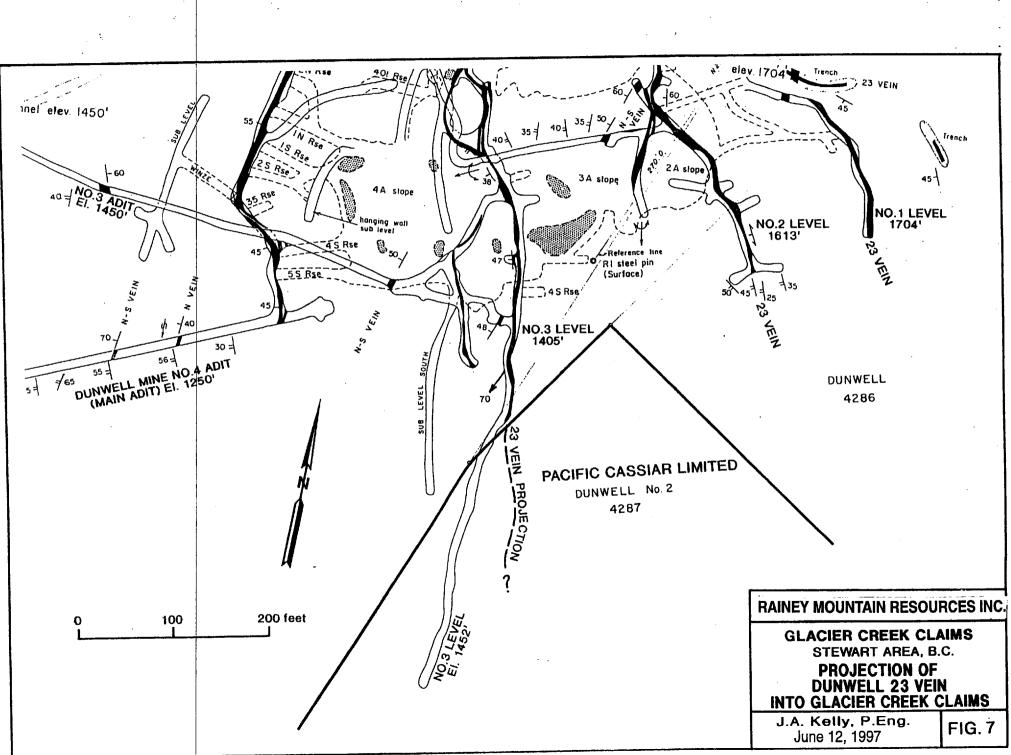
Drilling by Silver Princess Resources (Harris, 1988) reported that gold values (up to 0.402 opt over 2.2 feet) occur in the vein at the 1150-foot elevation.

It is possible that the '23' vein zone continues across the Dunwell 2 and the Dunwell Fraction and is continuous with one of the zones in the Victory claim (see Figure 8).









Dr'?

## 6.3 Victory (L.4476), Lulu (L.926), N<sup>1</sup>/<sub>2</sub> of OK Fr. (L.2960)

At least five north-trending west-dipping brecciated fissure vein zones occur in the Portland Canal fissure zone where it trends across the Lulu-Victory claims area. These zones were explored and sampled from short cross-cuts from the795-foot long Glacier Creek adit. This tunnel was driven S80°E on the 830-foot elevation from the Lulu claim (Figure 8) by the Glacier Creek Mining Company during the period 1910 to 1925. For the most part, mineralization was found to consist of pyrite sparsely distributed in quartz-carbonate stringer veins and/or brecciated quartz-argillite zones. The vein zones are from 2 to 6 feet wide, and only low gold values were reported (Mines Minister, BC, Annual Report 1937, p.B15).

The central vein zone encountered 200 feet west of the portal in the Glacier Creek adit was explored along strike at an elevation of 780 feet by the Little Wonder adit collared in the northwest corner of the OK Fraction (see Figure 8). This 760-foot long adit exposed several short narrow gold-bearing shoots, and the best of these was reported to average 0.28 oz gold, 4.6 oz silver, 6.0% lead, 8% zinc over a 10-inch width and 30-foot length (Mines Minister, BC, Annual Report 1937, p.B16). A composite sample from a small stope above the adit assayed 1.8 oz gold and 4.0 oz silver (*op.cit.*).

