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ASSESSMENT REPORT

ON THE

CAMP MCKINNEY GOLD MINE

Rock Creek Area, British Columbia Greenwood Mining Division Latitude 49 07'N; Longitude 119 11'W NTS: 82E/3E

FOR



New Global Resources Ltd. 548 Beatty Street Vancouver, B.C. V6B 2L3



November 16, 1990

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CONTENTS

LIST OF I	LLUSTI	RATIO	ONS AND TABLES	ii
SUMMARY				iii
INTRODUCT	ION			1
LOCATION,	ACCES	SS AN	ND PHYSIOGRAPHY	2
CLAIM STA	TUS			2
HISTORY				3
GEOLOGY	(a) (b) (c) (d)	Regi Loca Stru Mine	ional Geology al Geology acture e Geology and Mineralization	6 7 8 9
CONCLUSIO	NS			11
RECOMMEND	ATIONS	5		12
ESTIMATED	COST	OF F	FUTURE WORK	13
REFERENCE	S			15
CERTIFICA	TE			18
Appendix Appendix	I I I	- 9 - 1 - 1	Statement of Costs (1990 Work) List of Personnel and dates worked and Field Producers	
Appendix	111	- F I F	Descriptions and Analytical Procedures of 1990 Work	
Appendix	IV	- [Drill Logs, 1989 Program Holes 3, 4, 8, 11, 12, 13	
Appendix	VI	- F F	Fault Dynamics at the McKinney Mine, Exploration Potential and Mineral Inventory	

Page

LIST OF ILLUSTRATIONS AND TABLES

following Page

FIGURE	1	Location Map	1
FIGURE	2	Topographic Map	2
FIGURE	3	Claim Map	3
FIGURE	4.	Surface Compilation Map	4
FIGURE	5	Composite Level Plan and Diamond Drill Hole Locations	6
FIGURE	6	Longitudinal Projection of Stopes	7
FIGURE	7	Chip Sample Assays, West Portion of Mine	8
FIGURE	8	Chip Sample Assays, East Portion of Mine	9
FIGURE	9	Chip Sample Assays, 5 Level 1990 Work	11
FIGURE	10	Longitudinal Section, Footwall Geology and 1990 Sample Results	12
FIGURE	11	Potential Reserve Blocks (Sanguetti 1986) Appendix	III
FIGURE	12	Potential Vein Tonnage Blocks (Benvenuto 1990) Appendix	III

TABLES

			Page
TABLE	1	List of Claims	3
TABLE	2	Gold/Silver Production 1894-1903	4

ii

SUMMARY

McKinney Mines Corp. has an option to acquire a 50% interest in the claims covering the Camp McKinney Gold Mine. The Camp McKinney property is comprised of eight Crown-granted mineral claims, eight reverted crown-grants and two modified grid claims totalling 45 units in the Greenwood Mining Division, located approximately 23 kilometres northeast of Osoyoos in south-central British Columbia. Camp McKinney was an important gold producer during the period 1894 to 1903 when more than 73,500 ounces of gold were produced at an average <u>recovered</u> grade of at least 0.69 oZ/ton gold from a single, faulted quartz vein. A further 13,644 ounces have been produced since that time, mainly during the 1940's and 1960's (2,436 tons at 0.67 oZ/ton gold; 11,292 tons at 1.06 oZ/ton gold), making a grand total of 87,207 ounces of gold produced between 1894 and 1962.

The vein (commonly referred to as the Cariboo or McKinney vein) is hosted by an assemblage of northwest trending, metamorphosed and altered andesitic volcanics, quartzite and limestone of the Permian/Triassic Anarchist Group which has been intruded by Cretaceous granodiorite of the Nelson Batholith to the south and west of the claims. Intense deformation and hydrothermal alteration, including silicification and carbonatization has occurred in the older rocks.

Several major exploration programs have occurred on the property, most notably: Bralco 1934, Pioneer 1939, W.E. McArthur 1957, Camp McKinney Gold Mines Limited 1962, McKinney Resources Inc. 1980, and Zuni Energy - Ark Energy - Gold Power 1984-1989. In 1990, McKinney Mines Corp. completed a program of dewatering, repairs to the shaft and access timbers, limited geological mapping on No. 5 level, underground channel sampling and logging 1989 diamond drillcore. Results of the 1990 sampling confirmed and extended the comprehensive underground sampling done by Pioneer in 1939 and Camp McKinney Gold Mines Limited in 1962.

There is a high probability for discovering additional gold reserves for the Camp McKinney Mine and other nearby veins. The highest potential for establishing reserves occurs in four, poorly explored areas close to the underground workings, as follows:

- 1. East of the major fault that bounds the mined out part of the vein.
- 2. The down-dip projection of the vein below Level No. 6 in the eastern part of the mine.
- 3. The down-dip projection below level No. 4 in the westcentral part of the mine.
- 4. The westerly strike projection of the vein beyond the westernmost workings, where the vein is relatively unfaulted and thickest, but of lower grade.

Other high-priority exploration targets include the Branch vein, which is located immediately northwest of the Cariboo vein, and the Sailor vein, which is located 200 m south of the Cariboo vein.

A Phase I program of diamond drilling in the eastern portion of the vein is recommended at a cost of \$126,500. Contingent on favourable Phase I results, a Phase II program of additional diamond drilling, geological mapping and backhoe trenching is recommended at a cost of \$250,000.

Respectfully submitted,

J.T. SHEARER, M.Sc., FGAC

INTRODUCTION

This report has been written at the request of Mr. R.C. Handfield, Ph.D, President of McKinney Mines Corp. It describes the history and geology of the Camp McKinney Gold Mine, reviews the potential for defining additional ore blocks and proposes a staged exploration program for 1991. McKinney Mines Corp. has an option to acquire a 50% interest in the claims covering the Camp McKinney Gold Mine.

The Camp McKinney Gold Mine (formerly called the Cariboo-Amelia Mine) was the first lode gold mine in British Columbia to pay substantial dividends when it began production in 1894. The mine produced a recorded total of over 110,536 tonnes (121,845 tons) of ore from one faulted quartz vein, with an average recovered grade of 0.72 oz Au/ton (24.54 g/tonne) between 1894 and A total of 51,393 kg of lead and 89,875 kg of zinc in the 1962. years between 1940 and 1962 were recovered. Initially, 97,034 tonnes were produced between 1894 and 1903. Further production of 2,210 tonnes between 1940 and 1946, and 10,244 tonnes between 1960 and 1962 added to the total. Ore production between 1960 and 1962 graded 1.06 oz Au/t and 1.26 oz Ag/t. The vein strikes east-west and dips vertically to steeply to the south. It had an average thickness of between 0.9 to 2.4 m, but locally was up to 4.6 m The vein has been traced 1.63 km on surface, and was mined thick. to a depth of 165 m over a length of 754 m. The mine closed in 1962 when it was found that the vein was truncated to the east by an east-dipping, post-ore fault, and a limited drill program could not locate the continuation of the vein.

The main (Cariboo/McKinney) vein cross-cuts all rock types, commonly at a high angle to bedding. It is off-set by numerous faults having a variety of orientations which include low-angle thrust faults with displacements of up to 120 m. When the vein cuts altered volcanics, it has sharp walls in contrast to a more irregular habit when enclosed by quartzite. The chloritic volcanics adjacent to the vein are often strongly altered to sericite-calcite-quartz and are locally schistose.

The surface plant consists of an 18 m wooden headframe, a 100ton ore bin and a 50-ton waste bin at the shaft head. Previous operators have constructed a new hoist building, dry and office building. Two major hydroelectric power lines pass through the property. Power previously was supplied from the West Kootenay Power and Light Co. main transmission line 600 m from the 1960 shaft.



LOCATION, ACCESS and PHYSIOGRAPHY

The Camp McKinney Gold Mine is located in south-central British Columbia about 23 km northeast of Osoyoos, Figure 1. The area is at 49 07' North latitude and 119 11' West longitude in N.T.S. mapsheet 82E/3E.

Access is by the all-weather Mount Baldy ski-development road which leaves Highway 3 at the west side of the Rock Creek Canyon highway bridge about 3 km east of the small community of Bridesville. Camp Mckinney is 11 km along this well maintained road which passes through the center of the claims, Figure 2.

The property is situated on a gently sloping bench along the southeastern flank of Mount Baldy. The elevations around the mine range from 1,275 m in the south to 1,375 m in the north. Rice Creek drains southerly through the claims at a point 300 m west of the 1960 shaft.

Thick overburden is common on the claims. The majority of outcrop occurs along creek gullies. Precipitation in the mine area averages about 35 cm with less then 1 meter of snow in the winter.

Recent selective logging has occurred on the claims and a few short skid roads have been constructed. However, some outcrops shown on old maps have been obscured by logging debris.

CLAIM STATUS

McKinney Mines Corp. has an option to acquire a 50% interest in the Camp McKinney Gold Mine Property from Pacific Gold Corporation (formerly Nexus Resource Corporation). Pacific Gold Corporation has acquired 100% ownership in the property from three individuals. Comment on the legal ramifications of the several option agreements are beyond the scope of this technical report.

The McKinney property consists of 8 crown granted mineral claims, 8 reverted crown grants and 2 Modified Grid System claims as shown in Table 1 and illustrated on Figures 3 and 4.



TABLE 1

LIST OF CLAIMS

Record #	Size or	Current
(Lot #)	# Units	Expiry Date
L 270	1 (8.36 ha)	Taxes payable annually
L 271	1 (7.08 ha)	based on area
L 272	1(7.59 ha)	11
L 273	1(6.27 ha)	11
L 274	1(8.07 ha)	11
L 613	1(5.52 ha)	11
L 856	1 (17.92 ha)	11
L 952	1 (2.8 ha)	11
1620(6)	1 (20.52 ha)	June 27, 1995
1621(6)	1 (17.00 ha)	June 27, 1994
1622(6)	1 (8.69 ha)	June 27, 1993
1623(6)	1 (13.57 ha)	June 27, 1993
1624(6)	1 (17.47 ha)	June 27, 1993
1662(7)	1 (6.19 ha)	July 03, 1994
1663(7)	1 (1.94 ha)	July 03, 1994
1664(7)	1 (17.27 ha)	July 03, 1994
5287 (9)	20	September 20, 1992*
5288 (9)	9	September 21, 1992*
	Record # (Lot #) L 270 L 271 L 272 L 273 L 274 L 613 L 856 L 952 1620(6) 1621(6) 1622(6) 1622(6) 1623(6) 1624(6) 1662(7) 1663(7) 1664(7) 5287(9) 5288(9)	Record # Size or (Lot #) # Units L 270 1 (8.36 ha) L 271 1 (7.08 ha) L 272 1 (7.59 ha) L 273 1 (6.27 ha) L 273 1 (6.27 ha) L 274 1 (8.07 ha) L 613 1 (5.52 ha) L 856 1 (17.92 ha) L 952 1 (2.8 ha) 1620(6) 1 (20.52 ha) 1621(6) 1 (17.00 ha) 1622(6) 1 (8.69 ha) 1623(6) 1 (13.57 ha) 1623(6) 1 (17.47 ha) 1662(7) 1 (6.19 ha) 1664(7) 1 (17.27 ha) 5287(9) 20 5288(9) 9

45 units total

*With assessment applied September 18, 1990

HISTORY

The Camp McKinney Gold Mine was discovered in 1886 by Alfred McKinney and Fred Rice. Nearby, placer gold had been recovered from lower Rock Creek since the late 1850's. In 1894, the Spokanebased Cariboo Mine and Milling Company erected a ten stamp mill and between May 1 and November 1, having worked 163 days, milled 3,100 tons of ore which produced gold to the value of \$34,750 and about 60 tons of concentrate (approx 2,674 ounces of gold for a recovered grade of 0.863 oz/ton).

