Antler-Nugget Mountain Property

Geological Mapping Survey

NAD83 UTM Zone 10 Coordinates 604134E and 5876258N
121° 26' 49" Longitude and 53° 01' 37" Latitude
NTS Maps 093H03W and 093A14W
Wells Area, Cariboo Mining District, Central British Columbia

Report Date:

June 6, 2001

Field Work and Report Completed by:

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1.0 INTRODUCTION

This report contains results from a 25 square kilometer geological bedrock survey conducted on part of the Antler-Nugget Mountain Property. The surveyed area is located southeast along strike from historic and recently discovered lode gold deposits and significant gold showings in the Wells Mining Camp. Bedrock in the Wells Mining Camp and in the survey area belongs to the Downey and Hardscrabble successions of the Barkerville Terrane. These two rock successions correlate with the entire lode gold (1.23 million ounces) and 74% of the placer gold (2.65 million ounces) produced in the Cariboo Mining District. Placer gold production from multiple watersheds located on or adjacent to the Property is estimated to be 413,140 ounces.

Previous work on the Property includes a detailed airborne geophysical survey, some soil geochemistry, two historic exploration drift operations, and limited rock sampling and trenching. Regional scale geological maps of the Property area are available in reports given by Sutherland Brown in 1956, and by L.C. Struik in 1988.

The purpose of this report is to further define the stratigraphic, structural and metamorphic setting of various bedrock units within the Downey and Hardscrabble successions. The report also includes a summary of correlations between the distribution of gold in the Wells area and gold-mineralization influences that include stratigraphy, structural and metamorphic controls.

Findings from this geological survey shows that the Downey Succession on the Property is made up of 5 bedrock units each defined by distinct lithological and metamorphic parameters. Sequences of light colored interlayered carbonate and tuff distinguishes the Downey from the overlying dark colored pelite of the Hardscrabble. Structural deformation, including faulting, folding and shear, in the lower part of the Hardscrabble near the contact with the Downey, has been observed and reported more frequently than in any other bedrock units mapped along the Wells Camp gold-mineralized trend. The Hardscrabble on the Property is mapped as two individual bedrock units that flank the north and south boundaries of the Downey. Although these boundaries exhibit stratigraphic conformity in places, they also appear to be unconformable where rock layers are disrupted and sheared by steep and low angle thrust faults.

2.0 PROPERTY DESCRIPTION

2.1 List of Mineral Claims

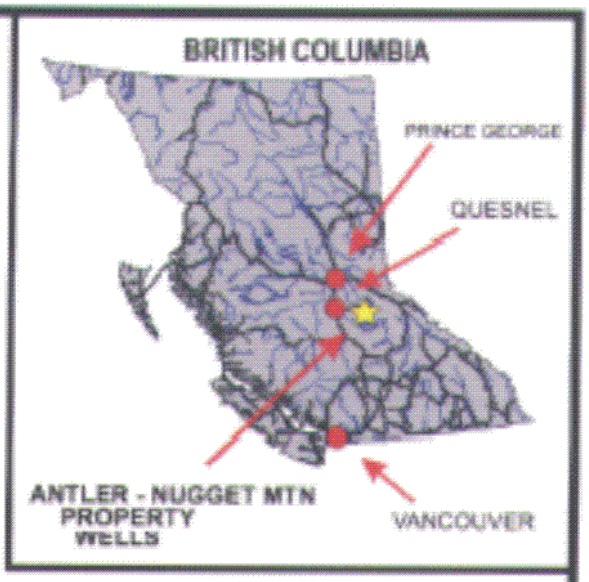
The Antler-Nugget Mountain Property consists of 193 mineral claim units comprising 113 two-post claim titles and 4 four-post (20 unit) claim titles (Table 1). The Property boundary is outlined bold in Figure 2 and 100% owned by Stephen Kocsis (FMC 114393).

Work described in this report consisted of geological mapping primarily across the Grouse, Heron, Dufferin and Antler 1 mineral claims (tenures 382421-382424). Some work took place on the G-1 to G-10 (tenures 330261-330269, and 337731). The G-1 to G-10 claims are owned 100% by Arthur Troup (FMC 127294) and listed in Table 2.

Table 1. LIST OF MINERAL CLAIMS (FMC 114393 OWNER)

Tenure Number	Claim Name	Map Number	Owner FMC Number	Work Recorded To	Units
375107	DUFFERIN 1	093H03W	114393	20010325	1
375230	ANTLER 9	093H03W	114393	20010407	1
375232-233	ANTLER 11-12	093H03W	114393	20010407	2
375235	ANTLER 22	093H03W	114393	20010407	1
375719-724	ANTLER 13-18	093A14W	114393	20010407	6
375725-734	ANTLER 29-38	093A14W	114393	20010408	10
375764-765	ANTLER 19-20	093A14W	114393	20010420	2
375770	ANTLER 43	093H03W	114393	20010414	1
375772-783	ANTLER 45-56	093A14W	114393	20010414	12
375784	ANTLER 57	093A14W	114393	20010420	1
375786-787	ANTLER 59-60	093A14W	114393	20010420	2
375801-810	NUGGET MTN 19-28	093A14W	114393	20010409	10
375811-824	NUGGET MTN 29-42	093A14W	114393	20010412	14
375892-97	ANTLER 61-66	093A14W	114393	20010421	6
375898-911	ANTLER 67-80	093A14W	114393	20010423	14
375914-923	NUGGET MTN 43-53	093A14W	114393	20010416	10
375924-933	NUGGET MYN 54-62	093A14W	114393	20010418	10
376130-134	HERON 32-36	093H03W	114393	20010424	5
377806	DUFFERIN 21	093H03W	114393	20010610	1
382421	GROUSE	093H03W	114393	20011109	20
382422	HERON	093H03W	114393	20011109	20
382423	DUFFERIN	093H03W	114393	20011109	20
382424	ANTLER 1	093H03W	114393	20011109	20
382433	EAGLE 1	093H03W	114393	20011103	1
382434	EAGLE 2	093H03W	114393	20011107	1
382435	EAGLE 3	093H03W	114393	20011107	1
382436	EAGLE 4	093H03W	114393	20011109	1
Total Units					**193**

GOLDEN CARIBOO RESOURSES LTD
CARIBOO GOLD PROJECT



Monster Property Purchased 75%
Hardscrabble Tungsten / Gold Mine Purchased 100%
BM Property Staked by IWA
Tom Property Optioned 75%
Downey Property Purchased 75%
Cornish Property Purchased 100%
Bro / Pro Property Purchased 25%
Martin Property Purchased 100%
RTC Property Optioned 100%
Jeff Property Purchased 100%
WELLS
Cariboo Gold Quartz Mine
DWM Property Purchased by IWA
Myrtle Property 50% Option from Gold City Industries Ltd.
Promise Property 50% Option from Gold City Industries Ltd.
BARKERVILLE
Island Mountain / Mosquito Group 50% IWA, 50% IGM
Conkin Property Staked by GCC
Prosperine Property 50% Option from Gold City Industries Ltd.
Mosquito Creek, Island Mountain Gold Mines
Tunnel / Au Property Purchased GCC
LAT Property Staked by GCC
Borealtaz Ledge / BC Vein
Raven Property Purchased 100%
Wanapita Property Optioned
ANTLER-NUGGET MTN PROPERTY Optioned
Am Property Purchased 100%
Richfield Mtn Property Staked by IWA
Bud Property Purchased 100%
Frank Property Staked by IWA
Wing Property Purchased 100%
Pyrite Property Staked by GCC
Bar Property Optioned GCC
IPO Property Optioned 50% to Global Tree Resources Ltd.
C/Z Property Abitibi Joint Venture
Victorian Property Vic 1-T Purchased 100%
Wolf Property Abitibi Joint Venture
Cariboo Hudson Gold Mine
Cariboo Hudson Property Joint Venture 50% With Imperial Metals Ltd.
Lock Property Purchased GCC

FIGURE 1

- Golden Cariboo Resources Ltd.
- Island Mountain Gold Mines Ltd. (50% IWA)
- International Wayside Gold Mines Ltd.
- Park / Staking Reserve Outlines
- Past Producer / Current Discovery

PROPERTY LOCATION MAP

0 2 4 6 8 10

Scale in Kilometres

N W E S

Ken Lord B.Sc.

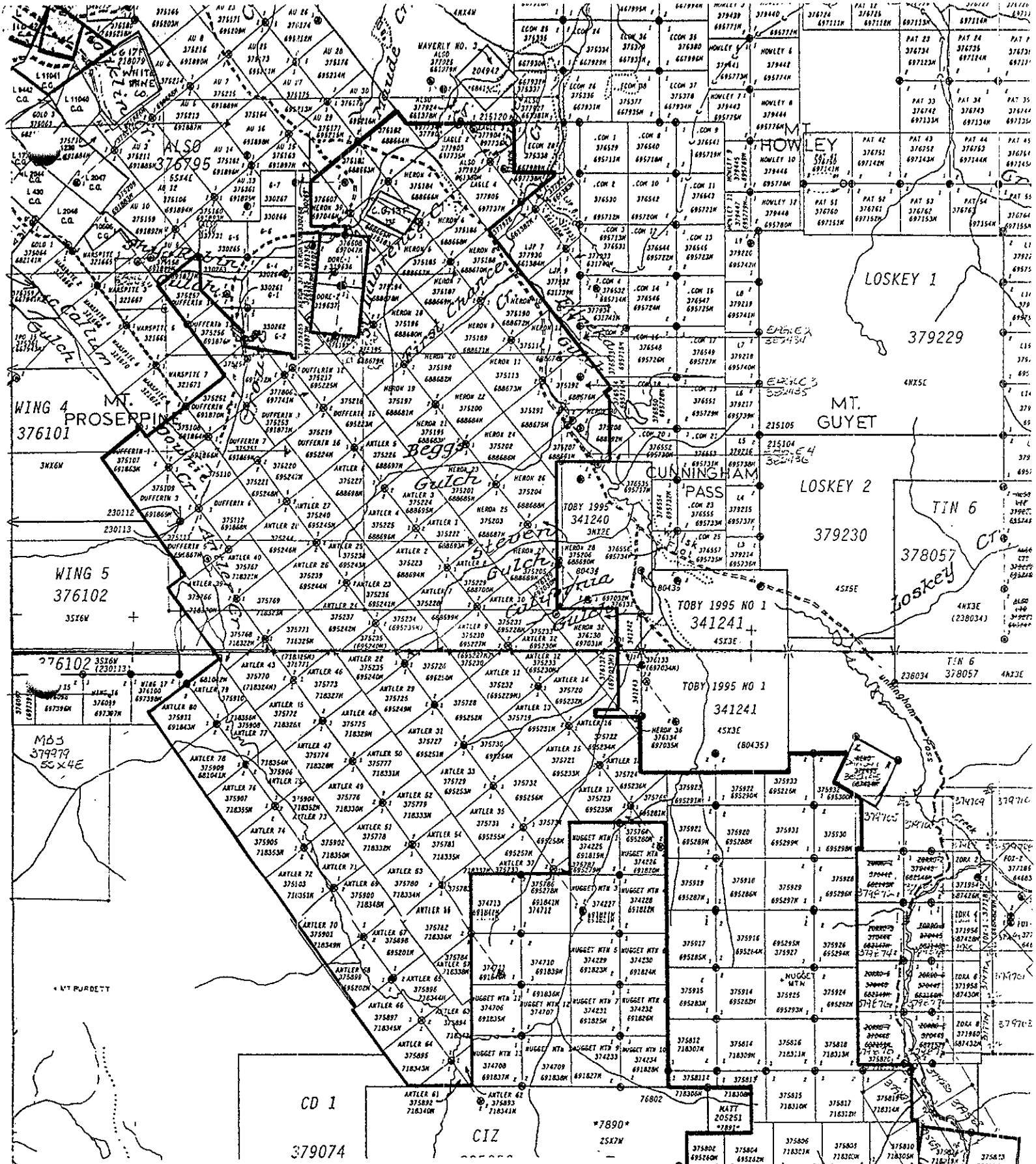


FIGURE 2. ANTLER-NUGGET MOUNTAIN PROPERTY
MINERAL CLAIMS MAP
NTS MAPS 093H03W AND 093A14W
SCALE 1:50,000
NAD83 UTM COORDINATES 604134E AND 5876258N

TABLE 2. LIST OF MINERAL CLAIMS (FMC 127294 OWNER)

Tenure Number	Claim Name	Map Number	Owner FMC Number	Work Recorded To	Units
330261-269	G-1 to G-9	093H03W	127294	20020820	9
337731	G-10	093H03W	127294	20020709	1
Total Units					**10**

2.2 Location

The Antler-Nugget Mountain Property is located in the Barkerville Area of the Cariboo Mining District, central British Columbia, and is situated on NTS map numbers 093H3W and 093A14W (Figure 1). The northwest border of the Property is situated 8.5 km southeast from the Cariboo Gold Quartz Mine at Wells, or 6.0 km southeast along strike from the recent Bonanza Ledge gold discovery on Barkerville Mountain.