In 1979 and 1980, the Glacier Creek adit was re-opened, sampled, and seven holes were drilled by Silver Princess Resources to explore for west-dipping vein zones in the Portland Canal fissure zone below the adit level. Of the seven holes drilled, only one encountered economic gold values over a mineable width (e.g., Hole 9: 14.6'-21.1': 0.338 oz Au over 6.5'; Harris, 1981).

About 400 feet south of the Little Wonder portal, a brecciated vein zone (presumably the same zone exposed in the Little Wonder tunnel) was explored by the OK adit collared at an elevation of 670 feet (see Figure 8). Although silver, lead, and zinc were reported from the original vein outcrop (e.g., 12.0 oz Ag, 16% Pb, 6% Zn over 4 feet), the 300-foot adit did not encounter significant mineralization (Minister of Mines, BC, Annual Report 1937, p.B14). No significant values were reported from subsequent re-sampling by Silver Princess Resources in 1980 (Harris, *op.cit.*).

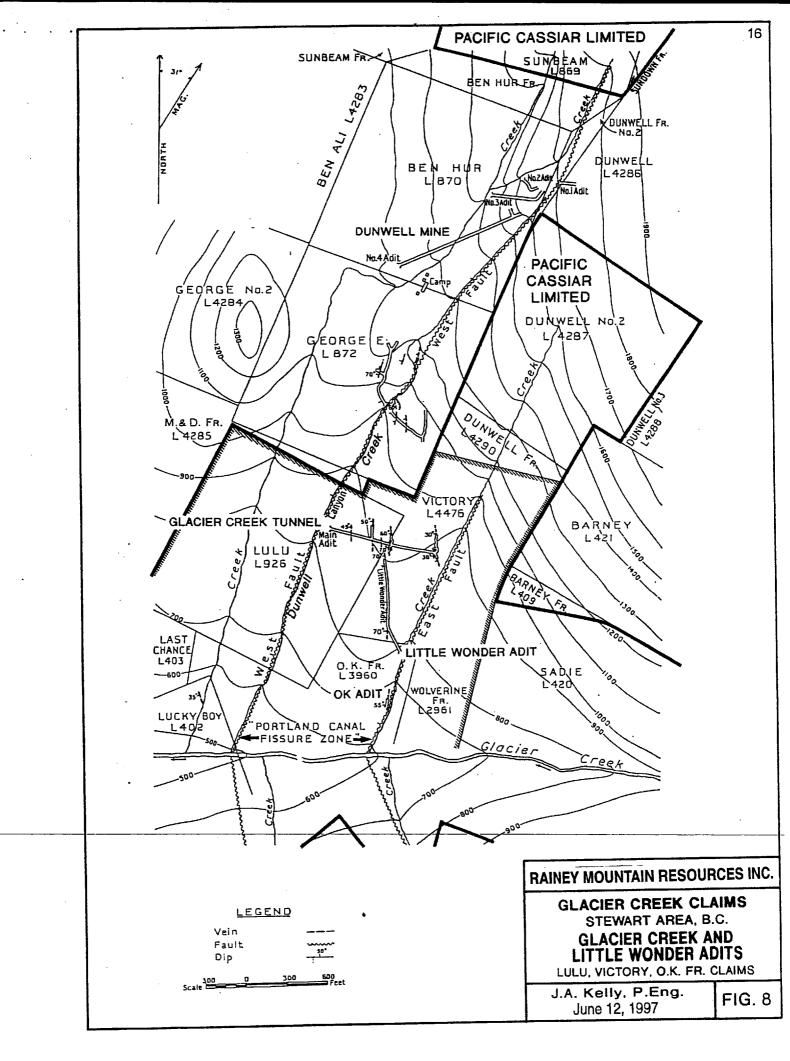
#### 6.4 Portland Canal Tunnel

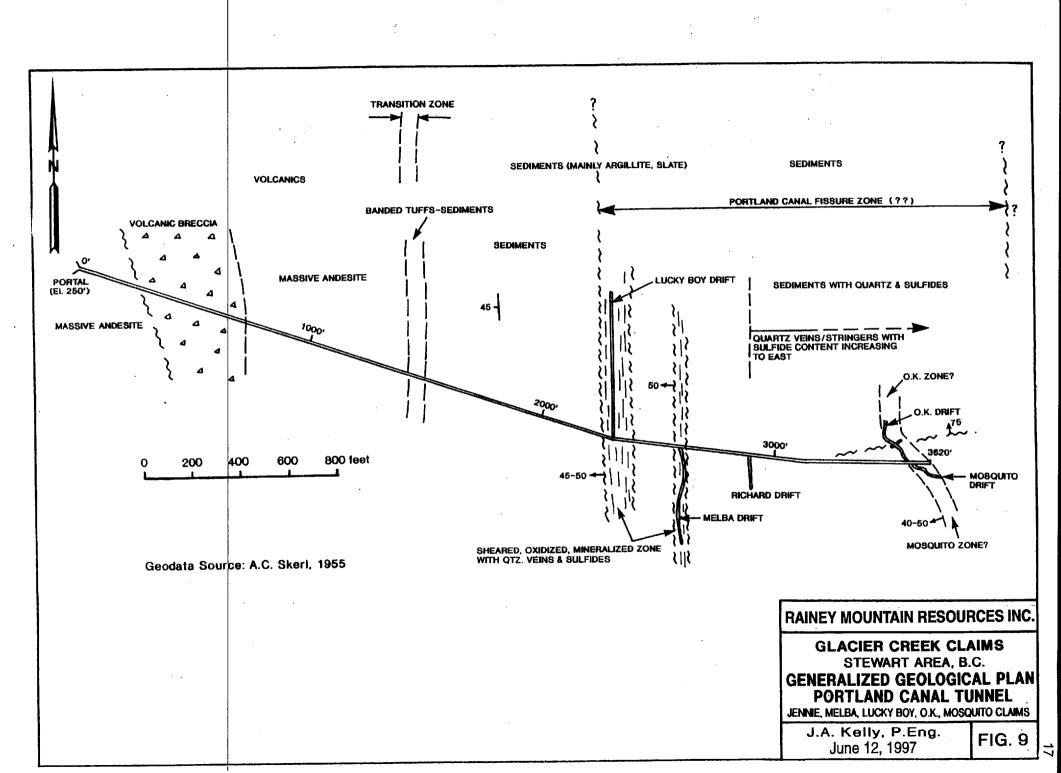
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In 1913-14, Portland Canal Terminals Ltd. drove a 3,620-foot adit, the Portland Canal Tunnel, eastward from a portal located above the Dunwell mill at an elevation of 250 feet (see Figures 3, 4, and 9). The purpose of the adit was to cross-cut and explore mineralized zones in the Portland Canal fissure zone including veins found on surface in the Jennie, Melba, Lucky Boy, Mosquito, Richard, and OK Fraction claims. These various zones were subsequently opened and sampling along drifts excavated off the adit. No further exploration work was carried out after 1914. A brief description of the tunnel follows.

Distance	Bearing
portal to 2350 feet	S71°30'E
2350 feet to 3160 feet	S83°00′E