Production between 1894 and 1903 is summarized in Table II.



TABLE II Gold/Silver Production 1894 - 1903 Cariboo - Amelia Mine (Camp McKinney Gold Mine)

	Tonnes	Gold	Silver	Conversion to
Year	Mined	Recovered	Recovered	recovered grade
1903	13.497	104.040 g	62.206 g	0.226 oz/ton
1902	14.165	201.827 g	66,156 g	0.416 oz/ton
1901	15,297	205,560 g	54,057 g	0.392 oz/ton
1900	13,824	239,929 q	213,304 q	0.506 oz/ton
1899	11,494	339,959 a	84,289 q	0.863 oz/ton
1898	6,831	366,176 g	,	1.563 oz/ton
1897 Minfil	e (19,051) ?	(62,206) q ?	? ? in error	(0.095)oz/ton ?
1897 estima	te 6,000 est.	250,000 g	estimate	1.215 oz/ton
1896	5,857	271,934 g		1.354 oz/ton
1895	7,257	225,497 g		0.906 oz/ton
1894	2,812	83,138 g		0.863 oz/ton
Totals				
Minfile	(110,085) 2	,100,263 g		(0.56 oz/ton)
F STTMATE •	97 034 2	288 057 a	Fetimato	23 58 $\alpha/tonno$
TOITUMIN.	106.961 tons	(73.562.7)		(0.69 oz/ton)
			· - /	(· · · · · · · · · · · · · · · · · · ·

(from Minfile, Geological Survey Branch) (Estimate based on history and Lovitt 1939.)

An inspection of Table II, shows that the tonnage reportedly mined in 1897 is very different from the overall trend of gold production in both 1896 and 1898. Since the milling capacity was not increased to twenty stamps until October 1, 1898, the reported tonnage of 19,051 tonnes (21,000 tons) for 1897 is clearly in error. The 1897 Minister of Mines Report supports this conclusion by being inconsistent:

> "over 21,000 tons to date (June) have been mined and milled or from 500 to 550 tons per month."... dividends to the amount of \$188,965 have been declared, \$32,000 of which were for 1897."

A probable explanation is that the "21,000 ton to date" refers to the total production since 1894. Lovitt (1939), reporting on the early history of the property, records that at 200 feet the vein was lost and since all the money had been paid out in dividends there were no financial reserves. Jas. B. McAuley, the main shareholder, secured options on his associates' stock and raised



sufficient capital to start working again. In a few weeks the vein was relocated. Later, McAuley became associated with a group in Toronto and the mining and milling capacity was increased in 1898.

Bralco Development and Investment Company acquired the property in 1934 and drilled five deep diamond drill holes to explore the westward extension of the vein. Although no information is available, apparently the results were discouraging.

In the late 1930's the property was held under option by Pioneer Gold Mines Ltd. At least 10 holes were diamond drilled from surface. Two deep holes (#1 - 915 feet; #5 - 797 feet) were drilled to test for the western extension of the vein at depth, south of the main shaft. Seven holes were drilled on the eastern extension of the vein, of which, two holes intersected a zone with values exceeding 2 oz/ton gold at a depth of 75 feet. These intersections were subsequently explored by the Wiarton Shaft, but the vein was faulted off at about 100 feet. Extensive underground sampling and some underground drilling were carried out on the main vein (Lovitt 1939).

Between 1940 and 1946, 2,436 tons were produced by a lessee (2,210 tonnes yielding 51,103 g of gold). The grade of the ore was 0.67 oz/ton gold and 0.93 oz/ton silver. This material was taken from the stope remnants and near surface pillars in the central section of the mine (Minister of Mines 1940 to 1946).

In 1957, Mr. W.E. McArthur discovered the southward-displaced eastern segment of the vein by diamond drilling. H & W Mining Co. Ltd. raised the new shaft from the No. 4 level to surface in 1958 and extended level 5 for 250 feet to the southeast and drifted 50 feet on the vein. The property was placed in production in July 1960 by Camp McKinney Gold Mines Ltd. Ore was shipped directly to the smelter in Trail.

This newly discovered segment was faulted on the east. Α cutoff grade of 0.5 oz/ton gold was followed with the result that vein material of this grade was left both above and below No. 5 The underground workings were allowed to flood in 1962. level. Between 1960 and 1962, 11,292 short tons of ore were produced by Camp McKinney Gold Mine Ltd. (10,244 tonnes yielding 373,267 g of The ore graded 1.06 oz/ton gold and 1.26 oz/ton silver qold). (Sanguinetti 1984). At least 8 surface diamond drill holes (2600 were completed in 1962 to explore for further vein feet) extensions. No intersections were reported.

From 1983 to 1986 the property was under option to Zuni Energy Corp. In 1984 they conducted a program of geological and geophysical surveys, backhoe trenching and rock sampling (Sanguinetti 1984).

5

Ark Energy Ltd., in 1987, drilled a series of eight surface holes from 14.6 to 135 m long, totalling 600 m, in the area of the eastern section of the mine. However, the drill program was not supervised by a geologist (Benvenuto 1990). Four of the eight holes were drilled between 61 and 183 m east of the 1960 shaft to locate the vein above levels No. 4 and 5. The holes 61 m east of the 1960 shaft appear to be too short to intersect the vein. One of the two holes 183 m east of the shaft was drilled through a fault gap and the second hole appears to be a few meters short of the vein (Benvenuto 1990).

A fifth hole was drilled between the 1960 shaft and the Wiarton shaft and intersected the mine vein at a vertical depth of 24.4 m. the vein was 0.38 m wide and assayed 0.01 oz/ton gold. Three short holes (14.6 to 22.9 m) were drilled 15 to 30.5 m west of the 1960 shaft. Two of these intersected the mine vein which assayed only 0.04 oz/ton gold over widths of 0.4 and 0.53 m

Ark Energy also dewatered the mine in 1987 and only collected nine bulk samples of the vein in levels No. 5 and No. 6 of the eastern section of the mine. The assays for these varied from 0.03 to 1.52 oz/ton gold. The locations and widths of the samples are presently unknown.

In 1989, Ark Energy optioned the mine property to Gold Power Resources Corp. and Lemming Resources Ltd. After excavating several trenches, a total of 872 m of diamond drilling in 12 surface holes was completed in June 1989. Apart from a news release, no detailed information of the results of drilling is available. It is known from examining the drill core and collar sites in 1990 that holes were 29 to 138 m long, and tested about 213 m of the strike projection of the mine vein in the area between the 1960 shaft and the east Wiarton shaft. This is the same general area drilled by Ark Energy. The mine vein was intersected in the two drill holes located 70 and 128 m east of the 1960 shaft (89-11 and 12). The vein assayed 0.18 oz/ton gold over 0.61 m in 89-12 and 0.69 oz/ton gold over 0.34 m in 89-11 at vertical depths of about 33.5 and 41.1 m, respectively. The remaining holes appeared to have missed the mine vein because they passed through the 85 m wide gap between two segments of the vein that result from offset along fault #11.

GEOLOGY

(a) Regional Geology

Regional geological mapping covering the Camp Mckinney area was published by the B.C. Department of Mines and the Geological Survey of Canada during the 1930's, 1940 and the early 1950's (M.S. Hedley, W.E. Cockfield and H.W. Little). The oldest rocks of the area are Permian and/or Triassic Anarchist Group metamorphosed

6



sediments and volcanics. The group is mainly sedimentary and consists of altered quartzite, greywacke, limestone and locally micaceous quartzite and schist. The minor volcanics are described as mainly altered andesitic and basaltic flows.

Granite and granodiorite of the Cretaceous Nelson Plutonic rocks have intruded the Anarchist Group to the west and south of Camp McKinney as small stocks and plugs. Along the contacts of these intrusions the older rocks have been deformed and hydrothermally altered. Younger dykes of felsic and mafic composition may have been associated with faults related to these granitic intrusions.

Quartz veining and related mineralization (gold, silver, galena, sphalerite) occurred late in the sequence of events, probably in late Tertiary times.

Widespread glacial deposits of unconsolidated sand and gravel deposited over the entire area during Pleistocene time. Outcrop is limited to about 20% of the surface area.

A major structural feature in the Camp McKinney region, is a major northeast-southwest trending fault which has been mapped along upper Conkle Creek, through Conkle Lake and Jolly Creek (Little, H.W., 1961). This structure lies 5 km to the northeast of Camp McKinney.

(b) Local Geology

Cursory geological mapping was conducted by Sanguinetti (1984) over the central part of Camp McKinney in July and August, of 1984 on behalf of Zuni Energy Corp. Previously published mapping by M.S. Hedley of the B.C. Department of Mines (Bulletin No. 6, 1940) examined in detail the geology and mineralization of the Camp McKinney area. Surface outcrops were mapped by planetable and underground workings of the Cariboo-Amelia were examined and compiled with the aid of company surveys (Hedley, 1940). Much of the older surface workings and outcrop has since become overgrown. Recently, limited trenching has exposed some outcrop in the mine area.

The northeastern part of the McKinney property, including the mine claims, is underlain by a complexly interlayered succession of poorly understood, metasedimentary rocks, meta-basaltic flows, tuffs and minor marble of the Anarchist Group. The rocks appear to be in the upper greenschist to amphibolite metamorphic facies. The age and correlation of this group is problematic, in part because of the relatively high degree of metamorphism and general lack of fossils. The Anarchist Group has been assigned a variety of ages including Late Palaeozoic, Carboniferous or older, and possibly Permian and/or Triassic, by various workers (Benvenuto



1990). The Group appears to correlate with the Triassic and Permian Kobau Formation in Washington State, 11 km south of the property (Rinehart and Fox, 1972) and in the area just west of Osoyoos.

The metasedimentary rocks on the property include successions of interbedded, thin to thick bedded quartzite and thin bedded to laminated, colour banded, interbedded quartzite and meta-argillite (Benvenuto, 1989).