The central portion of the Property, or the common Legal Corner Post (LCP) for the four-post Heron, Grouse, Dufferin and Antler 1 claims, is located at NAD83 UTM Zone 10 coordinates 604134E and 5876258N, or NTS map coordinates 121° 26' 49" longitude and 53° 01' 37" latitude (Figure 2).

2.3 Access

The northern portion of the Antler-Nugget Mountain Property can be accessed by driving 5 km east along Highway 26 from Wells, 1 km north along the Bowron Lake Road, 8 km east along the 3100 Road, and 1 km south along the lower Grouse Creek Road. Other portions of the Property can be accessed by driving further north along the lower Grouse Creek Road, and east or west along the Old Barkerville Road connection. The middle and upper portions of Grouse Creek are accessible along the upper Grouse Creek Road.

The southeast portion of the Property, or the Nugget Mtn claims, can be accessed by driving 13.5 km east along the 3100 Road from the Bowron Lake Road, and 7 km south along the upper Antler Creek Road to Nugget Gulch. The southwestern part of the Property can be reached by driving 3 km further south along the upper Antler Creek road.

3.0 PROPERTY HISTORY

Dighem, a division of CGG Canada Ltd., completed an Airborne Geophysical Survey across the entire area presently covered by the Antler-Nugget Mountain Property for Gold City Mining Corporation in 1995. The survey involved the compilation of Resistivity (7200 and 56,000 Hz Coplanar), Vertical Gradient Magnetic, Total Field Magnetic, and Radiometric (Thorium, Potassium and Uranium counts) 1:50,000 scale maps. Gold City also conducted some geological

mapping, mechanical trenching, and rock geochem primarily on the northwestern portion of the Property located along upper Grouse Creek. Records and reports involving this work are not published.

Clifton Resources Ltd. completed a geochemical survey at upper Grouse Creek in 1983. The survey involved the collection of 1467 B-horizon soil samples and 4 rock samples on Proserpine Mountain, and across the steep northwest slope of Antler Mountain. A base-line measuring 800 m long was orientated at 150° and flagged on the northwest slope of Antler Mountain. This area on Antler Mountain is presently covered by the Antler-Nugget Mountain Property. Cross-lines were orientated at 40 to 50 m intervals and sampled at 30 m intervals. A south to southeast trending anomaly greater than 20 ppb Au measuring 50-100 m wide and 800 m long was outlined by the survey (Price and Barclay, 1984). The anomaly correlates with lead concentrations exceeding 60 ppm for a distance of 1,100 m. Highest gold-lead values in the soils are 2545 ppb Au and 7000 ppm Pb, but the anomaly is mostly confined to values ranging from 20 to 160 ppb Au, and 60-240 ppm Pb.

The Dufferin claim overlies an area previously covered by 28 Crown Grant claims. The Crown Grant claims covered the southeast strike extension of known gold showing and deposits located northwest on Mount Proserpine, Barkerville Mountain, Cow Mountain and Island Mountain. Two dump piles from historic underground workings were identified on upper Grouse Creek. Occasional evidence of historic trenching was also identified on some of the cancelled Crown Grant claims, but there are no references or reports for most of this work.

There are records for two gold showings near the base of Antler Mountain along upper Grouse Creek. The first is a discovery, made by Armstrong in the 1920's, of 3 neighboring gold-bearing quartz veins. One vein was exposed for a distance of 33.5 m and was described as a northwest-trending strike fault-controlled quartz vein and was reported to have a grade averaging 8.4 gpt Au. Grades along this vein reached 21.6 gpt Au across 1.2 m, and 6.7 gpt Au (including 425 gpt Ag and 68% Pb) across 1 m (Brown, 1947). This showing was not located or verified during the year 2000 mapping survey. The second showing is the 1.8 m wide Dufferin Vein that strikes 115° and dips 70° north. One sample taken from this vein is reported by Bowman (1887) to contain 52.5 gpt Au and 7.5 gpt Ag. The Dufferin Vein was explored along a 66 m long adit. A galena-rich sample collected from the adit dumpsite assayed 11.3 gpt Au and 1132 gpt Ag (Brown, 1947). The Dufferin Adit dumpsite was identified and one pyrite-rich quartz sample from the dump was collected for this report to verify past records (sample 23814, 14.83 gpt Au and 10.2 ppm Ag, Section 8).

4.0 REGIONAL BEDROCK GEOLOGY

Bedrock in the Cariboo Mining District comprises of four stratigraphically and tectonically unique Proterozoic to Jurassic terranes accreted by thrust and strike-slip faults. The Antler-Nugget Mountain Property is located in the Barkerville Terrane where continental shelf and slope clastic, carbonate and volcaniclastic rocks exhibit regional chlorite prograde metamorphism.

East and west-verging multiple folds, and regional shears are transpressed by boundary faults in the Barkerville Terrane. These complex structures are disrupted by important steeply dipping north to northeasterly striking fault conduits that appear to have flooded areas with gold-mineralizing hydrothermal fluids during the mid Cretaceous to late Tertiary. The Barkerville Terrane exhibits more extensive deformation and metamorphism than neighboring terranes. The lithology is divided into complex layers of grit, quartzite, grey to black and green pelite, and less limestone and volcaniclastics (Struik, 1988).

The Antler-Nugget Mountain Property is primarily underlain by bedrock belonging to the Downey and Hardscrabble successions of the Barkerville Terrane. Section 5 contains further discussions on the structural geology and lithology of important gold-related rock successions and rock members of the Barkerville Terrane.

5.0 DISTRIBUTION OF GOLD DEPOSITS

Lode gold occurrences in the Cariboo Mining Gold District, commencing from the Mosquito Creek Mine and extending 30 km to the Cariboo Hudson Mine, are geologically controlled by specific stratigraphic, structural and metamorphic/alteration parameters within the Barkerville Terrane (Struik, 1988).

5.1 Stratigraphic Controls

In the Barkerville terrane, lode and placer gold deposits are primarily associated with a 2 km wide belt of metasediments and less fine-grained volcaniclastics called the Downy Succession. Most of the lode gold produced (1.23 million ounces) in the historical Cariboo Mining District area was mined from various deposits hosted in the upper Downey Succession. The recently discovered Bonanza Ledge replacement-type gold deposit on Barkerville Mountain appears to be hosted in the lower Hardscrabble Succession near the contact with the Downey Succession (Rhys, 2001). About 60% of the total estimated placer gold produced (2.65 million ounces) in the district derived from watersheds located across the Downey Succession (Kocsis, 1991).

The Downey Succession is made up of grey and olive colored micaceous quartzite and phyllite, white to black limestone and marble, and less fine-grained volcaniclastics. Ankerite and siderite porphryoblasts, less than 3 mm diameter, and finely crystalline calcite and dolomite makes up much of the carbonate component in various weathered-brown phyllite and quartzite. Quartzite and pelitic phyllite sequences are hydrothermally bleached to a light grey or white color near known gold deposits in the Wells Mining Camp.

Rocks of the Downey Succession were previously mapped by Hanson (1935), from youngest to oldest, or east to west, as Baker, Rainbow, BC, Lowhee and Basal members of the Richfield Formation. Light colored rocks of the Baker Member, including pale grey and olive carbonate-rich micaceous quartzite, phyllite, and limestone, are contrasted by dark grey to black quartzite, siltstone and phyllite of the Rainbow Member. Hanson observed a higher frequency of structural deformation in the Rainbow Member where rocks are commonly severely sheared and intricately folded.

Reports from Hanson (1935) and Sullivan (1959) gives descriptions of dominating rock litho-facies for each member of the Richfield Formation (Table 3). Hanson's descriptions derive from an area extending southeast from Island Mountain to Grouse Creek, and Sullivan's descriptions are from the Barkerville Mountain area.

TABLE 3. LITHOLOGY OF THE RICHFIELD FORMATION

RICHFIELD MEMBERS	ROCK LITHO-TYPES (HANSON, 1935)	ROCK LTHO-TYPES (SULLIVAN, 1959)
BAKER 430-1,140 m	Fissile and non-fissile calcareous quartzite, sericite schist, limestone.	Limey argillite and limestone.
RAINBOW 180-650 m	Fissile and non-fissile interbedded argillite and quartzite, limestone.	Dark grey to black quartzite and argillite.
BC 0-650 m	Black argillite.	Black argillite with quartzite bands.
LOWHEE 0-600 m	Fissile and non-fissile grey quartzite and limestone.	Light colored argillite and quartzite with limey bands.
BASAL 60-720 m	Black argillite.	Black argillite with quartzite bands.

The range of exposed thickness for each northwest striking member are given by Hanson (1935), but the true thickness is less since surface expressions are exposed obliquely across layers dipping 30 to 80 degrees northeast. The Rainbow, BC and Basal Members exhibit similar lithologies and may be lateral equivalents expressed surficially by intricate folding. These members were mapped by Struik (1988) as the Hardscrabble Succession. The Baker and Lowhee Members may also be lateral equivalents, and were mapped by Struik as the Downey Succession.

5.2 Structural Controls

Replacement-type gold concentrations are normally restricted to thickened regions of carbonate-rich horizons that occur in hinge zones and sometimes along the limbs of minor folds. Gold-mineralized veins crosscut minor folds, and mostly occur as quartz-filled fractures along Mesozoic to late Tertiary north-south faults and along related stress fracture extensions. Most of these veins appear to post date early ductile deformation. Best stopes mined at the Cariboo Gold Quartz Mine, and hosted in the Rainbow Member, were in a series of short east-west striking transverse and diagonal quartz-filled fault segments that extend up to 50 m outward from major north-striking faults. Some gold-mineralized veins plumb into elongated replacement ore bodies where both appear contemporaneous. The range of strike and dip of gold-mineralized vein sets observed by Brown (1946) at the Cariboo Gold Quartz Mine are given in Table 4.

TABLE 4. VEIN STRUCTURES AT CARIBOO GOLD QUARTZ MINE

TYPE	STRIKE	DIP
Traverse Veins	30° - 50°	70° Southeast – 70° Northwest
Diagonal Veins	70° - 90°	Steeply Southeast
Northerly Veins	North – 20°	40° - 80° East
Strike Veins	Sub-parallel to foliation	Steeply Southwest – 60° Northeast
Bedding Veins	Parallel to foliation	Slightly steeper than litho-layers

5.3 Metamorphic/Alteration Controls

Lode gold concentrations in the Cariboo Gold Mining District are confined to rocks exhibiting chlorite grade metamorphism. It appears that gold in the District precipitated in the cool regime of a hydrothermal system probably driven by an underlying deep-seated intrusive of unknown source. Records of two metamorphic heat flow peaks measured in local veins suggest that a hydrothermal system pumped gold into the Downey Succession at 141±5 Ma (K-Ar) and 114±10 Ma (U-Pb) (Struik, 1988).

The recently discovered Bonanza Ledge mineralized body is comparable to replacement-type style of mineralization, but significantly larger. Gold in the Bonanza Ledge occurs in discrete areas of massive, banded and veinlet fine-grained pyrite within a 20 to 100 m wide zone of intense pervasive sericite-Fe-carbonate-pyrite alteration. There is a strong association with bleaching of the carbonaceous metasedimentary host unit typically near the contact of the Downey and Hardscrabble successions. High grade pyrite, up to 30 m thick, is developed in areas comprising 10 to 70% veinlets, concordant laminations, and massive bands in gangue of muscovite, dolomite/ankerite and quartz. Sheeted, pale grey quartz veins and silicification, that often occurs adjacent to mineralization, appears to represent proximal alteration (Rhys, 2001).