3160 to east face	S89°00′E

The adit crosses andesite, volcanic breccia, and more andesite in the first 1440 feet, then a 70foot section of tuffs and sediments. The remainder of the tunnel crosses argillites and sediments with a general 45°W dip. Presumably, the section from 1440 feet to 1510 feet is the transition zone from volcanics to sediments. At least 18 'andesitic' dykes ranging from 1' to 25' in thickness were encountered (Skerl, 1955). Quartz with calcite and sulphides becomes more common toward the east. A major fault zone (Lucky Boy zone?) was crossed between 2270' and 2410' from the portal.





In 1954 and 1955, Pacific Cassiar Ltd. rehabilitated the adit and conducted a mapping and sampling program to re-assess the various vein zones. The following data is abstracted from reports by Rutherford (1955) and Skerl (1955). A generalized geological plan based on Skerl's 1955 report is presented in Figure 9.

#### 6.4.1 Jennie

No mineralization was reported from the adit section through the Jennie claim, and no samples were taken in the 1955 program.

#### 6.4.2 Lucky Boy (L.402)

2340 feet from the portal, a pyritic vein zone occurring in a major fault zone was explored from a 600-foot long drift driven north (see Figure 9). Only 200 feet of the adit was opened for sampling in 1955 (Rutherford, *op.cit.*) but no samples were taken (presumably because the mineralization was judged to be poorly developed).

#### 6.4.3 Melba (L.2959)

At 2638 feet from the portal, the Melba drift was driven south for 405 feet following a pyritized quartz vein (see Figure 9). No samples were taken in 1955. The vein is one of a series occurring in a complex fault zone located between 2585' and 2640' from the portal. This fault zone was not sampled in the 1955 program.