Massive meta-basaltic or andesitic intervals are relatively rare within the succession (Hedley, 1940). In thin section the volcanic rocks consist of plagioclase, amphibole, biotite, chlorite, carbonate, quartz and pyrrhotite (Harris, 1984).

Marble forms a prominent, 9 m thick, unit that strikes northwesterly through the Amelia claim. The unit is underlain to the southwest by a unit of metasedimentary rocks with thin bands of marble (Hedley, 1940). The same marble unit appears to have been intersected underground in a 7.6 m wide stope just above level No.2 in the central-east section of the McKinney mine at about 370'E. The marble is altered where cut by the McKinney vein. A 1939 chip sample in this slope indicates the "vein" assays up to 0.47 oz/ton gold over a width of 2.54 m (Lovitt 1939).

(c) Structure

The complexly faulted and folded metasedimentary and volcanic rocks of the Anarchist Group on the McKinney property are predominantly northwesterly striking and steeply to moderately northeasterly dipping. Hedley (1940) has outlined from mapping of the surface exposures a steeply northwest-plugging recumbent synform with moderately to steeply, northeast-dipping limbs and an axis that trends northwesterly through the Minnie-Ha-Ha and Maple Leaf claims. The east-west striking, Sailor vein cuts across both limbs of the synform.

Relatively little is known about the complex system of the faults that clearly played an important role during mining of the McKinney vein. Apart from the location of the offset segments of the McKinney vein, the distribution of distinctive rock units and dykes within the mines has not been documented in detail. In consequence, there are few constraints on determining both the strike-slip and dip-slip components of displacement on the faults offsetting the main vein. Gathering more lithological and structural information is critical for determining the offsets on the main faults. A more detailed discussion of the fault distribution is contained in Appendix III.

8



(d) Mine Geology and Mineralization

The complexly faulted McKinney (Cariboo) vein strikes eastwest and dips vertically to locally steeply southwards. The total strike length of the vein mined is 754 m (Figures 5 and 6). The vein was open-stoped between the surface and four levels to a depth of 107 m in the west, and between up to six levels to a depth of 171 m to the east. The vein was traced 1,630 m on surface, across the entire width of the mine claims, with a series of trenches, pits and shallow shafts (Sanguinetti 1984). Beyond the limits of the mine claims, the vein appears to have been traced at least another 550 m to the west, and 230 m to the east, for a total minimum strike length of 2.4 km (Figure 4).

The McKinney vein can be classified as a mesothermal fissure deposit on the basis of its considerable strike length, the character of the quartz and sulfides in the vein, and its similarity to the mesothermal veins in the Fairview gold-silver mine camp, 30 km to the west (Meyers and Taylor, 1989). The Fairview camp produced a total of 521,400 tons of ore grading 0.12 oz/ton gold and 1.42 oz/ton of silver. Mesothermal veins are commonly regarded as forming from fluids contemporaneous with ductile deformation and syntectonic plutonism.

Gold has been produced to great depths from mesothermal veins in Archean rocks in central Canada and in Mesozoic rocks at the Bralorne-Pioneer mines in southwestern British Columbia. The Bralorne mines produced over 4 million oz of gold from about 8 million tons of ore, between 1932 and 1971 (Harrop and Sinclair, 1986). Production was mainly from six of the 30 productive veins cutting upper Cretaceous to Lower Triassic volcanic rocks. The veins were mined from surface to a vertical depth of 1,875 m (6,150 ft), with little change in vein mineralogy or gold values.

The mined portions of the McKinney vein had average thickness, Hedley (1940) and Benvenuto (1990) as follows:

0.9 to 1.2 m in the upper parts of the central sections of the mine, 0.6 to 1.5 m in the lower central sections, 1.5-2.4 m, but locally 4.6 m in the western sections, and 0.4 to 0.9 m in the eastern section.

The chip samples of the vein in stopes, taken by Pioneer Gold Mine Ltd. in 1939, indicate the width of the vein is quite variable over short distances along the vein (Figures 7 and 8). Chip sample widths commonly varied from 0.31 to 0.66 m, but very locally up to 1.8 or 3.5 m. In the 1960 shaft, just below Level No. 4, widths varied from 0.84 m to 0.25 m over 6.7 m of dip length of the vein. Samples collected in 1990 returned values ranging from 0.135 oz/ton to 0.520 oz/ton, which are broadly comparable to the 1939 sampling.



The vein is composed of white quartz with pyrite, lesser sphalerite, galena, chalcopyrite, and rare tetrahedrite and pyrrhotite. Visible native gold is locally prominent. Higher grades of gold occurred where the vein contained narrow bands of sulfides (up to 3-5%) or larger amounts of sphalerite and galena (Benvenuto 1990). Locally the quartz appears bluish and chalcedonic, and contains free gold (Hedley, 1940).

The results of chip-sampling the vein by Pioneer in 1939 (Figures 7 and 8), suggests that gold content in the vein varies considerably over short distances. A series of ten samples along 19.6 m of the stope back above Level No. 4 at 630 to 690'E assayed: 1.54, 0.27, 2.69, 1.52, 1.70, 5.24, 0.09, 1.24, 2.45, and 0.27 oz/ton gold (Lovitt 1939).

The vein is hosted, commonly at a high angle to bedding, by various rock types of the interlayered metasedimentary and metavolcanic rocks of the Anarchist Group. Where the vein cuts more competent metabasalt, on the west end of Level No. 3, it is more regular and has sharp, probably sheared walls. The volcanics adjacent to the vein are strongly sericite-carbonate-(quartz) altered and locally schistose (Hedley 1940). Where it cuts quartzite, the vein is more irregular with offshoots into wallrock. Where the vein cuts relatively incompetent, thinly interbedded meta-argillites and quartzite, it tends to be narrow and erratic (Hedley, 1940).

The McKinney vein is cut by numerous faults having a variety of orientations and ages, and with offsets of up to 120 meters. The large number of exploratory cross-cuts in the main part of the mine indicate the high degree of faulting that offsets the vein. Hedley (1940) has labelled all the major faults from 1 through 12.

A discussion of the vein potential is contained in Appendix III.

CONCLUSIONS

The substantial strike length (2.4 km) and the mesothermal character of the McKinney vein indicate that there is a high probability for outlining substantial new ore reserves similar to the average grade of 0.72 oz/ton gold of past production.

The ore reserve potential of the vein is in four largely unexplored, fault-bounded areas close to the underground mine workings. These are below the deepest mine levels of 107 to 171 m and east and west of the 754 m of the mine's lateral extent.

Previous exploration drilling totalling 2,610 m in the 1930's and 1980's, except for the 1957 program, failed to locate continuations of the vein because the nature of displacements along the complex series of faults having several different ages was not resolved. Most holes were drilled through fault-gaps in the vein, or were too short. The majority of this drilling focused on a small, shallow segment of the vein immediately east of the 1960 shaft. Apart from three holes drilled in the 1930's (results unknown), the potential of the mine vein is virtually untested below the deepest mine levels. The western, much thicker but lower grade portion of the vein, is untested at depth for higher grade shoots that may make this part of the vein economic.

A working model for the structural geometry of the faulted mine vein has been presented (Benvenuto, 1990). Initial, underground observations and sampling in 1990 have confirmed the high-grade gold content of portions of the vein, as previously reported by detail sampling in 1939 and 1960-1962 (Lovitt 1939 and Hill and Starck 1959-1962).

The mine is amenable to relatively low-cost, rapid development because of year-round road access, availability of hydro power and a nearby stable work force. The 1960 shaft and connecting mine levels have now been upgraded to production condition.

The relatively unexplored, gold-bearing <u>Sailor vein</u> is a secondary, but important exploration target, 280 m south of and parallel to the McKinney vein. It has 570 m of known strike-length potential within the property. The Branch vein has been overlooked in the past, but its proximity to the existing workings and high-grade grab samples taken in 1990 (up to 2.121 oz/ton Au) make it a favourable target.



RECOMMENDATIONS

A two-phase program of surface diamond drilling, geological mapping, backhoe trenching and data compilation is recommended to define further gold reserves on the Camp McKinney Gold Mine. This recommended program is as follows:

Phase I

Complete relogging of 1987 and 1989 drillcore, correlate results with existing mapping, surface diamond drilling of four holes, totalling 976 m (3,200 ft.).

Phase II

Contingent on favourable structural interpretations and encouraging drill results in Phase I, additional surface diamond drilling of 1,829 m (6,000 ft.) to extend the Main zone eastward and investigate the Sailor and Branch veins by drilling and backhoe trenching.

The cost breakdown of Phase I of \$126,500 and Phase II of \$250,000 are outlined on pages 19 and 20.

submitted, Respectfr SHEARER, FGAC J.7 November 16, 1990



Camp McKinney Gold Mine

ESTIMATED COST OF FUTURE WORK

Phase 1	Complete relogging of 1989 & 1987 drillcore, corresults with existing mapping , Surface diamond of 4 holes totalling 976 m (3200 ft)	orrelate drilling
	Geological control, mapping and supervision Project Geologist 34 days @ \$300 per day Assistant/core splitter 28 days @ \$200 per day	10,200 5,600
Transport	ation 34 days @ \$30 per day Gas & Insurance	1,020 668
Food & Ac	commodations (camp)	2,000
Contract	diamond drilling 3200 feet @ \$24 (all in price)	76 , 800
Analytica	l 150 samples @ \$14.75	2,212
Supplies		1,500
Report pr reproduct	eparation, drafting, word processing ion	5,000
	subtotal	105,000
CONTINGEN	CY - approximately 10%	10,000
Managemen 10% (clau	t fees to Pacific Gold Corp. se 10 of the Option agreement) of \$115,000	11,500

Grand Total

<u>\$126,500</u>

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Phase II Contingent on favourable results from Phase drilling to extend the Main zone eastward and the Sailor vein and Branch vein.	I; Diamond investigate
Geological control, mapping and supervision Project Geologist, 75 days @ \$300 per day Assistant/core splitter, 65 days @ \$200 per day	22,500.00 13,000.00
Transportation 75 days @ \$30 per day Gas and insurance	2,250.00 1,693.00
Food and Accommodations (camp)	5,000.00
Contract Diamond Drilling, 6,000 ft. @ \$24 (all in price)	144,000.00
Backhoe Trenching	5,000.00
Analytical 450 samples @ \$14.75	7,375.00
Supplies	4,000.00
Report Preparation, Drafting, Word Processing, Reproduction	8,000.00
Subtotal	212,818.00
Contingency, approximately 10%	21,000.00
Management Fees to Pacific Gold Corp. 10% (clause 10 of the option agreement) of \$89,818.50 5% (third party charges in excess of \$100,000) of \$144,000	8,982.00 7,200.00

250,000.00

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STATEMENT OF QUALIFICATIONS

I, JOHAN T. SHEARER, of 1498 Columbia Avenue, in the City of Port Coquitlam in the Province of British Columbia, do hereby certify that:

- I am a graduate of the University of British Columbia, B.Sc.(1973) in Honours Geology and the University of London, Imperial College (M.Sc. 1977).
- 2) I have over 20 years of experience in exploration for base and precious metals in the Cordillera of Western North America with such companies as McIntyre Mines Ltd., J.C. Stephen Explorations Ltd., Carolin Mines Ltd. and TRM Engineering Ltd.
- 3) I am a fellow in good standing of the Geological Association of Canada (Fellow No.F439).
- 4) I am an independent consulting geologist employed since December 1986 by New Global Resources Ltd. at 548 Beatty Street, Vancouver, British Columbia.
- 5) I am the author of a report entitled "Summary Report and Exploration Proposal on the Camp McKinney Gold Mine, Rock Creek Area, British Columbia", dated November 15, 1990.
- 6) I have visited the property from August 31 September 3, 1990 and carried out geological mapping, drillcore logging and sample collection. I am familiar with the regional geology and geology of nearby properties. I have become familiar with the previous work conducted on the McKinney property by examining in detail the available reports, plans and sections, and have discussed previous work with persons knowledgeable of the area.
- 7) I do not own or expect to receive any interest (direct, indirect or contingent) in the property described herein nor in securities of McKinney Mines Corp. or Pacific Gold Corp. in respect to services rendered in preparation of this report.
- 8) I consent to authorize the use of the attached report and my name in the company's Statement of Material Facts or other public document.