Sets of pyrite-quartz-pyrrhotite-chlorite veinlets, containing trace gold concentrations are located along strike and down-dip from the main Bonanza Ledge mineralized body (Rhys, 2001). Rhys believes that the veinlet mineralogy and pyrite abundance can be used as a guide for local exploration.

6.0 ECONOMIC GEOLOGY

6.1 Lode Gold Production

In the Wells Mining Camp, from northwest to southeast, past gold producers include the Mosquito Creek, Island Mountain, and the Cariboo Gold Quartz Mines. Total gold produced from these three mines amounts to 38.1 million grams (1.2 million ounces) from an estimated 2.74 million tones of ore. The Cariboo Hudson Mine, located 25 km southeast from the Wells Camp, produced 161,300 grams (5,186 ounces) of gold from 12,240 tonnes of ore. Total lode gold produced and types of ore mined over various time periods in the Cariboo Gold District are given in Table 5 for each mine (Turner, 1989).

Nearly all gold production in the Wells Camp derived from the Baker and Rainbow members. The Rainbow Member host vein-type gold deposits mainly near its contact with the Baker Member. Pod-shaped masses of fine-grained pyrite called replacement-type ore was mined from limestone and/or dolomitic siltstone layers in the Baker Member.

TABLE 5. LIST OF LODE GOLD PRODUCERS

MINE	PERIOD	TYPE OF ORE	TONNES MINED	GOLD (grams)
Mosquito Creek	1980-87	Predominantly replacement	92,826	1,090,316
Cariboo Gold Quartz at Island Mountain (Aurum Mine)	1934-67	Vein and Replacement	1,123,430	17,554,724
Cariboo Gold Quartz at Cow Mountain	1933-59	Vein and minor Replacement	1,526,270	19,494,588
TOTAL			**2,742,526**	**38,139,628**
Cariboo Hudson Mine	1938-39	Vein	12,240	161,300
TOTAL			**2,754,766**	**38,300,928**

6.2 Placer Gold Production

Placer gold production records for the Cariboo Mining District are incomplete for earlier years prior to the formation of the BC Ministry of Mines in 1874. Ministry placer gold production records extending from 1874-1949, from various watersheds across the Antler-Nugget Mountain Property, are given by Holland (1950). Placer gold produced prior to 1874 (1859-1873) has been estimated by reports given by Johnson and Uglow (1926). An estimated 1.8 million ounces of placer gold was mined from the Cariboo District (Kocsis, 1991) prior to the formation of the BC Ministry of Mines in 1874. Total placer gold produced to date in the district is estimated to be 2.65 million ounces.

Johnson and Uglow estimates that $5 million in placer gold (294,118 oz) was produced from upper Antler Creek during the 1860's when gold was valued $17 per crude ounce. Most of the estimated 50,000 oz of placer gold recovered on Grouse Creek during the period extending from

1859 to 1873 (Johnson and Uglow, 1926) was produced in drift workings operated by the Heron Company. The Grouse and Heron mineral claims presently covers the historical Heron workings. Much of the placer gold recovered from Cunningham Creek was produced on a placer property called the Discovery Claim. This historical claim is now covered by the Nugget Mtn 39-42 mineral claims.

The total estimated placer gold produced from creeks located across the Antler-Nugget Mountain Property amounts to 413,140 crude ounces (see Table 6). The range of placer gold purities (fineness) (Holland, 1950), from different locations across the Property, suggests that the gold derived from multiple lode sources. Holland assigned the district fineness average (875.5) to gold recovered from California Gulch, Wolfe Creek, and Nugget Gulch.

TABLE 6. ESTIMATED PLACER GOLD PRODUCTION ON CREEKS LOCATED ACROSS THE ANTLER-NUGGET MOUNTAIN PROPERTY

Watershed	1859-1873 Production (oz)	1874-1945 Production (oz)	1859-1945 Production (oz)	Gold Fineness
Grouse Creek	50,000	14,435	64,435	813-833
Beggs Gulch	Unknown	4,199	4,199	789-801
Stevens Gulch				821
California Gulch				875.5
Wolfe Creek	Unknown	1,525	1,525	875.5
Antler Creek	294,118	33,652	327,770	819-861
Nugget Gulch	Unknown	2,354	2,354	875.5
Cunningham Creek	Unknown	12,857	12,857	853.5-870
Total Production			**413,140**	

7.0 PROPERTY GEOLOGY FIELD DESCRIPTIONS

Bedrock exposures on the Antler-Nugget Mountain Property are mainly confined to valley bottoms where overburden has been removed by hydraulic placer mine operations. Bedrock exposures are intermittent to rare at higher elevations (>1,525 m asl) on Antler Mountain and Nugget Mountain where overburden commonly consists of a thin blanket, usually less than 1 m thick, of locally derived elluvium, distal glacio-colluvial sediments, and Podzol soils. Valley sides and unmined valley bottoms are mostly covered by thick masses of lodgement till and postglacial outwash alluvium ranging from 10 to 30 m thick.

Numerous and extensive bedrock exposures are available along a 4 km portion of Grouse Creek. This area provides a detailed record of bedrock belonging to the Downey Succession (3.5 km wide) and part of the Hardscrabble Succession. Most of the fieldwork described in this report involved the mapping of bedrock exposures along Grouse Creek. Other work includes bedrock mapping near St. Lawrence Creek, and along Beggs Gulch and Stevens Gulch. Higher

elevations on Antler Mountain and Mount Proserpine were traversed at various locations in attempt to locate bedrock exposures.

The bedrock geology is discussed below for each area investigated on the Property. A bedrock geology map (Figure 3) was generated at a 1:10,000 scale using Orthophoto Map 93H.003 (1:20,000 scale) that was provided by the Quesnel office of West Fraser Mills Ltd. Bedrock locations were established with hip-chain and compass, and plotted by using orthographic reference points. Bedrock correlations and further discussions for all investigated areas are given in the report Summary (see Section 9.0).

7.1 Grouse Creek Area

Two reference points along Grouse Creek were used to tie-in and describe locations of bedrock exposures. **1) Grouse Creek Bridge Location** or the crossing of the Old Barkerville Road over Grouse Creek (5878500N, 604300E). **2) Shy Robin Gulch Location** or the confluence of Shy Robin Gulch and Grouse Creek (5876980N, 602860E). Some of the bedrock exposures along or near Grouse Creek, at locations north and south of the Grouse Creek Bridge, are described in Table 7. Bedrock exposures from 326mS to 820mN are located along Grouse Creek. Exposures from 860mN to 2150mN are mainly along the Grouse Creek Road. Bedrock exposure located further upstream along Grouse Creek, or north of Shy Robin Gulch, are listed in Table 8. Geochem rock sample numbers are given in brackets beneath the description column.

TABLE 7. BEDROCK EXPOSURES LOCATED NORTH AND SOUTH OF THE GROUSE CREEK BRIDGE.

Location	Rock Type	Strike°/Dip°	Description
UNIT 1			
326mN	N/A		1m patch of ferricrete gravel.
304mN	Phyllite	301/75S	Black, graphitic, siliceous (qtz-pyr 23802).
302mN	Fault	283/vert	30cm wide gauge.
300mN	Phyllite	286/72S	Black, graphitic, calc-silic veins < 1cm wide.
295mN	Fault	335/85W	Sample (23801).
295mN -265mN	Phyllite	304/60S	Dark grey, silty, occasional laminated silty dolomitic layers.
215mN	Fault	283/58N	10cm gouge.
215mN	Phyllite	286/vert	West side of fault – black, fissile, graphitic.
215mN	Phyllite	275/82S	East side of fault – black, interlaminated marble/limestone.
215mN -188mN	Phyllite Limestone	300/85S	Black phyllite, and 20% thinly laminated white-tan marble/limestone.
UNIT 2			
156mN	Phyllite Siltstone Quartzite	291/64S	Medium to dark grey, silty, 10% finely laminated phyllite. Interlayered siltstone and very fine-grained quartzite.
120mN	Phyllite	307/58S	Medium grey, slight greenish, occasional laminated dolomitic siltstone weathered dark brown.

70mN -50mN	Siltstone	310/68S 292/77S	Light grey, talcy, slightly dolomitic, very light green scratch.
50mN -40mN	Siltstone	296/80S	Light green, sericitic, 1% medium to coarse-grained disseminated pyrite, and some interlayered dark grey siltstone.
40mN -35mN	Siltstone	296/80S	Light silver grey, phyllic.
24mN	Phyllite	311/84S	Light to medium grey, silty, very light grey to white scratch.
5mN -0mN	Phyllite	314/84N	Light green, silty phyllite with very fine-grained argillaceous quartzite laminations.
0mN			**Old Barkerville Road – Grouse Creek bridge location**
12mS	Phyllite Quartzite	306/82N	Light to medium green fissile chloritic-sericitic phyllite. Less light green sericitic fine-grained quartzite layers with occasional yellow-brown dolomitic weathering.
30mS	Phyllite Quartzite	310/80N	Same as above.
75mS	Phyllite	313/82S	Medium to dark lead grey, occasional very fine-grained quartzitic sections, <1% disseminated vf-m gr pyr, 3% patchy vc gr ankerite porphyroblasts.
92mS	Phyllite	308/76S	Dark grey, silty.
100mS	Phyllite	300/84S	Medium to dark grey, slight greenish, occasional quartzitic sections.
125mS	Phyllite	320/vert	Same as above, 5% narrow quartz stringers striking 290°.
165mS -180mS	Phyllite	305/75S	Dark grey, silty, occasional medium olive-sericitic, <1% disseminated very coarse-grained pyrite.
203mS	Phyllite	302/76S	Medium dark grey, fissile.
218mS	Phyllite	304/70S	Medium olive grey, fissile.
235mS	Phyllite	306/74S	Dark grey slight olive, fissile.
258mS	Phyllite	308/74S	Same as above.
280mS	Phyllite	318/85N	Same as above. Occasional medium olive grey phyllite with 10% coarse-grained ankerite porphyroblasts.
420mS	N/A		Calcite/slight ferricrete cemented post-glacial gravels.
460mS	Phyllite Siltstone	278/62S	Light to medium olive grey, fissile phyllite, interlayed with slightly quartzitic siltstone.
UNIT 3			
600mS -603mS	Limestone	298/82N	Medium grey, argillaceous, 15% calc-silic vein stockwork.
603mS -607mS	Limestone Phyllite	299/85S	Thinly interlayered dark grey argillaceous limestone and medium grey calcareous phyllite.
607mS -625mS	Limestone	290/86S	Medium to dark grey argillaceous limestone.
625mS			Waterfall location.
625mS -628mS	Limestone	290/85S	Medium to dark grey finely crystalline interlayered with white cream coarse flaky crystalline, sericitic partings.
628mS -652mS	Limestone Mudstone	288/78N	Medium grey argillaceous microcrystalline limestone with brown ankeritic-dolomitic layers, and light green sericitic calcareous mudstone.

