

ASSESSMENT REPORT  
on  
ROCK GEOCHEMISTRY

**DAVID CLAIMS**

Moyie River Area

FORT STEELE MINING DIVISION

TRIM MAP 82F.040  
NTS 82 F/8E

Latitude 49° 22' N  
Longitude 116° 07' W

UTM 5468300 N, 562900 E

By

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January, 2000

GEOLOGICAL SURVEY BRANCH  
ASSESSMENT REPORT

26,165

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## 1.00 INTRODUCTION

### 1.10 Location and Access

The David property is located in southeastern British Columbia, in the Fort Steele Mining Division, approximately 30 kilometers southwest of Cranbrook, centered approximately at UTM coordinates 5468300 N 562900 E (Figs. 1 & 2).

The property is readily accessible by road, via Highway 3/95 south of Cranbrook and the Lumberton, Moyie and Kutlits Creek logging roads.

### 1.20 Physiography

The David property is within the Moyie River drainage and encompasses moderate to rugged, wooded mountainous topography with elevations ranging from 1550 to 2150 meters. Hillsides are forested with a mixture of pine, larch, spruce and fir. A number of logged clear cuts exist on the property; these are in the order of 20 years old.

### 1.30 Property

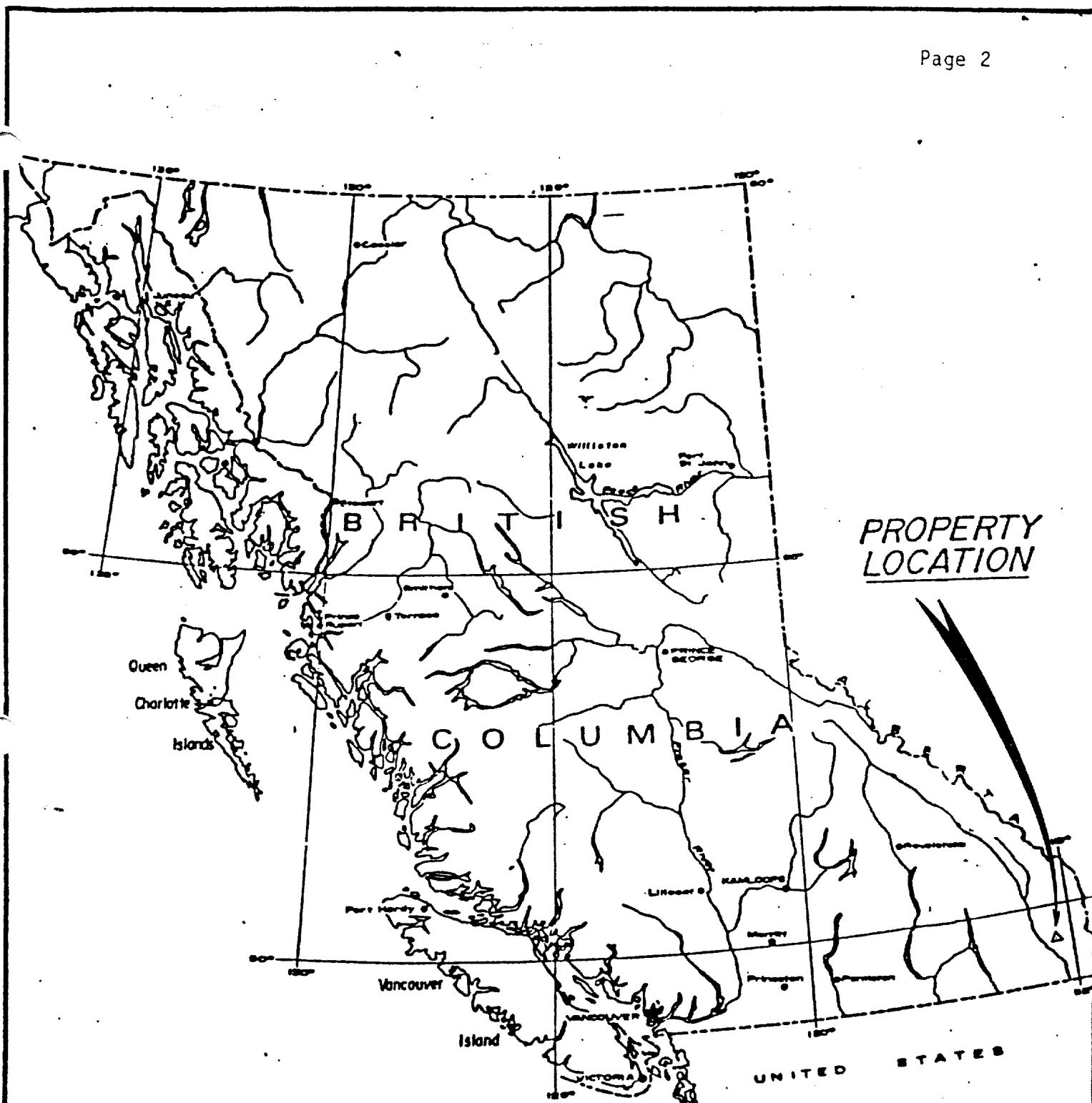
The David property consists of nine contiguous 2-post claims, staked in the names of Lloyd Morgan of Cranbrook, B.C. and Peter Klewchuk of Kimberley, B.C.