Dated at Vancouver, British Columbia this 16th day of November, 1990

Respectful ted; sub Ĵ.Т. Shearer [M.Sc., FGAC

Appendix I

STATEMENT OF COSTS

1990 WORK

at

THE McKINNEY MINE

Appendix I STATEMENT OF COSTS - McKINNEY MINES 1990 -Wage and Benefits Professional Staff: R.C. Handfield, P.h. D. August 1 - September 9, 1990 E. Sobering August 1 - September 9, 1990 G. Sobering September 2 - 9, 1990 subtotal \$ 12,362.50 Contractors/temporary work: W. Huhtala August 1 - September 9, 1990 I. Young August 1 - September 9, 1990 24,565.50 subtotal \$ Wages & Benefits = \$ 36,928.00 Transportation 4X4 Truck Whiterock Diamond Drilling & Meals 2,200.00 Gas Julv 1 - September 9, 1990 443.54 Headframe timber 600.00 Materials tugger hoist 1,500.00 wire ropes, Sheave block 950.00 Manway timber 900.00 Camp Supplies, Materials, Equipment 11.106.00 Dewatering (electric generator rental) 6,107.81 Pump Rental (Kastco Industries) 3,300.82 Fuel for generator 4,677.61 Ventilation 1.000.00 Analytical 1,672.72 Telephone 247.17 Consulting (New Global Resources Ltd.) 4,090.99 Report Preparation 500.00 subtotal \$ 39,296.66 76,296.66 GRAND TOTAL \$

Note: in statement of Exploration & Development a total of \$ 36,500 was applied for assessment credit. Appendix II

LIST OF PERSONNEL

Dates worked, and Field Procedures

1990 Program

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Appendix II LIST OF PERSONNEL AND DATES WORKED

1990 Work Program McKINNEY MINE

J.T. Shearer, M.Sc.,	Geologist	1498 Columbia Ave. Port Coquitlam	Sept. 1-3/90
E.A. Sobering, P.Eng.	Mining Engineer	Surrey, B.C.	Aug 1 - Sept 9/90
G. Sobering	Sampler	Surrey, B.C.	Sept 2 - 9/90
W. Huttal	Supervisor	Whiterock, B.C.	Aug 1 - Sept 9/90
R.C. Hanfield, P.h D	Geologist	North Vancouver	Aug 1 - Sept 9/90
I. Young	Helper	General Delivery	Aug 1 - Sept 9/90
J. Stephenson, P.h D.	Geologist	Toronto, Ont.	Aug 1 - Sept 9/90

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Appendix III Assay Certificates Sample Descriptions & Analytical Procedures 1990 Work

Appendix III FIELD PROCEDURES

The program conducted in 1990 consists mostly of physical work as repairs to the headframe timbers, shaft rehabilitation and dewatering mine workings.

The shaft timber: are set at 7 foot centers and are in good condition below the concrete shaft collar. The shafts consist of two compartments; a 5 by 5 foot hoisting compartment and a 4 by 5 foot manway compartment, equipped with a continuous slide to a depth of 600 feet.

After an examination of the site by the Resident Engineer/Mines Inspector the following items were completed at his request:

- fencing-off old gloryholes of the manway stopes to surface.
- (2) adding timbers to one side of the manway to close it off from the hoisting compartment.

This rehabilitation was necessary to provide access to the 5th level for chip sampling, geological mapping and oriented sample petrology (for Kinematic indicators). MEMO

TO: J. SHEARER

FROM: R. HANDFIELD

SUBJECT: UNDERGROUND SAMPLES FROM MCKINNEY MINE

These samples were taken under the supervision of G. Sobering, P.Eng., mining engineer. Sample locations are shown on the attached long and plan sections.

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Sample #, width and distance from the shaft are shown below:

Sample # Width Location

5-1	1.2 ft.	15 ft. from shaft
5-2	2.1 ft.	15 ft. from shaft
5-3	1.4	15 ft. from shaft
5-4	1.7	65 ft. from shaft
5-5	2.0	60 ft. from shaft
5-6	3.4	280 ft. from shaft
5-7	3.3	285 ft. from shaft
5-8	1.8	295 ft. from shaft
5-9	1.3	vein exposed at corner (see map)
5-10	1.4	same
5-11	1.6	same
5-12	1.2	corner + 90 ft.
5-13	0.8	same
5-14	0.8	same
5-15	0.8	corner + 145 ft.
5-16	1.1	corner + 210 ft.
5-17		same
5-18		same
5-19	1.2	corner + 245 ft.
5-20	1.0	corner + 248 ft.
5-21	1.0	corner + 365 ft. (stope)
5-22	1.0	same
5-23	3.3	corner + 390 ft.
5-24	1.0	take down from back stope (upper)
5-25	1.0	same (down)
5-26	0.8	same (lowest)
5-27	1.1	same + 12 ft.
5-28	1.1	<pre>same + 30 ft. (west edge of stope)</pre>
5-29	0.85	same + 70 ft.
5-30	2.0	4th level floor (9 ft.)
5-31	1.3	same
5-32	3.2	same (24 ft.)
5-33	2.6	same
5-34	1.7	4th level -33 ft.

October 14, 1990

McKinney Mapping #5 Level Sept. 8, 1990 J. Gordon Sobering

Refer to Figures 9 and 10 for locations of samples.

Samples 5-1, 5-2 (0.184 oz/ton Au; 0.676 oz/ton Au):

Samples taken from back approximately 10 and 12 ft. from floor; vein pinches and swells, in some cases due to crossfractures; width from 1.0 to 2.2 ft.; sulfide mineralization localized in fracture filling as vein pinches.

Sample 5-3 (0.708 oz/ton Au):

Just before (10 ft.) slash on south side of drift has 1 ft. vein on back striking 30 NE of drift; copper-coloured chalcopyrite present; fractured perpendicular to vein common; vein appears offset to south and below at slash.

<u>Sample 5-4 (0.985 oz/ton Au):</u>

Same as 5 below, but appears to be dipping up to drift back.

Sample 5-5 (1.260 oz/ton Au):

Chalcopyrite as veinlets and blobs of sphalerite, appears to be a block of quartz faulted at floor level.

Back is barren beyond here for 200 ft.

Samples 5-6, 5-7 (0.010 oz/ton Au; 0.004 oz/ton Au):

10 ft. before drift breaks in two; vein at sample 5-6 on left side of wall, not overhead; vein strikes into wall dipping back to shaft; pinches and swells erratically and is faulted off before reaching back; no vein on right wall, just a stringer zone.

<u>Sample 5-8 (<0.003 oz./ton Au):</u>

Block of quartz in back bounded by two strong structures in "left" wall and one overhead; unmineralized; evidence of vein in left wall goes for 20 ft. past sample 5-8 until truncated by fault going from left to right wall (30-degree strike, dipping steeply to the right).

Samples 5-9, 5-10, 5-11 (0.260 oz/ton, 0.056 oz/ton, 0.094 oz/ton Au):

Location is where abrupt left turn comes in, in stub to right; vein is widest at floor (>2 ft.) and pinches out 9 ft. up due to strong structure; some sulfide veinlets; sample 9 at top and 11 at bottom.

10 ft. wide vein/stockwork on right side of wall from floor up to 40 ft. above in stope; disseminated subhedral chalcopyrite common; vein strikes into wall and dips back to location of 9, 10, 11.

Samples 5-12, 5-13, 5-14 (0.072 oz/ton, 2.377 oz/ton, 1.025 oz/ton Au):

Open stope in floor; vein varies from 1 to 1.2 ft. wide; vertical dip; strike parallel to drift; sulfides in veinlets to 5%; 10 ft. beyond this truncated in back; faulted off.

<u>Sample 5-15 (0.440 oz/ton Au):</u>

Vein/stockwork, 2-3 ft. wide; pinches and swells; locally massive sulfides in blotches; stopes above; vein is 20 ft. from second mill hole and ladders to high grade stope.

Samples 5-16, 5-17, 5-18 (1.136 oz/ton, 0.294 oz/ton, 0.292 oz/ton Au):

Vein in back about 12 ft. from floor; fairly abundant chalcopyrite veinlets; blocks of volcanics may truncate vein but not offset it; #5 mill hole 15 ft. past this on left; vein reappears here.

<u>Samples 5-19, 5-20 (0.250 oz/ton, 0.074 oz/ton Au):</u>

Vein in back of drift; some sulfides in veinlets; up to 2.5 ft. wide; offset 1 ft. 25 ft. from #5 mill hole; vein cuts across drift gradually.

Samples 5-21, 5-22 (1.360 oz/ton, 0.090 oz/ton Au):

Vein in overbreak above drive (20 ft.); vertical structure, some sulfides.

Sample 5-23 (0.018 oz/ton Au):

Vein located 10 ft. before stope breakthrough on floor (second last one before end of drift); vein up to 3.5 ft. wide; almost no sulfides; vein finely fractured.

Samples 5-24 to 5-29 (1.884 oz/ton, 0.244 oz/ton, 0.194 oz/ton, 0.940 oz/ton, 2.674 oz/ton, 2.815 oz/ton Au):

Vein thin; in right wall; fairly common sulfide bands; not fractured and difficult to chip sample.