652mS -667mS	Limestone	282/53N	Light to medium grey, argillaceous, 5% calc-silic veins <3cm wide sub-parallel to bedding.
667mS -700mS	Limestone	301/78N	Dark grey, argillaceous, fine crystalline to coarse flaky.
700mS -720mS	Limestone Phyllite	284/74N	Limestone layers up to 2 m wide as above interlayered with medium grey calcareous phyllite, up to 8% calc-silic veins sub-parallel to bedding, 15% layered ankeritic-dolomitic.
737mS -740mS	Phyllite Actinolite Intrusive?	282/80N	Light olive grey with abundant orange-brown ankeritic-dolomitic weathering, 8% c gr actinolite phenocrysts up to 4mm long.
770mS -784mS	Limestone	292/82S	Dark grey argillaceous limestone, and less dark grey moderately fissile calcareous-dolomitic phyllite.
786mS -804mS	Limestone Phyllite	292/62N	Dark grey argillaceous microcrystalline limestone interlayered with dark grey pyritic fissile phyllite, and some olive grey sericitic calcareous phyllite.
804mS -820mS	Phyllite Limestone	285/80N	Dark grey and minor olive calcareous pyllite, and some thinly layered argillaceous limestone.
860mS	Phyllite Marble	290/80N	Dark grey calcareous fissile phyllite with less thinly layered grey marble.
886mS	Limestone Phyllite	282/85N	Dark grey argillaceous limestone with less dark grey calcareous phyllite.
900mS	Limestone	286/85N	Dark grey, argillaceous.
957mS	Phyllite Limestone	283/vert	Light olive sericitic ankeritic calcareous phyllite layered with dark grey phyllic argillaceous limestone.
968mS	Limestone	286/86N	Dark grey, argillaceous.
972mS	Phyllite Marble	285/85N	Light olive weathered tan sericitic calcareous phyllite with less white cream marble/ankerite laminations.
1000mS	Phyllite Marble	280/72N	Same as above.
UNIT 4			
1045mS -1062mS	Siltstone	297/82N	Light to medium olive grey phyllic siltstone, up to 10% fine to medium-grained ankerite porphyroblasts.
1063mS	Phyllite	306/77N	Light olive weathered tan, talcy, 15% fine to medium-grained ankerite porphyroblasts.
UNIT 4b			
1082mS -1122mS	Schist Intrusive?	287/vert	Dark olive, 20% coarse-grained flaky sericite-chlorite, 12% quartz-ankerite, minor disseminated coarse-grained pyrite.
1175mS	Siltstone	288/76N	Dark olive grey, occasional quartzitic layers, 5% streaky/patchy quartz-carbonate.
1240mS -1255mS	Siltstone	285/40N	Same as above with 5% olive black chloritic laminations.
1290mS	Siltstone	294/75N	Same as above.
UNIT 4			
1325mS	Siltstone	283/71N	Medium olive grey, chloritic, occasional calc-silic veins 1-2 cm wide.
1420mS	Phyllite	300/68N	Light olive weathered tan, sericitic, gritty, 5% quartz-carbonate laminations, 15% medium to coarse-grained ankerite porphyroblasts, 1-2% medium to coarse-grained disseminated pyrite (23804).

1474mS	Phyllite	276/60N	Light olive, sericitic, 5% ankerite porphyroblasts and laminations, and occasional gritty layers.
1537mS	Phyllite	289/70N	Same as above.
1605mS	Phyllite	312/62N	Light to medium olive, sericitic, 15-20% medium to very coarse-grained ankerite porphyroblasts.
1620mS			**Road creek crossing**
1855mS	Phyllite Quartzite?	295/77N	Light olive grey, silty phyllite with 5% streaky-patchy ankerite, and occasional quartz-carbonate-graphite veins. Abundant black quartzite floats with coarse to very coarse well-rounded black quartz grains.
1900mS	Phyllite	291/68N	Light olive, sericitic, ankeritic.
UNIT 5			
1954mS	Phyllite Graphite Limestone Siltstone	297/78N	Black graphitic phyllite, thinly layered black argillaceous (micritic) limestone, and some medium grey dolomitic siltstone weathered brown.
1960mS -1980mS	Siltstone	296/71N	Very dark grey to black, calcareous, ankeritic-dolomitic brown weathering, less graphitic layers.
2092mS	Quartzite Phyllite	307/70N	Medium to dark grey calcareous argillaceous very fine-grained quartzite with traces of medium-grained pyrite. Less dark grey phyllite.
UNIT 6			
2150mS	Phyllite	302/79N	Light olive, silty, slatey, minor Fe-carbonate staining, occasional quartz-carbonate laminations.
2160mS			**Grouse Creek – Shy Robin Gulch confluence**

TABLE 8. BEDROCK EXPOSURES LOCATED SOUTH OF THE CONFLUENCE OF GROUSE CREEK AND SHY ROBIN GULCH. (all exposures listed are located on the west side of Grouse Creek unless indicated east in Location column)

Location	Rock Type	Strike°/Dip°	Description
0mS			**Grouse Creek – Shy Robin Gulch confluence**
UNIT 6			
6mS	Quartzite	303/80N	Light to medium grey quartzite with black phyllite partings.
65mS	Phyllite	obscured	Light to medium and occasional dark grey quartzitic phyllite with scattered black coarse quartz grains.
140mS -190mS	Phyllite	274/70N	Light to medium olive, fissile-platy, quartzitic in part, occasional dark green chloritic laminations at 185mS.
140mS **(east)**	Phyllite	305/62N	Same as above.
200mS -208mS	Phyllite	279/64N	Dark grey with less light olive phyllite.
200mS -208mS **(east)**	Phyllite	293/64N	Light olive, slaty, occasional dark olive-chloritic.
208mS -255mS	Phyllite Quartzite	289/69N	Light to medium olive phyllite, interlayed quartzitic phyllite, and less micaceous quartzite.

208mS -255mS **(east)**	Phyllite	308/44N	Light to medium grey massive quartzitic phyllite.
255mS -275mS	Phyllite	269/70N	Light to medium grey, less olive, occasional dark grey.
275mS -295mS	Phyllite	295/80N	Medium dark grey, fissile, occasional very dark greenish grey chloritic laminations.
295ms -350mS	Phyllite Quartzite	295/67N	Light olive and grey quartzitic sericitic phyllite, and less thinly interlayered sericitic fine to coarse-grained micaceous quartzite – slightly pyritic.
332mS	Phyllite Quartzite	289/26N	Laminated-crenulated light olive quartzitic phyllite and sericitic quartzite. Some olive siltstone with abundant coarse-grained ankerite porphyroblasts
315mS -335mS **(east)**	Phyllite Quartzite	299/72N	Light olive grey sericitic phyllite in part ankeritic-dolomitic, and occasional medium to coarse-grained sericitic quartzite layers <10cm wide.
340mS			Minor fold with axial plane dipping 70°N.
380mS -420mS	Phyllite Siltstone	290/59N	Light olive phyllite and siltstone, in part quartzitic.
420mS -435mS	Phyllite	279/50N	Medium to dark grey.
435mS -495mS	Phyllite	269/76N	Medium grey to olive, fissile.
495mS -512mS	Phyllite	320/66N	Dark grey, quartzitic.
515mS	Quartzite	318/63N	Dark grey, fine to medium-grained, slightly micaceous.
550mS	Phyllite	313/69N	Medium grey, silty.
720mS -735mS	Phyllite	319/72N	Medium to dark grey, gritty.
735mS -740mS	Phyllite	314/60N	Light to medium grey, gritty, silty, sericitic.
740mS			**Steep gulch on east side of Grouse Creek**
740mS **(east)**	Phyllite Siltstone	285/62N	Light to medium slight olive grey gritty phyllite, and gritty siltstone with 10% medium-grained ankerite porphyroblasts.
770mS **(east)**	Phyllite Siltstone	300/66N	Same as above.
780mS	Phyllite Siltstone	284/66N	Medium to dark grey phyllite with abundant fine-grained ankerite porphyroblasts, and interlaminated siltstone.
830mS	Phyllite Siltstone		Same as above with 5-8%very coarse-grained euhedral siderite after pyrite? Occasional black graphite phyllite.
UNIT 7			
835mS -840mS	Phyllite Graphite	296/70N	Black fissile graphitic phyllite.
840mS	Fault	298/71N	2m wide fault gouge consisting of black graphitic phyllite.
840mS -850mS	Quartzite	298/71N	Light to medium grey, slight olive, fine to medium with less coarse-grained, poorly sorted.
850mS -865mS	Phyllite	295/76N	Very dark grey graphitic phyllite, occasional layers with 4% very coarse-grained siderite after pyrite(?) some quartz-Fe-carbonate bands.

865mS -875mS	Quartzite	298/60N	Light grey, minor olive, micaceous, sericitic, fine to medium-grained.
875mS	Fault	298/vert	1-2m wide fault gauge in black graphitic phyllite, fault not evident on east side of Grouse Creek.
875mS -890mS	Phyllite	296/57N	Light to medium grey, some black and olive, 10-25% quartz carbonate, 6% very coarse-grained siderite after pyrite?
900mS	Phyllite		Dark grey, quartzitic, 10% very coarse grain Fe-carbonate porphyroblasts.
1000mS -1040mS	Quartzite	280/71N	Dark grey, fine with less coarse-grained, poorly sorted, micaceous.
1040mS	Quartz Vein	292/68N	1.5m wide barren quartz vein (23805), 10cm graphite on north side of vein, **shaft** located over vein.
1087mS	Phyllite Quartzite	320/77N	Slightly ankeritic dark grey phyllite interlayered with micaceous very fine-grained quartzite.
1138mS -1200mS	Phyllite Bleached	296/74N	Outcrop located along cat trail on west side of Grouse Creek, bleached light olive, silty, sericitic, gritty lenses, 5-10% ankerite porphyroblasts, 1138-1143mS (23811), 1143-1148mS (23810), 1155mS (23809).
1221mS	Phyllite Siltstone Quartzite	317/62N	Dark grey fissile to slaty phyllite with 2% coarse-grained euhedral vugs. Some thinly interlayered dolomitic siltstone weathered brown with 2% fine to medium-grained disseminated pyrite (23812). Less micaceous fine-grained quartzite.
1315mS	Phyllite	Talus slabs	Abundant slabs (float) of siliceous phyllite-quartz stockwork.
1330mS **(east)**	Quartzite	306/68N	Light grey, micaceous, ankeritic, fine-grained.
1430mS	Quartzite	304/72N	Light grey, fine-grained, micaceous, 5% ankerite.
1540mS **(east)**	Quartzite	Floats	Medium grey, medium to coarse-grained/silty matrix.
1610mS **(east)**	Quartzite	339/58N	Medium grey, fine/some medium-grained, micaceous, parallel quartz veins <85cm wide striking 55°/60°E (23813).
1690mS	Quartzite	Talus slabs	Light to medium grey, fine to medium-grained, slightly micaceous, 10% coarse-grained siderite porphyroblasts.
1700mS			**Clifton Resources geochem baseline**
1725mS	Quartzite	333/85N	Same as above
1740mS -1760mS			**Dufferin Adit dump-site (23814)**
1820mS	Quartzite Phyllite	278/73N	Light medium grey, medium to coarse-grained ankeritic quartzite. Occasional olive phyllite.
1900mS			**Gulch on west side of Grouse Creek**
1900Ms	Phyllite Graphite	293/58N	Black, graphitic, slightly silty, 10% thinly laminated white very fine-grained quartzite.

7.2 Southeast Mount Proserpine Area

A series of bedrock layers mapped along trenches and cat trails on the southeast part of Proserpine Mountain is dominated by dark grey to black colored pelite and quartzite of the Hardscrabble Succession. The pelite layers consist of graphitic phyllite and siltstone that are variably gritty along some sections. The quartzite layers, less than 10 m wide, are mainly medium to coarse-grained, with less fine-grained, micaceous, occasionally dolomitic, and contain up to 7% coarse-grained ankerite and siderite porphyroblasts. Some sericite-rich phyllite layers up to 20 m wide, containing lenses of fine to medium-grained grit, are bleached light olive. The bleached layers contain up to 1% disseminated medium-grained pyrite and 5 to 10% ankerite porphyroblasts.

Some of the black phyllite and quartzite layers mapped along a cat trail in small isolated outcrops near Grouse Creek are foliated obliquely (northeast) to the regional strike. The unusual bedrock contortion may be due to structural deformation associated with the Grouse Creek Fault such as minor folding along vertical axial planes, or offset splay faulting. Beyond this contorted area, the southeast extension of the Hardscrabble Succession exhibits a lithofacies change where rock layers primarily consist of dark grey colored micaceous quartzite.

7.3 St. Lawrence Creek Area

Along the east side of lower St. Lawrence Creek, bedrock exposed in an old placer mine pit primarily consists of black pelite of the Hardscrabble Succession. This pelite unit extends laterally northwest where it is exposed at the Old Barkerville Road Bridge crossing at St. Lawrence Creek, and further northwest across the Lower Grouse Creek Road and at Grouse Creek.

The black pelite unit exhibits a phyllite metamorphic grade and occasionally contains coarse-grained muscovite flakes. Less than 1% coarse-grained pyrite is disseminated in sporadic sections of the unit. Up to 15% coarse-grained ankerite porphyroblasts are concentrated in various pelite layers reaching 3 m wide. Alternating clay and silt-rich laminations parallel S1 foliation that dips steeply to the north and strikes variably from 280° to 315°.