#### 6.4.4 Mosquito (L.248), S½ of OK Fr. (L.2950)

Between 3550' to 3600' from the portal, Skerl (1955) reported groups of veins and stringers from 1 inch to 2 feet wide carrying pyrite, galena, sphalerite, and chalcopyrite (see Figure 9). The most promising of these was opened up 120 feet to the south in the Mosquito drift, and 155 feet to the north in the OK drift (see Figures 9 and 10). The vein zone dips from 65°-80°W cross-cutting the enclosing sediments. Part of the zone in the OK drift is in an altered dyke.

Back sampling in the adit and the two drifts returned uneconomic metal values. In the OK drift (see Figure 9), a central 60-foot section averaged 0.07 oz Au, 1.05 oz Ag, 1.64% Pb, and 2.09% Zn over a 2.4-foot average width. In the Mosquito drift, 50 feet of vein averaged 0.01 oz Au and 0.15 oz Ag; averages for Pb and Zn were not calculated.

Sampling of the last 51 feet of the adit (see Figure 9) indicated the presence of erratic high-grade gold values, and Skerl (*op.cit.*) reported the following gold values:

south wall: 0.35 ez Au over 52.0 feet north wall: 0.015 oz Au over 53.4 feet average: 0.118 oz Au, plus negligible Ag, Pb, Zn, and Cu

Skeri's calculations, however, included several statistically high gold values (0.54 oz and 1.82 oz) found only in the south wall of the drift. Because these values are so high compared to the average gold values found elsewhere in the zone, it is the writer's opinion that they should have been cut or re-assayed. In view of this, Skeri's calculation is not regarded as a realistic assessment of the gold tenor of the zone sampled.

In 1980, the adit was re-opened, sampled, and mapped by Silver Princess Resources (Harris, 1981). As in the 1955 work, erratic high gold and silver values (up to 0.87 oz Au, 8.33 oz Ag) were reported from sampling of the OK and Mosquito drifts. Subsequent drilling by Silver Princess Resources of the up- and down-dip projections of the mineralized section was unable to define any zones containing consistent gold values of economic significance.

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# 6.5 Black Bear (L.1553) AR, OF '44

Hanson (1935) reports a quartz vein 10 feet wide mineralized with pyrite, galena, and sphalerite occurring in the Black Bear claim at an elevation of 1500 feet (see Figure 4). No assay data are given.

## 6.6 Olga (L.436) *HF*

In 1925, Phoenix Silver Mines reported finding a 4-foot wide vein in the central claim area (see Figure 4). Sampling records show total metal values of <sup>\$</sup>18.25 per ton in gold, silver, lead, and zinc. Another 4-foot wide vein was found at the south end of the claim, but no assay values were reported (Minister of Mines, BC, Annual Report 1925, p.A84). It was postulated that the veins found in the Olga claim might be strike extensions of the vein zones encountered in the Portland Canal tunnel on the Lucky Boy and Melba claims.

#### 6.7 Ben Bolt (L.775) and Jumbo (L.774)

The Ben Bolt and Jumbo claims cover a mineralized quartz fissure vein outcropping on the west side of Albany Creek at an elevation of 2500 feet (see Figure 4). The vein zone strikes N to N15°W, dips 25°-30°W, and is reported to be at least 200 feet thick (Skerl, 1955).

TPF ARASS.

Between 1910 and 1912, the vein was explored on five levels, and a total of 1600 feet of crosscuts (plus a winze) were completed. According to Skerl (*op.cit.*), only the lower 30 feet of the zone was actually exposed by development work. Apart from some prospecting work carried out in 1922, no other work was done on the property until 1955, when Pacific Cassiar carried out a detailed sampling program of the underground workings.

Mineralization comprises (in order of abundance) pyrite, sphalerite, galena, chalcopyrite, and freibergite (silver-rich lead sulfosalt) in layers parallel to the dip of the vein or in scattered disseminations.

Vein material consists of quartz with lesser calcite, cross-cutting brecciated silicified argillite along the eastern margin of the Portland Canal fissure zone. Xenoliths, ragged lenses and seams of argillite and graphite occur in the vein, and the footwall argillite has been intruded by an augite porphyry dyke parallel to the dip of the vein. The general relationship of the intrusive and mineralization is conjectural.