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Analytical Chemists * Geochemists * Registered Assayers 212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 PACIFIC GOLD CORPORATION

3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9

Project : CAMP MCKINNEY Comments: ATTN: BOB HANDFIELD Page Normoer: 1 Total Pages: 1 Invoice Date: 18-SEP-90 Invoice No.: I-9022665 P.O. Number:

						CERTIFIC	ATE OF A	NALYSIS	A90)22665	
SAMPLE DESCRIPTION	PREP CODE	Au FA oz/T	Ag FA oz/T	Cu %	Pb %	Zn X				_	
90-5-01 90-5-02 90-5-03 90-5-04 90-5-05	207 294 207 294 207 294 207 294 207 294 207 294	0.184 0.676 0.708 0.985 1.260	0.44 1.42 1.08 1.02 1.16	0.10 0.35 0.20 0.08 0.06	<pre>< 0.01 0.34 0.25 1.53 0.74</pre>	0.23 0.29 0.11 0.41 0.91					
90-5-06 90-5-07 90-5-08 90-5-09 90-5-10	207 294 207 294 207 294 207 294 207 294 207 294	0.010 0.004 < 0.003 0.260 0.056	0.04 0.02 0.03 0.15 0.15	< 0.01 < 0.01 0.01 0.01 0.02	<pre>< 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01 < 0.01</pre>	< 0.01 < 0.01 < 0.01 0.04 0.01					
90-5-11 90-5-12 90-5-13 90-5-14 90-5-15	207 294 207 294 207 294 207 294 207 294 207 294	0.094 0.072 2.377 1.025 0.440	0.22 2.01 1.75 1.60 0.74	0.02 0.01 0.01 0.08 0.03	< 0.01 < 0.01 0.82 0.93 0.06	0.05 < 0.01 0.63 0.60 0.16					
90-5-16 90-5-17 90-5-18 90-5-19 90-5-20	207 294 207 294 207 294 207 294 207 294 207 294	1.136 0.294 0.292 0.250 0.074	0.90 0.39 0.45 0.18 0.10	0.05 0.02 0.06 < 0.01 0.01	0.23 0.01 0.06 < 0.01 < 0.01	0.51 0.47 0.14 0.01 0.01					
90-5-21 90-5-22 90-5-23 90-5-24 90-5-25	207 294 207 294 207 294 207 294 207 294 207 294	1.360 0.090 0.018 1.884 0.244	0.73 0.08 0.06 2.33 0.89	< 0.01 < 0.01 < 0.01 0.09 0.10	< 0.01 < 0.01 < 0.01 1.13 0.34	0.14 0.01 0.07 0.80 0.29					
90-5-26 90-5-27 90-5-28 90-5-29 90-101	207 294 207 294 207 294 207 294 207 294 207 294	0.194 0.940 2.674 2.815 0.040	0.38 0.96 2.32 2.23	0.03 0.12 0.11 0.06	< 0.01 0.18 0.81 1.27	0.11 0.16 0.40 0.61					
										1	1

CERTIFICATION: 1. Son mount



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Chemex Labs Ltd.

Analytical Chemists * Geochemists * Registered Assayers 212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221

To: PACIFIC GOLD CORPORATION

3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9

MCKINNEY. Project : Comments: ATTN: R. HANDFIELD Page Number: 1 Total Pages: 1 Invoice Date: 29-AUG-90 Invoice No. : I-9021696 P.O. Number :

						CERTIFIC/	ATE OF A	NALYSIS	A90	21696	
SAMPLE DESCRIPTION	PREP CODE	Au FA oz/T	Ag FA oz/T	Pb २	2n %		<u> </u>				
89 - 3 - 1 89 - 3 - 2	207 294 207 294	0.112 0.012	4.55 2.59	5.60	9.68 2.72						
		.062	3.6	K 4.57%	6.2	20					
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Analytical Chemists * Geochemists * Registered Assayers

212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221

To: PACIFIC GOLD CORPORATION

3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9

Page Number : 1 Total Pages : 1 Invoice Date: 22-AUG-90 Invoice No. : I-9021092 P.O. Number :

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Project : Comments: ATTN: JOHN F. STEPHENSON

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							CERTIFIC	ATE OF A	NALYSIS	A90	21092	
SAMPLE DESCRIPTION	P C	REP ODE	Au tot oz/t	Au - oz/t	Au + mg	Wt grams	Wt. + grams					
#1	207	294	0.748	0.654	0.948	237	7.30					
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SAMPLE

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5-32

5-33

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Chemex Labs Ltd.

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Pb

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0.16

0.60

0.22

0.31

*

0.03

0.08

0.90

0.06

0.04

Analytical Chemists * Geochemists * Registered Assayers 212 Brocksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221

Au

oz/T

0.377

0.135

0.423

0.520

0.415

Ag oz/T

0.39

0.50

4.13

0.53

0.48

PREP

CODE

207 294

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PACIFIC GOLD CORPORATION

3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9 Page Number, 1 Total Pages : 1 Invoice Date: 23-SEP-90 Invoice No. : I-9023041 P.O. Number :

A9023041

Project : MCKINNEY Comments: ATTN: R. HANDFIELD

0.11

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0.35

0.09

Zn

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CERTIFICATE OF ANALYSIS

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OCT-03-1990 14:20 FROM BURRARD ADELAIDE

TO

6843854

P.02

manini n CERTIFICATION:

MEMORANDUM

DATE:	September 12, 1990
то:	Bob Handfield
FROM:	John F. Stephenson
SUBJECT:	Camp McKinney Project - Sample Descriptions

Below is a brief description of six samples taken by the writer during August and September at Camp McKinney.

Sample #1 "Ore Bin":

30-lb. sample of muck from the Ore Bin at the 1960 headframe was taken on August 13, 1990 by the writer. This material was collected via a trench from one side of the bin to the other and is thus fairly representative of the material lying at the surface of the bin. It comprised both coarse and fine material containing quartz, greenstone wall rock and abundant sulphide. Two semimassive sulphide fragments were extracted from the bin and submitted separately as Ore Bin sample #4 (see below).

This sample was tested for metallics gold and averaged 0.748 oz/gold per ton. A 32-element ICP analysis was run on the sample as well (certificate of analysis A9021092,3) elevated levels of silver (27.4 grams per ton), zinc, lead and cadmium were noted.

Wiarton Dump Sample #1:

Selected material from the Wiarton Dump containing minor sulphide in quartz was collected from the Wiarton Dump immediately west of the road between the two Wiarton shafts. This sample assayed 0.262 oz/gold per ton and 0.96 oz/silver per ton (certificate of analysis A9021514).

Branch Vein Sample #2:

White bull quartz and carbonate material with minor (5-10%) sphalerite, galena and pyrite. This sample is believed to have come from the north-west trending vein referred to in the literature as the "Branch Vein". The dump material comes from a north-west trending shallow trench with a deeper pit at the south-east end. This is located between the 1960 shaft and the historic main shafts immediately south of the main vein. This material assayed 2.121 oz/gold per ton, 2.17 oz/silver per ton, 3.03% zinc and 1.53% lead.

Branch Vein Sample #3:

Similar to the Branch Vein #2 above, this material contained a higher percentage of sphalerite. The sample assayed 0.556 oz/gold per ton, 0.90 oz/silver per ton, 0.42% lead and 15.3% zinc.

<u>Ore Bin Sample #4:</u>

Two fragments of semi-massive sulphide material taken from the ore bind sample above showed surprisingly high grade gold values. This sample assayed 6.714 oz/gold per ton, 10.77 oz/silver per ton, 0.66% copper, 7.05% lead and 1.83% zinc.

Diamond Drill Hole 89-3:

A 3-inch-long BQ core sample was extracted from the drilling program carried out by Gold Power Resources in 1989. For some reason the results of this hole (approximately 4 ft. semi-massive sulphide intersection) were never reported or the core was never analyzed. This sample taken at a depth of 71 ft. comes from the top contact of the mineralized 4-ft. section. It comprises semimassive to massive galena, lesser amounts of sphalerite and pyrite. Assays results are 0.390 oz/gold per ton, 14.21 oz/silver per ton, 0.16% copper, 21.2% lead and 7.25% zinc. The remaining four-foot section of core assayed .062 oz/gold per ton, 3.6 oz/silver per ton, 4.57% lead and 6.2% zinc (certificate of analysis A9021696). ψ

48Analys/Main



Chemex Labs Ltd. Analytical Chemists * Geochemists * Registered Assayers

PACIFIC GOLD CORPORATION

3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9 Page Nitrover: 1 Total Pages: 1 Invoice Date: 22-AUG-90 Invoice No.: I-9021092 P.O. Number:

212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221

Project :

Comments: ATTN: JOHN F. STEPHENSON

CAMP MCKINNEY PROJECT **CERTIFICATE OF ANALYSIS** A9021092 SAMPLE PREP Au tot Au -Au + Wt. -Wt. + DESCRIPTION CODE oz/t oz/t mg grams grams #1 ORE Bily 30/65 207 294 0.748 0.654 0.948 237 7.30 CERTIFICATION: N- Sentamin





Analytical Chemists * Geochemists * Registered Assayers 212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221 3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9 Page TVU Total Page 1 Invoice Date: 29-AUG-90 Invoice No. : I-9021093 P.O. Number :

Project : Comments: ATTN: JOHN F. STEPHENSON

PACIFIC GOLD CONFORATIO

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SAMPLE DESCRIPTION	PREP CODE	Ag ppm	Al %	As ppm	Ba ppm	Be ppm	Bi ppm	Ca १	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	£ K	La ppm	Mg t	Mn ppn	Mo ppm
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CERTIFICATION:

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Chemex Labs Ltd. Analytical Chemists * Geochemists * Registered Assayers

PACIFIC GOLD CORPORATION

3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9 Page Nul Total Pages 1 Invoice Date: 3-SEP-90 Invoice No.: I-9021514 P.O. Number:

212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221

Project : CAMP MCKENNEY Comments: ATTN: JOHN F. STEPHENSON &C: R. C. HANDFIELD

						CERTIFIC	ATE OF A	NALYSIS	A90	21514	
SAMPLE DESCRIPTION	PREP CODE	Au FA oz/T	Ag FA oz/T	Cu ¥	Pb ¥	Zn Z					
WAIRTON DUMP 01 BRANCH VEIN 02 BRANCH VEIN 03 ORE BIN 04 DDH 3 71 FEET 05	207 294 207 294 207 294 207 294 207 294 207 294	0.262 2.121 0.556 6.714 0.390	0.96 2.17 0.90 10.77 14.21	0.10 < 0.01 0.01 0.66 0.16	0.49 1.53 0.42 7.05 21.2	0.35 3.03 15.30 1.83 7.25					
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To: PACIFIC GOLD CORPORATION

3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9

Project :

MCKINNEY Comments: ATTN: R. HANDFIELD Page Number : 1 Total Pages : 1 Invoice Date: 29-AUG-90 Invoice No : 1-9021696 P.O. Number :