The black pelite unit is up to 400 m thick and the south boundary appears to terminate abruptly in the clear-cut area located on the east side of St. Lawrence Creek. Bedrock exposures in the clear-cut are rare and confined to access cat-roads. Along one access road, a bleached light olive colored phyllite is in sharp contact with the black pelite unit. The bleached phyllite contains up to 15% disseminated coarse-grained siderite, scattered quartz vein lenses less than 15 cm wide, and discontinuous thinly layered fine to medium-grained quartzite. There are no bedrock exposures further south into the clear-cut. Abundant limestone float located about 100 m south of the bleached phyllite probably derived from a local carbonate horizon. The lithology of the limestone float is similar to the carbonate horizon mapped to the northwest along Grouse creek.

7.4 Beggs Gulch Area

Beggs Gulch flows northeasterly across the north slope of Antler Mountain and drains into Antler Creek near the 3100 Road. Bedrock exposures are mainly confined to the lowermost 800 m length of the Gulch. Best exposures are located at the mouth of the gulch along a narrow rock canyon, and 600 m upstream along an area worked by a hydraulic placer mine operation.

Bedrock along the 250 m long rock canyon is dominated by medium grey-colored limestone with less interlayered phyllite. The limestone layers exhibit a micro to fine-crystalline texture and are variably slightly to moderately argillaceous. The carbonate layers are weakly to moderately foliated with cleavage striking from 315° to 327° and dipping 61° to 83° south. Dip variations are faintly recognized along tight ductile minor folds with near vertical axial planes. Fold axis plunge 6° southeast. Bedding appears to parallel foliation in most places. The phyllite is mostly medium to dark grey-colored and occasionally light olive. The olive-colored layers are calcareous and sericitic. Clusters of narrow (<5 cm wide) calc-silic stockwork are common along the canyon and restricted to limestone layers.

A list of bedrock exposure occurrences within the rock canyon and throughout the hydraulic area is given in Table 9. Rock geochem samples are given in brackets below the description column. The 1200 m long area worked by hydraulic placer operations along Beggs Gulch commences at a point 667 m upstream from the 3100 Road. Bedrock along the uppermost 875 m portion of the workings is entirely obscured by tailings and overburden.

TABLE 9. BEDROCK EXPOSURES LOCATED ALONG BEGGS GULCH SOUTH OF THE 3100 ROAD CROSSING

Location	Rock Type	Strike°/Dip°	Description
0mS			**Beggs Gulch – 3100 Road crossing**
UNIT 3			
36mS -262mS	Limestone Phyllite	315° to 327°/ 61° to 83°S	Medium grey, micro to finely crystalline, argillaceous limestone, and medium to dark grey non-calcareous phyllite. Less light olive, calcareous phyllite.
UNIT 4			
500mS	Phyllite	285°/66°S	Light olive, sericitic phyllite with quartz-carbonate lenses
667mS			**Start of hydraulic and other placer workings**
670mS	Quartzite Phyllite	283°/86°S	Light medium olive grey weathered orange brown, micaceous, ankeritic, very fine to fine-grained quartzite. Less interlayered gritty, sericitic, ankeritic phyllite.
675mS	Phyllite Siltstone	270°/45°S	Weathered orange brown throughout. Weak quartz-sericite-carbonate alteration. Up to 5% coarse flaky muscovite. Thinly interlayered light olive siltstone, and occasional black chlorite inclusions. Trace of mariposite.
687mS	Phyllite	293°/vertical	Very fissile, light to medium grey with some streaky dark manganese staining.
704mS	Phyllite	288°/88°S	Interlayered very dark grey chloritic phyllite with up to 7% coarse-grained siderite porphyroblasts (in part pyritic), and light olive grey sericitic-ankeritic-quartzitic phyllite.

890mS	Siltstone	319°/85°N	Light olive weathered red-brown, very ankeritic, very fine to coarse-grained quartz grit, some coarse-grained siderite.
922mS	Siltstone	308°/vertical	Same as above.
UNIT 5			
1267mS	Siltstone Phyllite	Obscured	Medium dark grey siltstone, and dark grey phyllite. Up to 1% disseminated fine-grained pyrite, and pyritic quartz lenses.
UNIT 6			
1797mS	Quartz Float	N/A	Quartz float located in coarse placer tailings pile. 12% patchy massive very coarse-grained galena, and 7% very coarse-grained pyrite (23818).

7.5 Area Between Beggs Gulch and Stevens Gulch

Bedrock exposures between Beggs Gulch and Stevens Gulch are mostly confined to a mining access road that commences about 900 m along the Stevens Gulch access road from the 3100 Road. The access road strikes westerly to northwesterly and cuts local stratigraphy obliquely. For this reason, bedrock exposures located along the 840 m long road only provides details for a stratigraphic section about 200 m wide. The northwest half of the road follows a bedrock ravine that forms a small tributary flowing northwest into Beggs Gulch. The resistive bedrock wall on the southwest side of the ravine consists of limestone. The limestone is dark grey, very finely-crystalline, is moderately to very argillaceous and silty. The width of this carbonate layer probably does not exceed 30 m. Foliation appears to parallel bedding with strike locally varying from 319° to 335°, and dipping steeply anywhere from 76° to 88° south. This limestone horizon is darker-colored and more micritic than the more extensive 250 m wide carbonate horizon mapped at the mouth of Beggs Gulch, and the two horizons are probably not lateral equivalents.

Bedrock located stratigraphically higher or immediately northwest of the ravine limestone unit is dominated by olive-colored phyllite that exhibits a distinctive silty to gritty texture. The phyllite is sericite-rich, ankeritic, and occasionally calcareous and slightly chloritic. Details of this phyllite unit and other rocks located further northeast are given in Section 7.6.

7.6 Stevens Gulch Area

Bedrock in this area was mapped by traversing along the Stevens Gulch access road from the 3100 Road, and continuing to the headwaters of Stevens Gulch for a total distance of 3,140 m. Bedrock exposures are frequent along the lower part of the access road, or the initial 700 m portion of the traverse. Exposures are sporadic higher upstream where bedrock is mostly obscured by overburden of unknown thickness. The ravine limestone unit (see Section 7.5) was not located at Stevens Gulch where it projects into an area masked by overburden. The limestone unit probably crosses the gulch at a point 900 m along the traverse. Table 10 contains descriptions of exposures in the Stevens Gulch area. The first 400 m part of the traverse, commencing at the 3100 Road, crosses local stratigraphy obliquely in a south to southeasterly direction, whereas the remaining northwest trending part of the traverse crosses stratigraphy at right angles. Bedrock locations south of the 2715mS traverse point are situated along the

southwest fork of Stevens Gulch. Rock geochem samples are given in brackets below the description column.

TABLE 10. BEDROCK EXPOSURES LOCATED IN THE STEVENS GULCH AREA

Location	Rock Type	Strike°/Dip°	Description
0mS			**Stevens Gulch Access Road – 3100 Road intersection**
UNIT 4			
26mS	Phyllite	206/40N Float?	Light to medium olive, ankeritic-weathered red-brown, quartzitic, sericitic.
105mS	Phyllite	314/46S	Light to medium olive grey, fissile and ankeritic-quartzitic-competent interlayers.
155mS	Phyllite	310/42N	Light to medium green, sericitic, slightly chloritic, silty interlayers.
160mS -200mS	Phyllite	Fragments along road.	Olive, ankeritic, sericitic.
335mS	Phyllite	291/28S	Light olive, ankerite-quartz-sericite.
423mS	Phyllite	308/75N	Olive, very ankeritic, silty, dolomitic weathered red-brown.
480mS -540mS	Phyllite	Fragments along road.	Light to medium greenish grey, silty, slaty.
575mS	Phyllite	Fragments along road.	Olive, ankerite-sericite, weathered red-brown.
632mS	Phyllite	307/74S	Light medium olive, quartz-ankerite-sericite.
700mS	Phyllite	310/62S	As above.
900mS			**Beggs Gulch access road.**
UNIT 6			
1750mS	Phyllite	Excavated Fragments.	Light to medium olive, weathered red-brown, quartz-ankerite-sericite.
1792mS	Phyllite Quartzite	311/86N	Phyllite as above with thin layers and lenses of ankeritic-sericitic quartzite.
UNIT 6b			
1960mS	Limestone	Fragments	Light olive grey, very finely-crystalline, pure.
2015mS	Phyllite	323/43S	Medium olive, ankeritic, sericitic, silty, gritty.
2030mS			**Termination of hydraulic placer workings.**
2037mS	Marble	2 m diameter float.	Siliceous Fe-carbonate with 15% quartz stockwork (23817), 10 cm wide quartz vein with 10% coarse-grained galena (23816).
UNIT 6			
2515mS	Phyllite	Abundant fragments.	Medium bluish-green, silty, slightly ankeritic.
2638mS	Siltstone	324/68S	Medium green to olive, slightly ankeritic.
2690mS	Quartzite	314/64S	Light olive, slightly micaceous, very fine to fine-grained.
2715mS			**Fork in creek.**
UNIT 7			
3015mS -3055mS	Quartzite Phyllite	Abundant Fragments.	Medium to dark grey, micaceous, fine-grained quartzite. Dark grey gritty phyllite.
3140mS plus 80m at 322°	Quartzite Phyllite	293/82N	Quartzite as above interlayered with less very dark grey phyllite containing 10% very coarse-grained siderite porphyroblasts. Some light to medium grey gritty phyllite.

8.0 GEOCHEMISTRY RESULTS

A total of 22 rock samples (Table 11) were collected during this mapping survey from various parts of the Antler-Nugget Mountain Property for geochem analyses. These samples were sent to ALS Chemex Labs in Vancouver for 34 element ICP and gold (FA+AA) geochem analyses (see Appendix I). Samples with gold values exceeding the ICP detection limit (10,000 ppb Au) were subjected to a gravimetric fire assay and reported in gpt. The geochem rock samples are assigned to various geological bedrock units defined in Section 9. Details of rock sample locations are given in Section 7 and on Figure 3.

TABLE 11. LIST OF ROCK-GEOCHEM SAMPLES WITH GOLD (ppb Au and gpt Au in brackets) AND SILVER (ppm Ag).

Sample No.	Location (True Width)	Description (Bedrock Unit)	Au ppb (gpt)	Ag ppm
23801	Lower Grouse Creek (30 cm)	Black graphitic phyllite hosting 3% streaky semi massive f-m gr pyr adjacent to fault gouge striking 335°/85°W (Unit 1)	170	1.8
23802	Lower Grouse Creek (1.5 m)	Black graphitic pyllite with narrow quartz stockwork, 2% streaky semi massive f-c gr pyr (Unit 1)	210	4.4
23803	Lower Grouse Creek Rd. (30 cm)	Sericite-ankerite phyllite, <1% streaky massive f gr pyr (Unit 2)	<3	<0.2
23804	Middle Grouse Creek (grab sample)	Sericite-ankerite phyllite with 10% quartz-carbonate laminations (Unit 4)	<3	<0.2
23805	Shaft on upper Grouse Creek (1.5 m)	Quartz vein, no visible pyr (Unit 7)	155	<0.2
23808	Upper Grouse Creek (grab sample)	Bleached olive sericite phyllite, 10% disseminated euhedral v c gr siderite-after pyr? (Unit 7)	<3	<0.2
23809	Upper Grouse Creek (grabs across 4 m)	Bleached olive sericite phyllite, <1% pyr, 5-10% c gr ankerite porphyroblasts (Unit 7)	<3	<0.2
23810	Upper Grouse Creek (grabs across 5 m)	As above (Unit 7)	<3	<0.2
23811	Upper Grouse Creek (grabs across 5 m)	As above (Unit 7)	<3	<0.2
23812	Upper Grouse Creek (grab sample)	Thinly interlayered dolomitic siltstone, <2% disseminated fine to medium-grained pyrite (Unit 7)	110	26.4
23813	Upper Grouse Creek (85 cm)	Traverse quartz vein, 5% galena, 2% pyr (Unit 7)	43	89.8
23814	Dufferin Adit dumpsite (grab sample)	Quartz fragment, 15% f-c gr patchy mass pyr (Unit 7)	>10000 (14.83)	10.2
23815	Upper Grouse Creek (grab sample)	0.4 m dia quartz boulder float, 2% patchy mass c gr galena (Unit 7)	100	>100.0