Results of channel sampling of the entire width of the mineralization exposed in the five levels (Skerl, *op.cit.*) are summarized in Table 3 below (see also Figure 10). Assay results are averages of all samples taken from each level. A total of 215 samples were taken.

Table 3 - Summary of 1955 Sampling Results, Ben Bolt Zor	ne
from Skerl, 1955)	

<u>Locat</u> 2475	<u>ion</u> N.Drift	<u>Length</u> 100'	<u>Width</u> 30'	<u>oz Au</u> 0.02	<u>oz Ag</u> 0.62	<u>% Pb</u> 0.36	<u>% Zn</u> 1.48	
	-X-Cut	70!	<u> </u>	0.01	0.57	0.05	0.52	
2668	N.Drift	110'	40'	0.02	4.24	2.35	2.65	
2668	S.Drift	100'	25'	0.012	1.03	0.34	0.13	
2704	X-Cut	10'	6'	0.07	2.65	2.00	1.25	
2704	.Drift	20'	4 '	0.008	1.12	0.23	1.53	
2814	X-Cut	40'	12'	0.004	4.68	0.40	0.03	

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	2475' LEVEL 20 4 30 4 30 30 4 30 4 1	
	40 - 1 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	2704 WINZE
	0 100 200 feet	2814' LEVEL
	SUMMARY OF SAMPLING RESULTS (Skerl. 1955)	
	WORKING LGTH (ft) WIDTH (ft) oz. Au oz. Au S. Pb % Zn	RAINEY MOUNTAIN RESOURCES INC.
	2475 N. DR.         100         30         0.02         0.62         0.36         1.48           2575 X-CUT         70         7         0.01         0.57         0.05         0.52	GLACIER CREEK CLAIMS STEWART AREA, B.C.
	2668 N. DR. 110 40 0.02 4.24 2.35 2.65	PLAN OF BEN BOLT WORKINGS
	2668 S. DR.100250.0121.030.340.132704 X-CUT1060.072.652.001.25	BEN BOLT CLAIM
	2704 DR. 20 4 0.008 1.12 0.23 1.53	J.A. Kelly, P.Eng. Huno 12, 1007 FIG.10
	2814 X-CUT 40 12 0.004 4.68 0.40 0.03	June 12, 1997
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## 6.8 Chicago (L.2317)

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The Ben Bolt vein extends north into this claim. <u>Rutherford</u> (1954) reported the vein was explored by a 90-foot long adit (see Figures 4 and 5), but only pyrite was found in the quartz and no samples were taken.

# 6.9 Alice (L.5252) AR

A 1930 prospecting program found a showing (on strike with the Ben Bolt zone?) consisting of sphalerite, pyrite, and galena (see Figure 4). No location or assays were reported. A second mineralized vein, located "east of the Portland Canal fissure zone" was traced 500 feet along strike (north-south?) but again, no assays were reported (Minister of Mines, BC, Annual Report 1930).

## 7.0 Conclusions

 Based on sampling results from previous work, none of the known vein zones appears to have an immediate potential for commercial ore development. Although vein structures are generally persistent along strike and down-dip, distribution of gold and silver values is quite erratic. Whereas a sizeable tonnage could conceivably be developed in zones such as the OK or Mosquito, maintaining an economic grade would not likely be possible given the sampling results obtained to date.

On the other hand, in deposits such as this where distribution of metal values is erratic or random, chip sampling or drill hole assays can often be misleading because of 'nugget effect'. In these situations, bulk sampling is usually the only realistic method to assess precious metal content with any reasonable degree of certainty.

- 2. Extensive sections of oxidized shear zone material (Portland Canal fissure zone) are exposed in the Portland Canal tunnel but only sulphide-bearing quartz veins were sampled in previous programs. Whether or not portions of the oxidized zone might contain a significant tonnage of low-grade gold mineralization amenable to bulk mining and heap leach extraction has never been determined.
- 3. Most if not all previous work on the claims has been directed toward proving up or re-assessing the commercial potential of known vein zones discovered in the early years. No systematic exploration programs directed toward discovering new veins or mineralized shear zones have ever been carried out. Except perhaps for the Sunbeam and Black Bear claims, there is ample 'room' in the other Glacier Creek claims for new discoveries.