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						CERTIFICA	ATE OF AN	NALYSIS	A902	21696	
SAMPLE DESCRIPTION	PREP CODE	Au FA oz/T	Ag FA oz/T	PD %	Zn %						
89-3-1 89-3-2	207 294 207 294	0.112 0.012	4.55 2.59	5.60	9.68 2.72						
		.062	3.6	K 4.57%	6.2	20					
							-				

CERTIFICATION



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212 Brooksbank Ave., North Vancouver British Columbia, Canada V7J 2C1 PHONE: 604-984-0221

To: PACIFIC GOLD CORPORATION

3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9

Page Number : 1 Total Pages : 1 Invoice Date: 22-AUG-90 Invoice No. : I-9021092 P.O. Number :

Project : Comments: ATTN: JOHN F. STEPHENSON

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SAMPLE DESCRIPTION	PRECOD	EP Au tot DE oz/t	Au - oz/t	Au + W mg g	t rams	Wt. + grams				
#1	207 2	0.748	0.654	0.948	237	7.30				
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3280 - 666 BURRARD ST. VANCOUVER, BC V6C 2Z9

Page NUI Total Page 1 Invoice Date: 29-AUG-90 Invoice No. : I-9021093 P.O. Number :

Project : Comments: ATTN: JOHN F. STEPHENSON

PACIFIC GOLD CORPORATION

											CE	ERTIFI	CATE	OF A	NALYSIS	A9021093	
SAMPLE DESCRIPTION	PR CO	ep De	Na %	Ni ppm	P Ppm	Pb ppm	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	pbu n	V ppm	W PPm	Zn ppm		
#1	299	238	0.01	67	730	4450	< 5	4	143	0.04	< 10	< 10	35	10	8890	·	
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Appendix I ${f Y}$

Drill Logs

1989 Drilling

(logged in 1990)

Holes 3, 4, 8, 11, 12, & 13 By J.T. Shearer, M.Sc., FGAC

CAMP MCKINNEY DIAMOND DRILLING 1989

HOLE 89-3	
0.0 - 13.0 feet	OVERBURDEN
13.0 - 33.0	Dark grey-Light grey <u>QUARTZITE</u> , abundant
	slickensides 025' at 1030 to CA, fractured
33.0 - 68.3	Dark green, <u>ALTERED BANDED ANDESITIC TUFF</u>
	somewhat massive due to alteration & shearing
	many calcite blebs & lenses, sheared overall
	appearance.
	Banding at 43 ft. @ 5° to C.A., Brown banding
	clear in some places, banding at end of
	internal contorted but about 0° to C.A.
	slickensides in chlorite zone at lower contact
	50' to 80° core axis
68.3 - 72.3	NO CORE (<u>MINERALIZED QUARTZ VEIN</u>)
	Remaining half sent by McKinney 1990 for Assay.
68.3 - 75 split	Approx. 5' of core assaying 4.69 Pb, 6.2% Zn,
3.6 oz/ton	Ag, + 0.062 oz/ton Au (1990 Assays).
72.3 - 80.0	CARBONATE ALTERATION ZONE in "banded" ANDESITE
	<u>TUFF</u> (around vein) pyrite, yellowish-green
	colour, Yellowish chlorite on slickensides,
	highly sheared.
	Two Fractures coated with galena at 73.0(?) 12
	to C.A., traces of sphalerite + pyrite approx
	perpendicular to slickensides
80.0 - 87.0	HEALED FAULT BRECCIA, dark grey, finely
	fragmental, Intense graphite at 85, abundant
	chlorite,
87.0 - 93.0	CARBONATE ALTERATION ZONE - greenish yellow
	alteration,
93.0 - 96.0	ALTERED ANDESITIC TUFF
96.0 - 105.5	FELDSPAR PORPHYRY BASALT. Dyke (?), relatively
	fresh minor fracturing
1055 - 106.5	FAULT BRECCIA
106.5 - 131.5	CALCAREOUS OUARTZOSE TUFF. alternating light
	and dark grev with large greenish sections.
	fractured
131.0 - 137	Fresh, FELDSPAR PORPHYRY BASALT, Dyke ?
	Non foliated. Non stressed
137.0 - 212'	MASSIVE ANDESITE, minor biotite limestone, fine
	flow structure at 0 to C.A. @150! minor
	martz-calite veining and natches
	larger guartz-calcite zone 156-157 Uniform
	rock unit occasionally areas of minor
	biotite.
212 - 220	Light and Dark OUARTZITE bedding @ 5 to 15 to
	C A crenulated laminations
	C.M. OTEMUTACEA TAMINACIONS.

CAMP MCKINNEY DIAMOND DRILLING 1989

NULL 69-4	
0 - 15.0 feet	OVERBURDEN
15.0 - 25.0	BANDED ANDESITIC TUFF, altered, Fractured,
	weathered layering at 5 to t.A.
25.0 - 28.0	laminated with dark grey wisps and hairlines,
	lamination @ 55 to core axis.
28.0 - 29.5	FAULTED ZONE, sheared gouge, mostly calcareous
	Material, Shearing at 60 C.A.
29.5 - 54.5	Dark <u>QUARTZITE</u> , nigniy contorted, abundant
	carbonate in narrow gouge intervais 42-43,
	sheared throughout.
54.5 - 55.0	BLACK GOUGE
55.0 - 58.5	Banded <u>ANDESITIC TUFF</u> , greenish grey with brown layers fine grained
58.5 - 59.5	Yellowish CARBONATE ALTERATION (like vein
,	alteration) slightly pyritic
59 5 - 88.0	Banded ANDESITIC TUFF, bleached slightly, short
	veined calcareous interval 72.0-72.5 laminated
	0 10° to C.A.
	chlorite on fractures abundant. O to C.A.
88.0 - 91.0	PORPHYRITIC BASALT, fractured, but largely
00.0 91.0	unaltered. Dyke ?
91.0 - 97.0	PYRRHOTITE - GARNETIFEROUS ZONE. (skarn) minor
	pyrite, calc-silicates perhaps developed by
	calcareous tuff in contact with dyke
97.0 - 136.0	ALTERED BANDED ANDESITIC TUFF, more massive,
	only remnant banding
	very broken and fractured core @115.5 - 119,
	very chloritic gouge on fractures
	Highly contorted + disturbed 119-136.0
	Lower contact highly faulted
136.0 - 139.0	CARBONATE ALTERATION ZONE (like around vein)
	yellowish veining + lenses, sheared at 0 to
	C.A., slickensides abundant
139.0 - 139.5	FAULT GOUGE, graphite, 40 to C.A.
139.5 - 153.0	Dark grey QUARTZITE, very faulted, disturbed,
	lamination 5-10 to C.A.
153.0 - 172.0	ALTERED ANDESITE, Possibly Banded Andesite
	tuff, dark green, massive some quartzose areas
172.0 - 181.0	light and dark grey laminated <u>QUARTZITE</u>
	finely laminated, contorted layers
181.0 - 185.0	<u>Mottled Andesite</u> ,
185.0 - 191.0	Light and Dark green laminated <u>Quartzite</u>

28

191.5 - 196.0 feetBrownish altered ANDESITIC TUFF, (Banded)196.0 - 205.0Light and Dark laminated QUARTZITE205.0 - 220.0SILICIFIED QUARTZITE, more quartz-rich, bluish
colour, much less darker material, minor pyrite
on fracture

EOH 220.0 feet

CAMP MCKINNEY DIAMOND DRILLING 1989

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HOLE 89-8	
0 - 45.0 feet	OVERBURDEN
45.0 - 78.0	FAULT ZONE - BRECCIA in highly shattered
	ANDESITE gouge common, very broken and
	chloritic intervals
	72 - 78 very gougy, gradational compositional
	change at 78
78.0 - 85.5	FAULTED ZONE IN QUARTZITE
85.5 - 96.0	GOUGE + FAULT BRECCIA in Andesite
96.0 - 104.0	FAULT ZONE developed in Quartzite
104.0 - 109.5	Faulted and sheared Andesite
109.5 - 140.0	Laminated Quartz, lightly dark grey
	105.5 - 114 fractured 5' To C.A., Laminations
	for entire section 0°- 5° to C.A.
	convoluted throughout

EOH 140.0 feet

CAMP MCKINNEY DIAMOND DRILLING 1989

HOLE 89-10	
0 32.0 feet	OVERBURDEN
32.0 - 55.0	ANDESITE TUFF weathered, slightly sheared +
	punky, fractured at 5' To C.A., more solid rock
	at end of interval
55.0 - 78.0	LIGHT GREY AND DARK GREY QUARTZITE, wispy to
	laminated shear zone 62.0 - 62.5, darker grev
	guartzite dominant below shear. possible guartz
	vein at 73.5. 3.5 cm wide, trace pv. rubbly
	core 76 - 76.5 slightly sheared lower contact
78 0 - 89 0	MOTTLED ANDESTTE dark and light varigated
	nattern or possible variety of banded tuff
	contact at 20
	massive interval very uniform Possible dyke
89 0 - 95 5	Dark grey OUDPTITE sheared by at fault
95.5 - 102.0	SHEADED MOTTLED ANDEST PART AND DORDHYRTTC
95.5 - 102.0	BASALT well developed hornblende phenocrysts
	at 103
102 0 - 121 5	BANDED ANDESTUTC THEE banding 10 to C A Q106
102.0 121.0	more convoluted and more quartz-carbonate
	changing to massive uniform green 117 - 121 5
121.5 - 131.0	dark grov OUNDERSTOR split 125 - 127 but NO
121.0 131.0	VEIN minor by sheared lover contact gouge
121 0 - 147 0	PANDED ANDERINE MILE highly fractured and
131.0 - 147.0	shoared at upper contact calgite patched
	accasionally down to lower contact of interval
147 0 - 157 0	Deck OUR DECTURE work well laminated light and
147.0 - 157.0	dark at 15510 20° to C A sheared appearance
157 0 - 164 5	RANDED ANDERIMIC MILEE work altored
164.6 - 186.0	CRADHUTC FAULT ZONE 5'to C A clickonsides
104.0 - 100.0	Eault broccia
168 0 - 180 0	PANNED ANDEGISTIC SUPER altering groon and brown
100.0 - 100.0	<u>BANDED ANDESITIC TOFF</u> , altering green and brown
	time grained rayers and bands, minor calcite
	shears at 169.5 To to C.A. Increasing calcite
	shear filling down to heavy chlorite fractures
	and Slickensides (177 - 180
186.0 - 180.5	QUARTZ VEIN 16 Cm wide, typical Mine Qtz vein
	subnedral pyrite, bluish fractured quartz,
	trace calcite. Sulfides not abundant in this
	intersection.
180.5 - 204.5	Altered BANDED ANDESITIC TUFF, No carbonate
	alteration, but host rock is fractured and
	pyritized and massive, banding recognizable
	below 185.,
204.5 - 214.0	FAULTED BRECCIA, very chloritic gouge, rounded
	quartz fragments,~ 60 to C.A. shear direction
	No graphite apparent