Sample No.	Location (True Width)	Description (Bedrock Unit)	Au ppb (gpt)	Ag ppm
23816	Stevens Gulch (10 cm)	1.5 m dia marble float, quartz vein with 5-8% c gr galena (Unit 6b)	40	40.0
23817	Stevens Gulch (1.5 m dia float)	As above, marble float (Unit 6b)	10	>0.2
23818	Beggs Gulch (40 cm dia float)	Quartz float, 12% galena, 7% pyr (Unit 6)	10	>100.0
23819	Lower Grouse Creek Hydraulic Pit (1 m)	Bleached sericite phyllite, <1% streaky f gr pyr (Unit 2)	3	<0.2
23820	Lower Grouse Creek Hydraulic Pit (2 cm)	Narrow quartz vein, 20% m-c gr mass pyr, black phyllite host (Unit 1)	20	1.0
23821	St. Lawrence Creek clear-cut (grab)	Bleached talcy light grey slight olive phyllite with 15% medium grained ankerite porphyroblasts (Unit 1)	<3	0.2
23822	Grouse Creek–Heron Adit (grab from cat-ripped rock)	Light grey, slightly dolomitic, quartz-sericite-pyrrhotite (<2%) phyllite (Unit 2)	<3	<0.2
23823	Lower Grouse Creek Hydraulic Pit (0.5 m slab)	Black graphitic silty phyllite with 3% streaky medium to coarse-grained pyrite, 7% quartz (Unit 1)	20	2.0
23824	Grouse Creek–Heron Adit (1.0 m grab)	Light grey, ankeritic phyllite, up to 20% coarse-crystalline black actinolite phenocrysts in silty matrix (Unit 3)	<3	<0.2

9.0 PROPERTY GEOLOGY SUMMARY

9.1 Lithology and Alteration

The interpretation of the bedrock geology on the northern-most portion of the Antler-Nugget Mountain Property is given on a 1:10,000 scale map in Figure 3. The geology has been divided into 7 distinct stratigraphic units that strike southeasterly across the Property. The units are defined by a combination of dominating lithology and alteration components, or are distinguished from each other by unique multi-layered lithological sequences. The identity of each unit was initially established along Grouse Creek where abundant and extensive bedrock cuts are exposed in areas worked by hydraulic placer miners. From Grouse Creek, the southeast extension of each unit is in most part approximated, or defined in places along the Beggs Gulch and Stevens Gulch areas where large bedrock exposures are again available across placer workings. Due to complex structure, the boundaries between each unit are probably erratic and not smooth as illustrated in Figure 3. Insufficient bedrock exposures are available between each mapped area to determine the precise unit boundaries.

Unit 1

This unit is dominated by dark grey to black colored pelitic rocks. The pelite have been classified as; 1) moderately foliated fissile rocks, mainly composed of clay-sized particles, called phyllite; and 2) less foliated, and more competent rock consisting of slightly coarser-grained particles, called siltstone. The pelite is commonly graphite-rich becoming more graphitic in areas of intensified folding and faulting. In places the pelite contains up to 10% weathered-brown sericite-carbonate laminations and lenses, and rare lenticular concentrations of coarse muscovite flakes, sometimes accompanied with up to 1% disseminated coarse-grained pyrite. Black and tan-colored limestone and marble is thinly interlayered or interlaminated with the black pelite in a rock sequence less than 30 m wide at the base (south edge) of Unit 1 along lower Grouse Creek.

Thin paralleling quartz veins and quartz stockwork containing disseminated and semi-massive concentrations of coarse-grained pyrite are common in a zone usually less than 10 m wide along parts of Unit 1 near the contact with Unit 2 in the Grouse Creek area. The thickness of the pyrite bearing veins ranges from 1 to 10 cm and contain slightly elevated gold concentrations (see geochem rock samples 23802–210 ppb Au and 23830-20 ppb Au). Some fine to coarse-grained pyrite is hosted in the phyllite as streaky semi-massive concentrations (23801-170 ppb Au) along a fault gouge striking 335°/85°W. The geological boundary between Units 1 and 2 in Figure 3 is mapped as a conformable contact, although evidence of structural deformation at Grouse Creek indicates that the contact is sheared along a listric thrust fault.

The dark colored pelite in the St. Lawrence creek area terminates into a bleached, light olive colored, sericitic phyllite along the south edge of Unit 1. The bleached layer is up to 20 m wide, and contains up to 20% thinly layered and lenticular bodies of fine to medium-grained micaceous quartzite, 15% coarse-grained euhedral-shaped siderite porphyroblasts, and quartz lenses up to 15 cm wide.

Unit 2

Unit 2 mainly consists of light to dark grey, and light to medium green phyllite and siltstone. Light green, sericitic, fine-grained quartzite is interlayered with slightly chloritic phyllite near the center of the unit along a 30 m wide section. The quartzite is in part dolomitic where it is weathered yellow-brown. Some phyllite layers contain up to 10% coarse-grained ankerite porphyroblasts, and less than 1% disseminated coarse-grained pyrite. Laminations and thin layers of grey and green dolomitic siltstone are common in a section about 70 m wide in the north part of the unit. Some of the dolomitic layers are weathered to a distinct dark brown color.

Layers of tuff, or possibly flow reaching 5 m wide, are exposed in Unit 2 in a small hydraulic pit (NAD87 UTM coordinates 604859E, 5878274N) at Grouse Creek near the contact with Unit 1 (Lane, 2001). The pale grey-green, andesitic to dacitic in composition, volcanic layers exhibit fragmental textures with angular flattened grains ranging from fine-grained to 4 mm across. The coarse grains (broken phenocrysts?) are made up of plagioclase and quartz, and are set in a finer-grained, mildly calcareous, matrix consisting of carbonate, chlorite and clays. Foliation is well

developed and defined by flattened chlorite-rich lapilli(?). Fe-carbonate alteration is weak but pervasive, and limonite occurs in fractures. Neighboring light olive grey phyllite layers may be finer-grained tuffs horizons.

Unit 3

More than half of the rocks in this unit is made up of argillaceous limestone layers with color variations ranging from mostly dark grey to medium grey, and occasionally light grey to white cream. The lighter colored layers are slightly siliceous or pseudo-marbles. The texture of the carbonate in most layers is microcrystalline and to a lesser extent medium to coarse-crystalline. The carbonate contains moderate amounts of clay and silt size detritus and a possible tuff component. Moderate to strong foliation in the carbonate layers, probably caused by extensive shearing, appears to parallel bedding along strike.

The carbonate in this unit is interlaminated and interlayered mostly with medium to dark grey calcareous phyllite. Some olive and green colored sericite-rich calcareous phyllite layers and laminations may be of volcanic origin or tuffs. A 3 m wide layer of phyllite (geochem sample 23824) identified near the central portion of the unit contains up to 8% very coarse-crystalline black actinolite phenocrysts. The actinolite is probably an alteration product that derived from a tuff or intrusive of intermediate composition. The actinolite is surrounded by a light olive colored fine-crystalline matrix, partly made up of ankerite and dolomite, that has a tendency to weather orange brown.

Unit 4

Light to medium olive sericitic phyllite and siltstone layers in this unit are non calcareous, but do have a distinct carbonate alteration component consisting of up to 15% coarse-grained ankerite and to a lesser extent siderite porphyroblasts. Some layers within the north section of this unit are chloritic. The chlorite is finely disseminated throughout various phyllite and siltstone layers, or is concentrated in distinct dark green to black colored laminations.

Bedrock exposures along Grouse Creek provide a good representation or type section for Unit 4. The unit has also been identified along sporadic exposures in the Beggs Gulch and Stevens Gulch areas. The phyllite at Beggs Gulch is occasionally interlayered with ankeritic, micaceous, very fine to fine-grained quartzite. Layers of dark grey siderite-rich, in part pyritic, chloritic phyllite are exposed in a hydraulic pit about 700 m upstream along Beggs Gulch. Some layers of phyllite weathered to a deep red-brown color at Stevens Gulch are dolomitic.

Unit 4b consists of thickly layered, dark olive colored, sericite-chlorite-quartz-plagioclase-ankerite schist that exhibits a well-foliated coarse-flattened-grained texture and contains minor disseminated coarse-grained pyrite. Similar rock types were identified on the east side of the Antler Mountain Fault in float fragments while traversing Antler Mountain. Petrographic work on rock samples collected from this subunit will be required to determine if the origin of these layers are detritus, extrusive or intrusive.

Unit 5

The presence of thinly interlayered black micritic limestone and graphitic phyllite in Unit 5 distinguishes this unit from adjacent units, although a similar layered rock sequence was observed at the base of Unit 1 along lower Grouse Creek. The limestone and phyllite in Unit 5 is interlayered with medium to dark grey dolomitic siltstone, and calcareous, very fine-grained quartzite at upper Grouse Creek. The quartzite is disseminated with medium-grained pyrite in places.

Unit 5b is a carbonate layer identified in the area between Beggs Gulch and Stevens Gulch. The layer probably does not exceed a thickness of 30 m, and consists of dark grey, micritic limestone. Layers of olive colored, gritty, calcareous phyllite located immediately north of limestone appears to be a transitional component between Units 5 and 4.

Unit 6

This unit is the least understood since exposures at higher elevations along Antler Mountain are sporadic to rare. Extensive traversing along Antler Mountain will be required to provide a detailed understanding of Unit 6. The east side of Unit 6 may be offset, right laterally, by up to 800 m to the south along the Grouse Creek Fault. For this reason, the south half of the unit is exposed on the west side of Grouse Creek, and the north half is exposed on the east side of the creek along an 800 m length extending south of Shy Robin Gulch.

The north half of Unit 6, exposed on the east side of Grouse Creek, consists of light to medium olive grey phyllite, and less siltstone and quartzite. The elevated quartz grit content in the phyllite distinguishes these rocks from phyllite layers seen in other units. The grit in some of the layers near the contact with Unit 5 is primarily black colored, well-rounded, coarse-grained quartz. In places, grey and olive siltstone layers, containing up to 10% medium-grained ankerite porphyroblasts, is similar to layers found in Unit 4. Olive grey colored quartzite layers are medium to coarse-grained, and moderately micaceous.

The lithology of the south half of Unit 6, mapped on the west side of Grouse Creek, is similar to the north half, with exception to a gradual color change to a more pronounced dark grey as you move south across the unit. Occasional exposures, along a distance extending 300 m south of Shy Robin Gulch, contain dark greenish grey chloritic phyllite laminations. Quartzite in places is finely laminated with gritty phyllite.

Abundant large carbonate clasts abruptly appear and disappear for a short distance in the alluvium along upper Stevens Gulch. A thin sheet of overburden masks bedrock along this part of the gulch and the carbonate layer was not found in place. The carbonate layer is mapped as Unit 6b and probably does not exceed a thickness of 20 m. The carbonate consists of light olive grey, very fine-crystalline, pure limestone, and less marble containing up to 15% quartz stockwork. The stockwork occasionally contains small masses of coarse-grained galena.

Unit 7

The dominating rock type in Unit 7 on Mount Proserpine is a dark grey to black graphitic pelite that is similar in hand specimen to the pelite found in Unit 1. The graphitic phyllite layers are well defined in areas northwest of upper Grouse Creek and have been mapped at various locations extending 8.5 km to Cow Mountain. The dark pelite layers mapped along Williams Creek and on Cow Mountain contain distinct white quartz laminations up to 2 mm wide.

Occasional sericite-quartz-carbonate altered phyllite layers, bleached to a light olive color, and up to 30 m wide, has been identified along Unit 7 on Mount Proserpine and Barkerville Mountain. These layers commonly contain up to 12% coarse-grained ankerite porphyroblasts. The bleached layers probably stratigraphically lie at the base of unit, but are exposed at intermittent locations along the noses of southwesterly verging minor folds.

On the west side of upper Grouse Creek, interlayered dark grey phyllite and micaceous quartzite along a small section in the central part of Unit 7 (Table 8, 1221mS) contains thin layers of dolomitic siltstone less than 30 cm wide. The siltstone is weathered brown, disseminated with up to 2% fine to medium-grained pyrite, and contains slightly elevated gold and silver concentrations (sample 23812, 110 ppb Au, 26.4 ppm Ag).