## 8.0 Recommendations

### 8.1 Data Compilation

- A compilation map at a scale of 1:5000 should be prepared for the claims area in order to provide a working base map. The compilation should include topographic contours, available geological data, surface workings, portal locations, and access routes. An overlay of government aeromagnetic data would be helpful.
- 2. A claim ownership map for all claims in the area should be prepared. It is always an advantage to know who one would have to deal with should acquisition of adjoining claims become necessary.

#### 8.2 Underground Work

1. Bulk or panel sampling of the OK, Mosquito, and Ben Bolt zones should be carried out to further assess their commercial potential. Previous assay results from chip and channel sampling and/or drill core were not encouraging, but in the writer's opinion, these data may not have been conclusive, given the erratic nature of gold mineralization.

Although taking four or five 100-lb bulk samples would be preferable, the set-up costs for blasting/mucking/removal would be prohibitive. Panel sampling, therefore, is recommended for the following zones:

- (i) Mosquito / OK zones the last 50 feet of the Portland Canal tunnel (from the Mosquito/OK drifts to the east face); 10-foot long panels on both walls
- (ii) Ben Bolt zone 2668 Level, north drift; 2704 Level, cross-cut
- 2. Zones of sheared, oxidized, and/or silicified sediments/volcanics exposed in the Portland Canal tunnel (e.g., between 2270' and 2410' east of the portal) should be sampled to determine if there is a potential for low-grade leachable gold.

#### 8.3 Surface Work

1. Surface prospecting of the claims area for new mineralized zones is recommended prior to embarking on any major exploration. In the writer's experience, a qualified experienced prospector/geologist can usually turn up a lot of new showings in old camps.

In addition, previously reported occurrences on which no follow-up work was done should be opened up and sampled. This would include the upper section of the Ben Bolt vein and the mineralized occurrences on the Alice, Black Bear, and Olga claims.

This program should also include panning of creeks and streams, reconnaissance-style soil geochemical sampling, and VLF-EM traverses. The graphitic nature of the vein contacts suggests they should be reasonably good conductors. Contingent on the results of this work, recommendations (2) and (3), following, should be considered.

- 2. Geological mapping, with the emphasis on delineating the locations and limits of the Portland Canal fissure zone, is recommended to provide an adequate geological base for ancillary programs of geophysical and geochemical work.
- 3. Geophysical and geochemical surveys would likely be quite useful in locating and/or tracing mineralized zones in overburden-covered areas. Geophysical methods recommended are magnetometer, self-potential, VLF-EM, and possibly induced polarization. Soil geochemical sampling analyses should include Au, Ag, Cu, and Zn.

## 9.0 Cost Estimate

The following estimates are "ball park" figures only, since the writer has no cost experience in the Stewart area.

1.	Data compilation		\$ 3,500
2.	Detailed prospecting/underground s Geologist/prospector Helper vehicle rental accommodation food, fuel	sampling 30 days @ \$350/day 30 days @ \$200/day 30 days @ \$100/day 60 days @ \$200/day	10,500 6,000 3,000 12,000

travel expenses equipment and instrument rentals assays and analyses	500 samples @ \$20/each	1,500 1,500 10,000
report and map preparation consulting services	10 days @ \$500/day	3,000 _ <u>5,000</u>
consulting services		Sub-Total 56,000
contingencies		4,000
-		Sub-Total 60,000
administrative costs @ 10%		<u>6,000</u>
		GRAND TOTAL \$ <u>66,000</u>

Respectfully submitted,

Calgary, Alberta June 12, 1997

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James A. Kelly, P.Eng., P.Geol.

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travel expenses equipment and instrument rentals assays and analyses	500 samples @ \$20/each	1,500 1,500 10,000
report and map preparation consulting services	10 days @ \$500/day	3,000 <u>5,000</u>
contingencies		Sub-Total 56,000 _4,000
		Sub-Total 60,000
administrative costs @ 10%		6,000
		GRAND TOTAL 5 <u>66.000</u>
	PROFESSION	

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Calgary, Alberta June 12, 1997

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## **Certificate of Qualifications**

I, James A. Kelly, of the City of Calgary in the Province of Alberta, do hereby certify that:

- 1. I am a Consulting Geologist with offices at Suite 301, 1000 8<sup>th</sup> Avenue SW, Calgary, Alberta.
- 2. I received a B.Sc. in Geology from the University of Alberta in 1959, and an M.Sc. in Geology from the University of Montana in 1964.
- 3. I have been practising my profession continuously since 1961.
- 4. I am registered as a Professional Geologist with the Association of Professional Engineers, Geologists and Geophysicists of Alberta; and as a Professional Engineer with the Association of Professional Engineers of Ontario.
- 5. I am the author of the report entitled "Preliminary Report on the Glacier Creek Mineral Claims, Skeena Mining Division, British Columbia" dated June 12, 1997. The report is a compilation of pertinent data obtained from company files and government publications; I have not personally examined the property. Recommendations contained herein are based on conclusions drawn from these data.
- 6. Rainey Mountain Resources Inc. has my permission to use this report for any purpose required by any securities commission or stock exchange regulations.

DATED this 12<sup>th</sup> day of June, 1997

P.Eng., P.Geol. és A. Consulting Geologis

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DATED this 12th day of June, 1997

PROFESSION P.Geol. n

# **Roxboro Consultants**

\*301, 1000 - 8<sup>th</sup> Avenue SW Calgary, Alberta T2P 3M7 Tel. (403) 265-2777 Fax (403) 265-6410

June 12, 1997

## Rainey Mountain Resources Inc.

Attn: Mr. Grey Vavra \*2420, 645 - 7<sup>th</sup> Avenue SW Calgary, Alberta T2P 4G8

Dear Mr. Vavra:

- RE: "Summary Report on the Glacier Creek Mineral Claims, Stewart Area, Skeena Mining Division, British Columbia" dated June 12, 1997
- BY: J.A. Kelly, P.Eng., P.Geol. \*301, 1000 - 8<sup>th</sup> Avenue SW Calgary, Alberta T2P 3M7

This letter is to serve as consent for **Rainey Mountain Resources Inc.** to quote in whole or in part from the above-captioned report for the purposes of complying with Securities Commission or Stock Exchange regulations or requirements.



JAK/ejb Enclosures I, James A. Kelly, of the City of Calgary in the Province of Alberta, do hereby certify that:

- 1. I am a Consulting Geologist with offices at Suite 301, 1000 8th Avenue SW, Calgary, Alberta.
- 2. I received a B.Sc. in Geology from the University of Alberta in 1959, and an M.Sc. in Geology from the University of Montana in 1964.
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- 6. Rainey Mountain Resources Inc. has my permission to use this report for any purpose required by any securities commission or stock exchange regulations.

DATED this 12th day of June, 1997

James A. Kelly, M.Sc., P.Eng., P.Geol. Consulting Geologist

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#### Silver Princess Resources Ltd.

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(1981): Progress Report to Shareholders

----- (1988): Silver Princess Resources Ltd., Dunwell Mine Project - 1988

#### Roxboro Consultants Ltd. Suite 301, 1000-8th Avenue Southwest Calgary, Alberta, Canada T2P 3M7 Telephone (403) 265-2777 - Fax: (403) 265-6410

June 16, 1997

Greg Vavra Rainey Mountain Resources Inc. 2420, 645-7th Avenue SW Calgary, Alberta, T2P 4G8

Dear Greg:

Re: Report on the Glacier Creek Claims, Rainey Mountain Resources Inc.

Please find enclosed:

(1) An updated signed and stamped report on the above-captioned property.

(2) The original of the above.

(3) Two sets of signature pages should you need extra copies for the regulators.

(4) A letter of consent.

No charge for my time because it only took about thirty minutes to revise the original, however I did incur some charges for re-typing, map revisions and copying. I'll get around to sending you an invoice after I get back.

You will also notice the work program cost estimates have gone up significantly since 1990.

We did a rush job, so you might want to give the report one final check.

Yours truly,

Roxboro Consultants Ltd.

és A. Kelly, P 'Eng. sulting Geologist

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travel expenses		1,500
equipment and instrument rentals		1,500
assays and analyses	500 samples @ \$20/each	10,000
report and map preparation		- 3,000
consulting services	10 days @ \$500/day	5,000
		Sub-Total 56,000
contingencies		4.000
conting of the co		Sub-Total 60,000
administrative costs @ 10%		6,000
		GRAND TOTAL S66.000

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Respectfully Submitted HANNER Jame ieol. e <u>م</u> م OLINCE OF OUTP

Calgary, Alberta June 12, 1997

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