HOLE 89-10	
214.0 - 228.0 feet	Dark grey and light grey <u>QUARTZITE</u> , very
	sheared, convoluted lavering
	short Fault breccia zones 218 - 219, 20° To
	C.A.,
	0°to C.A. shearing at 222'
228.0 - 232.0	FAULT BRECCIA., intense fault granulation ~
	shearing 60 to 70 degrees
232.0 - 242.0	CALCAREOUS ANDESITIC TUFF
	light to dark layers alternating with light guartz and carbonate layers
	*

EOH 242.0 feet

CAMP MCKINNEY DIAMOND DRILLING 1989

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HOLE 89-11	
0 - 24.0 feet	OVERBURDEN
24.0 - 69.0	DARK GREY TO LIGHT GREY QUARTZITE, alternating
	dark grey and white layers, dark grey dominant,
	lavering highly contorted on a small scale, but
	lavering roughly about 75° to C.A., biotite
	abundant small fault at 28 ft broken core
	abundant, Small laute at 28 It, bloken core
•	bishla di sumt di sema tisht minan falda 2
	highly disrupted, some tight minor lolds 2 -
	3 cm across, 41.5 intense chiorite on
	fractures, 48' - Layering at 55, short section
	51.0 - 53.8 of andesitic tuff 10 to C.A.
	contact at 69.5, knot of light grey quartzite
	10° to C.A.
69.0 - 69.1	<u>4CM QUARTZ VEIN</u> , 56° to C.A., qtz and
	ferrocalcite, trace py, not split.
69.1 - 105	DARK GREY LIGHT GREY QUARTZITE,
	Layering at 25° to C.A @75', 40° to C.A. @88'
	Parallel to C.A. at 92' for 1 ft.
	highly contorted blow 93'
105.0 - 108.0	DARK GREEN. MASSIVE ANDESITE, sheared at@25 to
10000 10000	C.A. fault intermixed with quartzite
108.0 - 109.0	Fault segment, DARK GREY OUARTZ, very broken
20000 20000	but rehealed, main shearing @40°to C.A., but
	$un to 10^{\circ} to C.A$
109 0 - 114 0	MASSIVE GREEN ANDESITE shearing occasionally
109.0 114.0	A25 to C A
1140 - 1330	HORNBLENDE DORDHVRV (Andegita) Fractured and
114.0 = 100.0	Rownbulled Not Folisted DOCCIDIE DYVE Manu
	radiced, Not Follaced POSSIBLE DIKE, Many
	white subrounded 1-2mm calcite patches possibly
	amygdules, Fractured and sheared intervals
	122.5 - 123, abundant chlorite on fractures,
	minor pyrite on Fractures.
133.0 - 136.0	QUARTZ VEINLET STOCKWORK and abundant white
	calcite infilling, quartose mixture of andesite
	and quartzite.
136.0 - 145	BANDED BROWN - GREEN ANDESITE TUFF with
	quartzite layer banding @60 to C.A., abundant
	chlorite on fractures, calcite abundant.
145.0 - 148.0	AMYGDALOIDAL ANDESITE

33

HOLE 89-11	
148.0 - 152.5 feet	DARK GREY QUARTZITE, highly sheared at lower
	contact with quartz knots, healed fault
	breccia.
152.5 - 161.5	MASSIVE ANDESITE, minor brownish bands, felted
	texture, abundant chlorite on slickensides
	080 to C.A.
161.5 - 170.0	FAULT ZONE, intense graphite 163 - 165,
	fracture
	@30' to C.A. broken core, highly banded with
	calcite common in lower 3 feet
170.0 - 178.0	MASSIVE ANDESITE, but broken by faulting 174
	- 178 very quartz rich siliceous alteration,
	more competant knot caught up in fault
178.0 - 188.0	FAULT ZONE - BRECCIA, graphite, very chloritic
	near bottom of interval developed in andesite,
	pyrite near contact
188 - 189.1	QUARTZ VEIN 0.69 oz/ton Au.
	First part of 6 cm of length is 1 cm wide,
	then increasing to width of core, minor
	pyrite near top, plus traces of sphalerite
	and galena near top, main part of vein
	consisting mainly of white to light grey
	(bluish) fractured quartz with irregular
	lenses of chalcopyrite and minor
	subnederal pyrite, traces of galena and
	sphalerite some sections have more pyrite.
	Sulfide content of vein is around 1%
189.0 - 196.5	FAULT BRECCIA, mostly chlorite on slickensides
196.5 - 196.55	QUARTZ VEIN, 2 Cm wide, pyrite layer on upper
106 FF - 210 F	Side
198.99 - 219.9	FAULT BRECCIA, Danuing at 80 to C.A. 197 - 199,
	more concretent 199 - 225 intense preceta and
	gouge 202.5 -rounded radiced fragments of
	throughout intense broggin appears to be usin
	fragment at 211 2 for 12cm
210 5 - 225 5	WUTTER MARRIE modium crucialina moderate
213.3 223.3	amount of purite throughout in stringers and
	small longog
	(snlit sections)
225.5 - 234.5	BANDED ANDESTUIC THEF handing at 25° to C A
	dark green and brownish pyritic top for 2 ft
	(snlit)
234.5 - 268.0	CALCAREOUS THEF alternating with short
	sections of banded andesite tuff

HOLE 89-11	
268 - 278.5 feet	LIGHT GREY QUARTZITE intercalated with GREEN
	ANDESITIC TOFF rounded structures in tull at
278.5 - 283	FRACTURED LIGHT GREY QUARTZITE
283 - 286	FAULT BRECCIA in light grey quartzite, shear
	lines 60 to C.A., intense graphite near end of
	interval 045 to C.A.
286 - 295	Coarsely banded <u>ANDESTIC TUFF</u> , minor calcite
	shear fillings
295 - 295.5	FAULT GOUGE BRECCIA
295.5 - 338	Light grey <u>QUARTZITE</u> with wispy black layering
	~0° to C.A. broken and sheared @301, split -
	302.5 - 307.5 - Traces of pyrite on fractures.
	Definetly NOT Quartz vein material
	cut by cross cutting qtz veinlets 1-2cm wide
	starting at 310, 318 and down, more darker
	layers
	rubbly core 330 - 338
338 - 342	Dark green <u>SHEARED "ANDESITE"</u>
342 - 344.5	Light grey QUARTZITE, very fractured
344.5 - 377	BANDED ANDESITIC TUFF, very calcarous near top
	due to shear layering at 35 to C.A., relatively
	calcareous throughout
377 - 396	Light and dark, well laminated OUARTZITE
	lavering convoluted at 386, but mainly 10' to
	C.A.
396 - 414	BANDED ANDESITIC TUFF. 406 calcareous banding.
	greenish shearing $(409 - 410, 40^\circ)$ to C.A.
	weak fault breccia 0412 bleaching
414 - 452	BLEACHED AMYGDALOTDAL UBASALTU DYKE purplish
	blue Fault breccia 421 - 421 5 abundant
	chlorite on Fractures at $427 - 472.5$
	siliceous annearance 129 - 133 traco nurito
	on fractures minor purrhotito longos
	chorrod 435 - 440
	$\operatorname{SHEated} 455 = 440$

EOH 452 feet

CAMP MCKINNEY DIAMOND DRILLING 1989

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HOLE 89-12	
0.0 - 26.0	OVERBURDEN
26.0 - 57.0	MASSIVE ANDESITE , dark green relatively uniform, minor calcite shear veining @ 33 - 36 Hornblende phenocrysts at 42., chlorite fractures 49-51, sheared and healed lower
	CONTACT <u>QUARTZ VEIN</u> , 3 cm wide 56.0', traces of pyrite and sphalerite
57.0 - 88.5	<u>CALCAREOUS TUFF</u> , dark grey finely layered @45' @61' Light and dark, darker green dominant below 67', back to light dominant component at 78', broken core 84 - 87, laminations @88 are 5 to C.A.
88.5 - 96.0	<u>PORPHYRITIC BASALT</u> (Dyke)?, sheared upper contact
96.0 - 150	CALCAREOUS TUFF, dark green alternating with quartz-carbonate layers (small dyke of Porphyritic basalt 98 - 99) layering @5 - 10 to C.A.
	124 - 132 laminations broken, boudinage,
150 0 - 156	Stretched and crenulated
190.0 - 196	convoluted lavering, vellowish carbonate
156 - 158	<u>QUARTZ VEIN</u> 0.18 oz/ton, Fractured irregular lenses of pyrite, minor sphalerite and galena, minor calcite
158 - 173	<u>CARBONATE ALTERATION ZONE</u> developed in calcareous tuff, yellowish carbonate throughout entire section, minor shearing, thick chlorite on fractures, graphite at 168.5, sheared lower contact at 5 to C.A.
173 - 191	Dark green <u>CALCAREOUS TUFF</u> , altered and veined
191 - 202	CARBONATE ALTERATION ZONE Very intense in places, 193 - 196 yellowish green chlorite on fractures @ 0 to C.A. layering at 45 to C.A. at 202
	EOH 202 feet

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Appendix 🏹 🗄

Fault Dynamics at the McKinney Mine, Exploration Potential and Mineral Inventory

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The McKinney vein is cut by numerous faults having a variety of orientations and ages, and with offsets of up to 120 meters. The large number of exploratory cross-cuts in the main part of the mine indicate the high degree of faulting that offsets the vein. Hedley (1940) has labelled all the major faults from 1 through 12.

A complex series of moderately northeasterly, easterly and less commonly steeply southwest dipping faults, generally offset the McKinney vein with normal and left-lateral, but locally rightlateral components of displacement. The main northeasterly fault (shear zone, 1A-1B) and easterly dipping fault (#7) have components of about 67 m left lateral and 40 m right-lateral displacement, respectively (Figure 6) (Benvenuto 1990).

The northwest and north-striking faults appear to offset two earlier prominent low-angle faults (Figures 5 and 6). These parts of the vein above the flat faults, are offset northerly up to 15 and 24 m relative to the parts of the vein below the faults, respectively.

The major, moderately southwesterly dipping fault (#11) which separates the 1894-1904 workings from the 1960-62 workings, appears to offset earlier, northwest-striking and "flat" faults (Figure Fault #11 appears to have a right-lateral, strike-slip 6). component of apparent offset of 85 m, and a normal, dip-slip component of 116 m (Benvenuto 1990). The location of the surface trace of fault #11 was inferred by projecting the fault from the east end of Level No.4, upward and eastward through the Wiarton shafts (Figure 6). The westerly Wiarton shaft encountered a fault, below which the vein apparently was not located. The easterly shaft, it was found upon inspection, is inclined to the west. It appears to have been driven along the vein from the west shaft, following the truncated, basal part of the vein and fault #11 to surface (Benvenuto 1990).