The Grouse Creek Fault offsets the southeast extension of Unit 7, right laterally, by about 800 m to the south. Layers of micaceous quartzite become a dominating component of the unit at Grouse Creek, and in areas further southeast. It is unclear whether this is lateral lithofacies change or if the quartzite is part of a different unit. The quartzite layers vary in color from medium to dark grey, and are very fine to medium-grained across the north part of the unit, and medium to coarse-grained on the south side. The quartzite is interlayered with dark grey phyllite layers, and occasional black graphitic, or olive sericitic phyllite layers.

The southeast extension of Unit 7 has been identified in small exposures at upper Stevens Gulch near the Antler Mountain Fault. Dark grey, very fine to fine-grained, micaceous quartzite is interlayered with dark grey, gritty phyllite at this location. The phyllite contains up to 10% very coarse-grained siderite porphyroblasts.

9.2 Stratigraphic Correlation

Although Units 1 and 7 are located on the northerly and southerly extremes of the investigated area, they may be lateral equivalents since both have similar lithology and structural settings. Stratigraphic sequences mapped in areas extending from Cow Mountain to Antler Mountain indicate that Unit 7 overlies Unit 6, and Unit 1 overlies Unit 2. Struik (1988) mapped the dark grey to black colored pelite within the area encompassed by Unit 1 as the Hardscrabble Succession, whereas the area covered by Units 2 through 6 were mapped as an older succession called the Downey. Struik was uncertain with the identity of rock sequences located east of the Grouse Creek Fault across Units 6 and 7. Bedrock in this area was called undifferentiated Snowshoe Group that consists of a package of possible successions including the Downey and Hardscrabble.

Observations made in the Wells Mining camp and on the Antler-Nugget Mountain Property shows that the lower part of the Hardscrabble Succession, or Units 1 and 7, exhibits a higher degree of structural deformation than seen elsewhere in other units or successions. The contact between the Hardscrabble and the Downey appears to be conformable at various sites. At these sites, the stratigraphy near the contact progresses downwards from thick dark pelite Hardscrabble layers, to thinly interlayered dark and light pelite, to thick layers of light grey and olive phyllite and siltstone of the Downey. At other sites, such as Grouse Creek, the base of the Hardscrabble (Unit 1) is faulted and tightly folded, and the contact with the Downey (Unit 2) is possibly extensively sheared along a listric thrust fault.

If the stratigraphic sequence represented by Units 2 through 6 is not overturned, then Unit 2 is the youngest member of the Downey Succession and Unit 6 is the oldest. This age sequence complies with reports made by Hanson (1935) for the Mount Proserpine area. Hanson previously mapped rocks of the Downey, and possibly part of the Hardscrabble, from northeast to southwest as youngest to oldest.

9.3 Transverse Faults

Bedrock Units 1 through 7 exhibit breaks and southerly, or right lateral, offsets as each unit progresses southeasterly across three northerly to northeasterly striking strike-slip transverse faults named the Grouse Creek Fault, Antler Mountain Fault, and Antler Creek Fault. All three faults are well defined along orthographic lineaments seen on various topographical and satellite imagery maps. The 800 m long offset of Unit 7 along the Grouse Creek Fault has been verified on a 7200 Hz coplanar resistivity airborne geophysical map. The presence of graphitic phyllite and quartzite within this unit produces a low resistivity geophysical signature that clearly outlines and defines the right lateral offset. The 450 to 550 m offset of bedrock along the Antler Mountain Fault was estimated by the apparent displacement of key limestone marker horizons in Units 3 and 5. This geological survey does not extend southeast beyond the Antler Creek Fault, but Struik (1988) suggests that there is up to 3.5 km of right lateral bedrock displacement along this fault.

9.4 Folding

Some small open and isoclinal outcrop-scale southwest verging folds are visible in wide bedrock exposures along upper Grouse Creek. These folds are geometrically similar to concentric. Minor fold axes in this area tend to dip at shallow angles, or less than 10°, to the northwest. Some northwest verging folds in carbonate layers (Unit 3) at lower Beggs Gulch have axes that dip at shallow angles to the southeast.

Southeast trending structural boundaries in the survey area that are defined by vertical divergence or convergence of first-generation cleavage have been interpreted as broad asymmetrical anticlines or synclines. The synform mapped in Figure 3 is offset right-laterally by a distance of 1.5 km along the Antler Mountain Fault, whereas the stratigraphy is offset in the same direction by less than 0.5 km. This indicates that the macroscopic folds within the east and

west fault block resulted from independent stress-related parameters, and probably formed in most part during the late stages of block displacement. The antiform mapped on the east side of the Antler Mountain Fault is not evident on the west side. The macroscopic folds probably verge in directions similar to the smaller flanking folds.

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APPENDIX I

ALS Chemex
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SAMPLE	PREP CODE		Au ppb FA+AA	Au FA g/t	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm
23801	205	226	170	-----	3.8	0.11	158	< 10	30	< 0.5	< 2	0.48	2.5	9	75	81	5.69	< 10	< 1	0.07	< 10
23802	205	226	210	-----	4.4	0.20	118	< 10	60	< 0.5	< 2	3.04	5.0	3	85	142	2.50	< 10	< 1	0.09	< 10
23803	205	226	< 5	-----	< 0.2	1.86	< 2	< 10	150	< 0.5	< 2	0.08	< 0.5	35	42	138	5.68	< 10	< 1	0.11	< 10
23804	205	226	< 5	-----	< 0.2	1.08	4	< 10	30	< 0.5	< 2	0.30	< 0.5	16	73	31	3.86	< 10	< 1	0.08	< 10
23805	205	226	155	-----	< 0.2	0.02	164	< 10	< 10	< 0.5	< 2	< 0.01	< 0.5	1	102	1	0.65	< 10	< 1	0.01	< 10
23808	205	226	< 5	-----	< 0.2	0.19	14	< 10	40	< 0.5	< 2	0.89	< 0.5	17	32	29	5.49	< 10	< 1	0.12	10
23809	205	226	< 5	-----	< 0.2	0.22	14	< 10	40	< 0.5	< 2	0.07	< 0.5	15	39	19	3.28	< 10	< 1	0.15	10
23810	205	226	< 5	-----	< 0.2	0.22	24	< 10	40	< 0.5	< 2	0.04	< 0.5	14	41	37	3.51	< 10	< 1	0.15	10
23811	205	226	< 5	-----	< 0.2	0.18	12	< 10	40	< 0.5	< 2	0.08	< 0.5	15	26	36	4.07	< 10	< 1	0.13	10
23812	205	226	110	-----	26.4	0.16	188	< 10	60	< 0.5	50	< 0.01	< 0.5	2	51	25	4.05	< 10	< 1	0.14	< 10
23813	205	226	45	-----	89.8	0.01	16	< 10	< 10	< 0.5	244	< 0.01	24.0	1	93	8	0.62	< 10	< 1	< 0.01	< 10
23814	205	226	>10000	14.83	10.2	0.01	1065	< 10	< 10	< 0.5	< 2	< 0.01	< 0.5	20	89	3	8.43	< 10	< 1	0.03	< 10
23815	205	226	100	-----	>100.0	0.01	742	< 10	< 10	< 0.5	268	< 0.01	5.5	< 1	114	2	0.44	< 10	< 1	< 0.01	< 10
23816	205	226	40	-----	48.8	< 0.01	8	< 10	40	< 0.5	< 2	14.90	36.0	3	5	69	8.24	< 10	3	0.01	< 10
23817	205	226	10	-----	< 0.2	< 0.01	< 2	< 10	< 10	< 0.5	< 2	14.00	< 0.5	< 1	< 1	5	3.41	< 10	1	0.01	< 10
23818	205	226	10	-----	>100.0	< 0.01	16	< 10	< 10	< 0.5	236	0.09	11.5	23	96	62	2.20	< 10	< 1	< 0.01	< 10
23819	205	226	5	-----	< 0.2	0.04	< 2	< 10	< 10	< 0.5	< 2	0.08	< 0.5	1	2	3	0.51	< 10	< 1	< 0.01	< 10
23820	205	226	20	-----	1.0	1.49	70	< 10	< 10	0.5	< 2	1.33	1.5	58	50	230	14.55	10	< 1	0.05	< 10
23821	205	226	< 5	-----	0.2	0.93	< 2	< 10	50	< 0.5	< 2	0.05	< 0.5	28	47	28	6.56	< 10	< 1	0.07	< 10
23822	205	226	< 5	-----	< 0.2	0.01	< 2	< 10	< 10	< 0.5	< 2	0.57	< 0.5	1	1	< 1	0.69	< 10	< 1	< 0.01	< 10
23823	205	226	20	-----	2.0	1.16	< 2	< 10	10	0.5	< 2	6.56	5.0	15	51	468	14.30	< 10	1	< 0.01	< 10
23824	205	226	< 5	-----	< 0.2	0.61	4	< 10	30	< 0.5	< 2	6.82	0.5	14	19	27	5.56	< 10	< 1	0.05	< 10

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To: GOLDEN CARIBOO RESOURCES LTD.

BOX 247
WELLS, BC
V0K 2R0

Project : ANTLER-NUGGET
Comments: ATTN: STEPHEN KOCSIS FAX: FRANK CALLAGHAN

Page Number : 1-B
Total Pages : 1
Certificate Date: 04-APR-01
Invoice No. : I0114420
P.O. Number :
Account : STV

CERTIFICATE OF ANALYSIS A0114420

SAMPLE	PREP CODE		Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
23801	205	226	0.05	25	39	< 0.01	171	910	102	5.93	6	< 1	29	< 0.01	< 10	< 10	28	10	454
23802	205	226	0.65	180	22	< 0.01	80	7260	124	2.41	6	< 1	208	< 0.01	< 10	10	60	< 10	632
23803	205	226	0.67	630	7	< 0.01	52	610	2	0.58	< 2	1	13	< 0.01	< 10	< 10	13	< 10	82
23804	205	226	0.55	560	1	0.01	40	410	12	0.37	< 2	1	9	< 0.01	< 10	< 10	8	< 10	68
23805	205	226	< 0.01	375	< 1	< 0.01	5	20	14	< 0.01	< 2	< 1	1	< 0.01	< 10	< 10	< 1	< 10	6
23808	205	226	0.35	625	1	< 0.01	42	460	8	0.02	< 2	1	28	< 0.01	< 10	< 10	< 1	< 10	100
23809	205	226	0.04	390	< 1	< 0.01	29	470	8	0.11	< 2	< 1	4	< 0.01	< 10	< 10	< 1	< 10	72
23810	205	226	0.06	295	< 1	< 0.01	29	350	32	0.05	< 2	< 1	4	< 0.01	< 10	< 10	< 1	< 10	136
23811	205	226	0.06	405	< 1	< 0.01	36	430	8	0.03	< 2	< 1	7	< 0.01	< 10	< 10	< 1	< 10	88
23812	205	226	< 0.01	45	15	< 0.01	8	220	2410	0.33	< 2	< 1	5	< 0.01	< 10	< 10	< 1	< 10	374
23813	205	226	< 0.01	35	1	< 0.01	3	20	>10000	0.34	< 2	< 1	1	< 0.01	< 10	< 10	< 1	< 10	2110
23814	205	226	< 0.01	15	12	< 0.01	50	50	1100	8.32	< 2	< 1	5	< 0.01	< 10	< 10	< 1	20	6
23815	205	226	< 0.01	10	1	< 0.01	3	20	>10000	0.60	36	< 1	< 1	< 0.01	< 10	< 10	< 1	< 10	30
23816	205	226	2.58	3080	1	< 0.01	7	450	>10000	0.19	12	11	264	< 0.01	< 10	< 10	< 1	< 10	7740
23817	205	226	2.66	1390	< 1	< 0.01	1	10	6	< 0.01	< 2	< 1	213	< 0.01	< 10	< 10	< 1	< 10	< 2
23818	205	226	0.03	30	3	< 0.01	6	10	>10000	2.47	8	< 1	4	< 0.01	< 10	< 10	< 1	< 10	42
23819	205	226	0.08	130	< 1	< 0.01	3	50	20	0.04	< 2	< 1	1	< 0.01	< 10	< 10	< 1	< 10	14
23820	205	226	0.85	985	16	< 0.01	62	1990	62	>10.00	< 2	1	63	< 0.01	< 10	< 10	52	< 10	156
23821	205	226	0.37	840	1	0.02	43	360	134	0.07	< 2	3	6	< 0.01	< 10	< 10	6	< 10	148
23822	205	226	0.24	100	< 1	< 0.01	1	50	< 2	0.05	< 2	< 1	30	< 0.01	< 10	< 10	< 1	< 10	6
23823	205	226	1.92	>10000	11	< 0.01	138	4930	50	6.47	2	1	413	< 0.01	< 10	< 10	118	10	202
23824	205	226	2.06	995	< 1	0.03	6	860	8	0.13	< 2	7	201	< 0.01	< 10	< 10	18	< 10	50

ALS Chemex

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

To: GOLDEN CARIBOO RESOURCES LTD. **

BOX 247
WELLS, BC
V0K 2R0

INVOICE NUMBER I0114420

BILLING INFORMATION

Date: 04-APR-2001
Project: ANTLER-NUGGET
P.O. No.:
Account: STV

Comments: ATTN: F.CALLAGHAN @ GOLDEN CARIBOO RES. 305 455 GRANVILLE

Billing: For analysis performed on Certificate A0114420

Terms: Payment due on receipt of invoice 1.25% per month (15% per annum) charged on overdue accounts

Please Remit Payments to:

ALS CHEMEX
212 Brooksbank Ave.,
North Vancouver, B.C.
Canada V7J 2C1

COPY

# OF SAMPLES	ANALYSED FOR CODE - DESCRIPTION		UNIT PRICE	SAMPLE PRICE	AMOUNT
2	205 - Geochem ring to approx 150 mesh		2.60		
	ICP-32		7.40		
	0-3 Kg crush and split		2.60		
	983 - Au ppb	FA+AA	10.25	22.85	479.85
	205 - Geochem ring to approx 150 mesh		2.60		
	ICP-32		7.40		
	0-3 Kg crush and split		2.60		
	983 - Au ppb	FA+AA	10.25		
	997 - Au FA	g/t	12.30	35.15	35.15

Total Cost $ 515.00
(Reg# R100938885) GST $ 36.05

TOTAL PAYABLE (CDN) $ 551.05

APPENDIX II

APPENDIX II

COST STATEMENT

Nugget-Antler Mountain Mineral Property

NAD83 UTM Zone 10 Coordinates 604134E and 5876258N
NTS Maps 093H03W and 093A14W
Wells Area, Cariboo Mining District, Central British Columbia
Fieldwork conducted from June to November, 2000

Item	Days	Daily Rate	Cost
Geological Consultant (field work)	20.5	$400.00	$8,200.00
Commercial Accommodations	20.5	$70.00	$1,435.00
4X4 Pickup Truck	20.5	$50.00	$1,025.00
600cc Quad	20.5	$30.00	$615.00
Geological Consultant (report work)	10.0	$400.00	$4,000.00
Geochemical Analyses			$551.05
1:10,000 geological map digitizing			$650.00
Dispensable Items (field and office)			$300.00
Total Cost			**$16,776.05**

APPENDIX III

APPENDIX III

STATEMENT OF QUALIFICATIONS

STEPHEN P. KOCSIS, P.GEO.

I, Stephen P. Kocsis, P.Geo., of 301-776 Vaughan Street, Quesnel, British Columbia, V2J 2T5, hereby certify as follows:

1. I studied the Earth Sciences at the University of Waterloo and was issued a B.Sc. degree in 1983.

2. I am a member of the B.C. Association of Professional Engineers and Geoscientists with a P.Geo. certification that was issued on July 6th of 1993 (Registration Number 20451).

3. From 1980 to 1986 I was employed as a Petroleum Exploration Consultant based out of Calgary, Alberta. I performed geological supervision at exploration and development well-site locations throughout the Western Canadian Sedimentary Basin.

4. From 1982 to 1986 I worked on several private Placer and Mineral Gold Exploration Projects in the Cariboo Mining District of British Columbia. I conducted this work for up to 5 months each year during lay-off periods in the Petroleum Exploration Industry.

5. From February 1987 to December 1988 I was employed as a Research Associate and worked with Professor Nick Eyles who directed the Glaciated Basin Research Center at the University of Toronto. My research involvement included Glacial Geology work in the Provinces of Ontario and British Columbia, and in the State of Alaska. Professor Eyles and myself co-authored and published four geological papers on my study of Pleistocene Placer Gold Deposits in the Cariboo Mining District, British Columbia.

6. From January of 1990 to present I have been residing in British Columbia and have been self-employed as a Mining and Geological Consultant specialized in Placer Gold and Mineral Exploration. I have worked throughout the Cariboo Mining District and in parts of the Yukon Territory. This work includes privately self-funded ongoing Placer and Mineral Gold Exploration Projects on Properties owned by myself.

7. From June of 1995 to February 1996, I was retained as a geologist during different periods by Gold City Mining Corp. (VSE) and International Wayside Ltd. (VSE) to take part in intensive Gold Exploration Programs located in and near the Wells/Barkerville Gold Camp area of the Cariboo Mining District, British Columbia.

8. Other work includes 40 days (1996) of reconnaissance Mineral Gold Exploration in the Tilaran-Aguacate Gold Province, and Placer Gold Exploration in the Golfo Dulce Gold Province of Costa Rica.

9. During a five-month period in 1997, I was retained by Applied Mine Technologies to complete an extensive summary report on all known Mineral Gold Resources and Showings located near and in the Wells Gold Camp, Cariboo Mining District, British Columbia, along a 30 km long belt of bedrock belonging to the Downey Succession. Other work during this period includes the completion of a summary report of all exploration and development work on the Domin Gold Property located near Dominion Creek in the Cariboo Mining District.

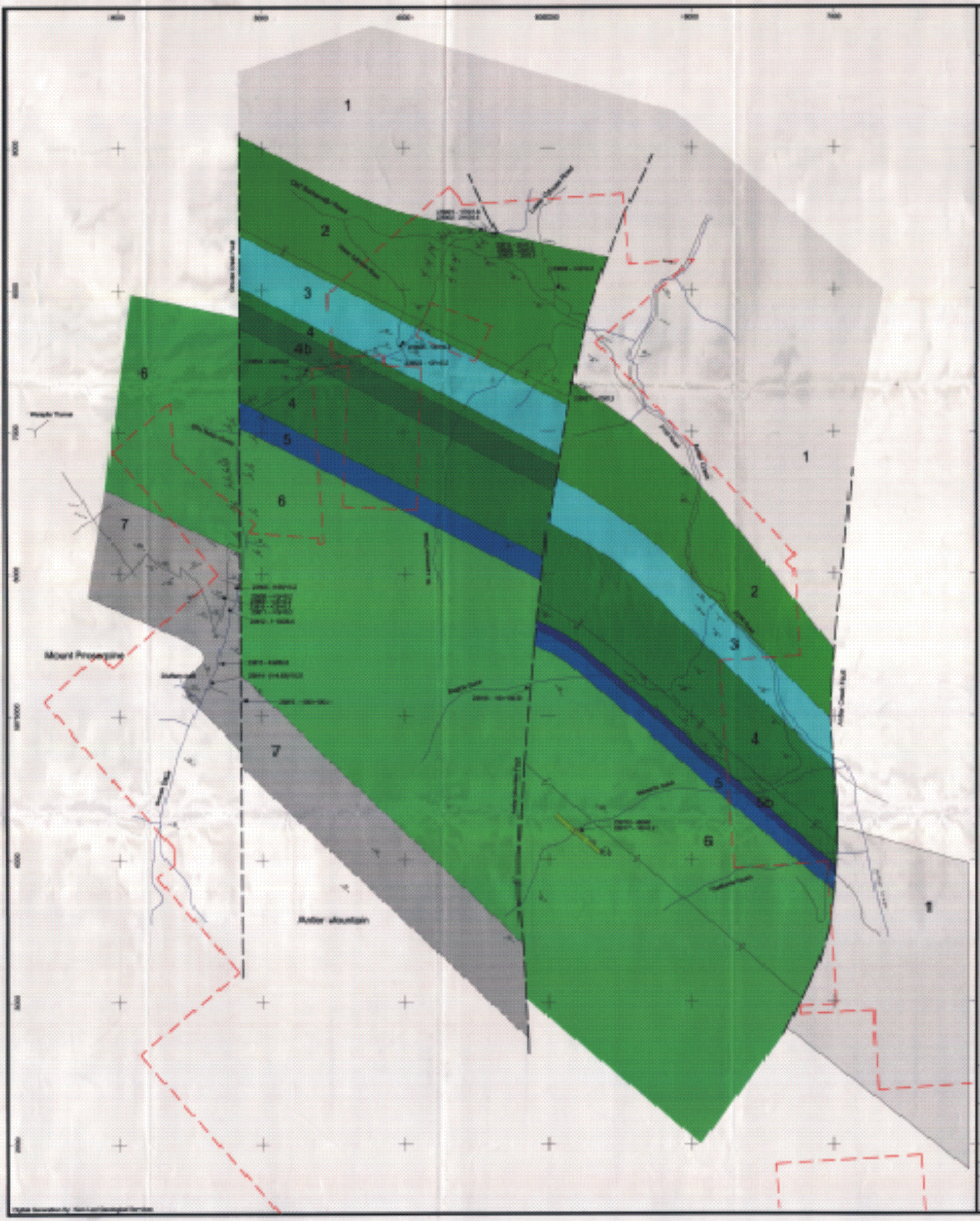
10. From June to October of the year 2000, I was retained by Gold City Industries Ltd. (CDNX) to initiate Bedrock Mapping and Sampling Programs on the Myrtle, Proserpine, Promise and Domin Properties, all in the Cariboo Mining District of central British Columbia.

11. I am currently 100% owner of the Antler-Nugget Mountain Property. Golden Cariboo Resources Ltd. (GCC-CDNX) executed an option to acquire 100% interest in the Property, subject to a 2% NSR, on March 9, 2001.

Dated at Quesnel, B.C., this 7th day of June, 2001

Stephen P. Kocsis, P.Geo.

PROFESSIONAL GEOSCIENTIST
PROVINCE OF BRITISH COLUMBIA
S. P. KOCSIS



LEGEND

1. Dark grey to black phyllite and siltstone, commonly graphitic with up to 1% disa. medium to coarse-grained pyrite., occasionally calcareous or dolomitic. Some light olive, quartz sericite sidertite, bleached phyllite with fine to medium-grained quartzite laminations and lenses.

2. Light to dark grey, less olive and light-green phyllite and siltstone. Minor light green, fine-grained, sericite quartzite.

3. Medium to dark grey, moderately argillaceous, microcrystalline limestone, interlayered with medium to dark grey, less olive, occasionally light green, calcareous phyllite and mudstone.

4. Arkosetic, some dolomitic weathered brown, sericitic, minor chloritic, light to medium olive phyllite and siltstone.

4b. Dark olive, coarse-grained flaky, quartz-ankerite-sericite-chlorite schist (intrusive?) with minor disa. coarse-grained pyrite.

5. Light olive sericite-ankerite phyllite, interlayered with black graphitic phyllite, dark grey calcareous phyllite, and dark grey micritic limestone. Minor dark grey quartzite with black quartz grains?

5b. Dark grey, silty, gritty, micritic limestone.

6. Light to medium grey, occasional olive quartzitic phyllite. Less olive, gritty sericitic siltstone and light to dark grey, medium to coarse-grained, micaceous quartzite.

6b. Light olive grey, very finely-crystalline, pure limestone and marble.

7. Commonly graphitic, dark grey to black gritty phyllite and siltstone. Medium to dark grey, fine to medium grained, micaceous quartzite. Less light olive, silty, sericite-ankerite, bleached phyllite. Minor dolomitic siltstone.

Property Claim Boundary

Geological boundary (defined, approximate, assumed)

Bedding, dip, top unknown (inclined, vertical)

Cleavage, dip, first generation (inclined, vertical)

Fault (defined, approximate, assumed)

Antiform

Synform

Minor fold axis, dip, first generation

Geochem rock sample locations

Adit

N

(33 deg)

ANTLER-NUGGET MOUNTAIN PROPERTY

NTS MAP 93H/3W
CARIBOO MINING DIVISION
CENTRAL BRITISH COLUMBIA

GEOLOGIC BEDROCK MAP – FIGURE 3

SCALE 1:10,000 METRIC MAY 2001

CARIBOO MINING SERVICES

MAP DRAWN BY: STEPHEN KOCSIS, P.Geo