Oriented specimens were collected in 1990 from Level 5, Figure 9, and examined in thin section as an initial step in determining if microscopic kinematic indicators such as pressure shadows, directed mineral fabrics or stressed mineral grains are present. This small orientation study suggests that suitable kinematic indicators are identifiable and that a larger specimen suite coupled with detailed geological mapping may be very useful in determining the relative movement of individual fault blocks. Although some specimens have a pervasive masking of calcite recrystallization, others have well preserved kinematic indicators. Specimen 8 from a sliver of quartz vein, Figure 9, has bent plagioclase twin la melli and directed grain boundary granulation suggesting a dominant stress direction toward 270°. This direction indicates this quartz vein wedge probably was connected to the hanging wall of Fault #11 in which there was about 200 feet of right lateral movement. Specimens for future study should be from quartz-rich material. The vein material appears to have the greatest amount of kinematic indicators which have been preserved.

EXPLORATION POTENTIAL AND MINERAL INVENTORY

A geological potential of 50,000 tons was calculated by Sanguinetti Engineering Ltd. in 1986, for the six segments of the vein close to the underground workings (Sanguinetti, 1986) (Figure 8). Sanguinetti estimates appear to indicate the potential tonnage that could rapidly be developed from existing underground workings. Sanguinetti calculated the following potential for each segment, assuming an average width of 2.0 ft and a tonnage factor of 12.2 cu ft/ton:

Segment	Dimensions (ft)	Tonnage
А	250 x 600 x 2.0	24,500
В	250 x 550 x 2.0	22,500
С	100 x 200 x 2.0	3,200
D	not given	14,700
E	not given	10,600
F	not given	26,200
	Total	101,700 tons

Sanguinetti (1986) proposed to test each segment with from two to five surface drill holes, for a total of 15 holes and 2,591 m (8,500 ft) (Figure 8). He assumed a "success factor of 50%" for intersecting the vein with exploration drilling, and concluded that:

"excellent potential exists for locating an easily accessible reserve of at least 50,000 tons of vein material, with an average thickness of 2.0 feet and an average estimated grade of 0.5 oz/ton gold".

The meaning of Sanguinetti's "success factor" is unclear. It appears to imply that if the vein is not intersected in a proposed hole, then the vein is absent in that part of the segment. However, the broad spacing of his proposed holes (20 m to 61 m) does not seem to provide a conclusive test for the vein, considering the complexity of faulting which disrupts the vein's continuity.

Benvenuto (1990) estimated geological potential using the following criteria:

"In light of the substantial, proven strike-length of the mine vein (1,630 m), it is not unreasonable to consider the additional tonnage potential of the mine vein beyond the limits of Sanguinetti's easily accessible, potential reserve blocks. A potential reserve tonnage has been calculated for



the mine vein of 300,000 tons, based on the following assumptions for depth and strike projections of the vein:

1) The vein extends to a depth of 335 m (1,100 ft), or 160 m (520 ft) below the lowest level of the mine (Level No. 6).

2) The vein extends 90 m (300 ft) beyond the eastern and western limits of previously mined portions of the vein, for a total strike length of 970 m (3,190 ft).

The total area of these projections is 2,482,475 sq ft. If the projected vein is assumed to have an average thickness of 1.5 ft and density of 12.3 cu ft/ton, then the total tonnage potential is:

2,482,475 sq ft area x 1.5 ft thickness \div 12.3 cu ft/ton density = 303,000 tons of quartz vein

If it is assumed that the gold grade in the vein projections is sufficiently high to allow the vein and wall rocks to be mined profitably over a mining width of 4 ft, then total potential reserves for the vein and wall rock that would be mined, are estimated as:

2,482,475 sq ft area x 4 ft thickness \div 11.7 cu ft/ton density = 848,700 tons of quartz vein and wall rock."

The relatively unexplored gold-bearing quartz vein, the Sailor vein, is located on the Sailor, Kamloops and Minnie-Ha-Ha claims of the McKinney property (Figure 4). This vertical vein is 380 m south of, and strikes parallel to the east-west McKinney vein. It represents a secondary, but important exploration target, with 570 m of known strike-length and 1,300 m of possible strike-length projections covered by the three claims (Benvenuto 1990).

Work on the Sailor vein by Benvenuto in 1989 shows that it is about 0.3 to 1.8 m thick and occurs in a narrow shear zone cutting meta-basalt and quartzite, which are iron-carbonate-sericitequartz-(\pm fuchsite?) altered adjacent to the vein. In the late 1890's, three main shafts (now caved) were sunk on the vein to depths of 53.3 m (Sailor shaft), 30.5 m (Kamloops shaft) and 61 m (Minnie-Ha-Ha shaft). In addition, a total of 310 m of drifts from the three shafts explore the vein. There is little information on the results of this early exploration (Hedley 1940).

At the Sailor shaft, the vein is up to 1.8 m wide and contains "a discontinuous pocket with good values in gold" (Hedley, 1940). A sample across a 30 cm quartz boulder in the waste dump yielded 0.73 oz/ton gold (Benvenuto 1989). The westerly strike-projection of the vein is beneath a relatively thick blanket of glacialfluvial sediments.


At the Minnie-Ha-Ha shaft, the vein was reported to be 0.3 to 0.6 m thick (Hedley 1940). In 1900, a 5-stamp mill was set up on the Minnie-Ha-Ha claim and ran three weeks but the production results are unknown. A chip sample taken by Walker across the 30 cm thick vein at the collar of the shaft, yielded 0.14 oz/ton gold (Walker, 1988). A grab sample with visible gold from the dump assayed 3.5 oz/ton gold (Benvenuto 1990).

There is a high probability for discovering and establishing new gold reserves for the McKinney vein in four poorly explored areas close to the underground workings as partially proposed by Benvenuto (1990).

Segment F, east of the major fault #12 and below fault #11, which form the eastern and upper bounds of the mined part of the vein (Figure 11).

The surface trace of this relatively unexplored segment of the vein is inferred to extend easterly from fault #12, about 475 m to the east boundary of the Wiarton claim. It may also extend further east through the Waterloo claim, where the vein is explored by two shafts and several trenches. The Waterloo vein is 1.2 m thick and contains "free-milling ore running about the same value as that of the Cariboo" vein (B.C.M.M. Ann. Report, 1899).

This easterly segment of the vein is offset along fault #12 from a portion of the narrow but high-grade vein in Levels Nos. 5 and 6. Chip samples taken in the 1960's, in stopes near fault #12 assayed an average of 1.5 oz/ton gold over 0.43 to 0.61 m, along a composite vein length of 74.7 m (Hill and Starck 1961) (Figure 9). Sampling in 1990 in this area (Samples 5-27 to 5-29) gave results ranging between 0.940 and 2.815 oz/ton Au.

Two diamond drill holes are proposed to explore the western part of this segment.

Segments D and E are the depth projection of the vein below Level No. 6 in the eastern section of the mine. These segments comprise two fault-bounded blocks (Figure 11). Chip samples of the vein taken in the 1960's along 7.6 m of the back of Level No. 6, or the westernmost part of the easterly block (segment E), averaged 1.7 oz/ton gold over 0.58 m (Benvenuto 1990). Exploration drilling of four holes from Level No. 6 in 1961 apparently failed to locate the vein within the westerly block (segment D) between faults #11 and #13 (Hills and Starck 1961).

Two proposed drill holes are to test segments E and F, 23 to 47 m below Level No. 6 (Figure 6).

Segment C is the depth projection of the vein below Level No. 4 in the central-west section of the mine (Figure 11). This vein segment is bounded to the west by a 12 m wide shear zone (faults 1A and 1B) and to the east by another major fault (#7). Hedley (1940) reported that the portion of the vein in the western half of the segment is "ill defined ..., narrow and weak" along Level No. 4. The eastern half of the vein segment was not located in the Level No. 4 drifts and crosscuts. However, it is possible that about 50 m of strike-length of this portion of the vein was not located in these workings because of the complexity of fault offsets, especially the major offset along fault #7.

Limited chip sampling (26 samples) of the vein by Pioneer Gold Mines in the lowest stopes and drift backs in this segment indicates the vein has depth potential (Fig. 7). Four samples taken on Level No. 4 at 60 to 95'W ranged from 0.09 oz/ton gold over 0.15 m to 1.68 oz/ton over 0.20 m. The 22 samples taken near Level No. 3, at 0 to 200'E, assayed an average of 0.26 oz/ton gold over 0.69 m (Lovitt 1939).

Chip samples taken by Pioneer in a stope between Level Nos. 3 and 4, 12 to 37 m east of fault #7, which forms the east boundary of the central-west section, assayed an average of 0.59 oz/ton gold (uncut) over 0.38 m, Lovitt (1939).

Segment B is the depth projection of the vein in the western section of the mine, below the lowest levels of mining. This part of the vein has been tested with only one drill hole, which was drilled by Bralco in 1934 and may not have intersected the vein (Figure 6).

Chip sampling by Pioneer in the stope just above Level No. 4, between 350 and 600'W, suggests that the 1894-1904 mining ceased here because of a drop in gold grades (Figure 7). Pioneer's 27 samples assayed an average of 0.11 oz/ton gold over 0.70 m, not including one sample with 2.22 oz/ton gold over 0.25 m (Lovitt 1939).

Segment A is the westerly strike projection of the vein beyond the westernmost workings, where the vein is relatively unfaulted and, in general, thickest, but lower grade (Figure 11). It is interesting to note that the 1894-1904 miners drifted on two levels only 17 m and 23 m west of the westernmost stopes of the mine. Limited chip sampling by Pioneer Gold Mines along the backs of these two drifts confirms the low gold grade of the vein here (Figure 7).

In the sub-level above Level No. 3, nine samples collected in 1939 along 14 m of back, assayed an average of 0.03 oz/ton gold over an average width of 1.4 m (Lovitt 1939).

In Level No. 3, eight samples collected along 12 m of back assayed an average of 0.07 oz/ton gold over 0.78 m. This does not

include the westernmost sample adjacent to the face of the level, which assayed 0.75 oz/ton over 0.36 m (Lovitt 1939).

The surface trace of the vein west of the most westerly drift in the mine has been explored by five trenches, two pits, one shaft and three shallow drill holes (results unknown). This portion of the McKinney vein has a relatively untested strike length of about 630 m. It extends from the Alice claim, through the Emma claim and the Maple Leaf claim, which forms the northwest corner of the McKinney property (Figure 4). Near the eastern border of the Maple Leaf claim, the vein is explored in a 48.5 m deep shaft with a 34 m long drift at the 24.4 m level. The vein is up to 2.74 m wide, but only locally contains "values" (Hedley, 1940). In three trenches on the Emma and Alice claims, the vein thickness varies from 1.2 to 2.1 m. No gold grades are reported (Sanguinetti, 1984).

The undeveloped western portion of the vein has the potential for developing a relatively large tonnage reserve with low grades.