### 1.40 History of Previous Exploration

Moyie River, Perry Creek and numerous of their tributary streams have produced considerable placer gold, with many small placer operations active on a small scale basis. Knowledge of this placer gold has spurred long-standing exploration activity for bedrock sources. A number of **small lode gold occurrences were discovered and a few have seen very minor production.** **Virtually all of the lode gold has come from relatively small quartz veins, usually in association with minor base metal sulfides.** The advent of historically high gold prices in the late 1970's prompted staking which blanketed these areas of known placer production.

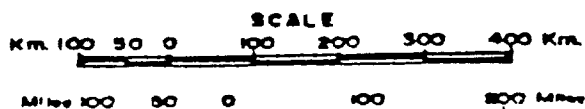
Exploration activity has been constrained by the extensive coverage of glacial drift, and, **although many small exploration programs have been undertaken, few have been successful at delineating drill targets.** Within the past 25 years logging activity has enhanced the exploration process by providing road access and exposing bedrock along haul roads, skid roads and in logged clear cuts.

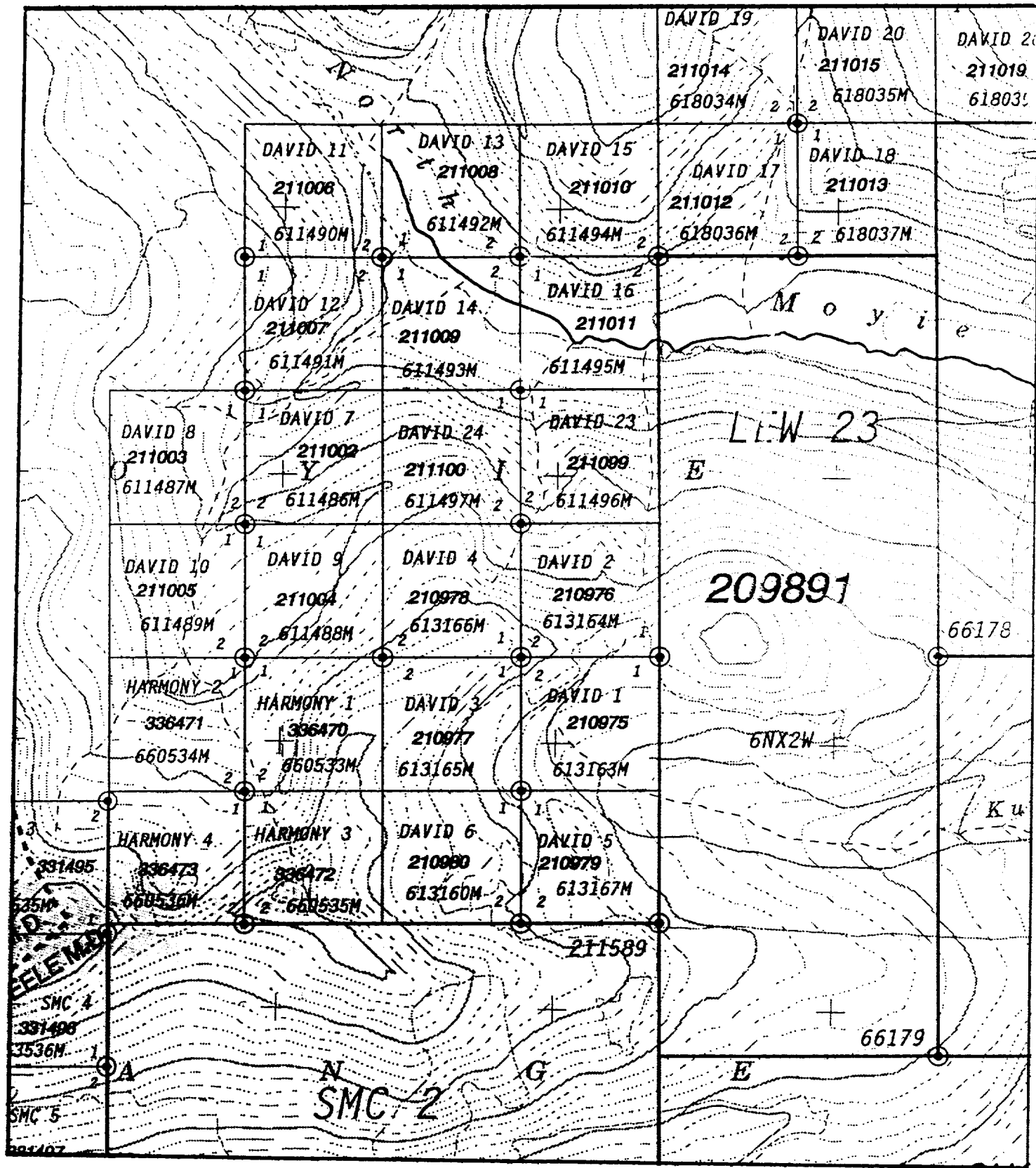
Modern interest in the David area arose in 1989 when prospecting activity discovered significant gold mineralization within a quartz-enriched shear system in bedrock exposed at surface near the



PROPERTY LOCATION

Figure 1.  
DAVID CLAIMS  
PROPERTY LOCATION MAP





1000 m

Figure 2  
DAVID PROPERTY CLAIM MAP  
Scale 1: 20,000 NTS 82 F/8 E  
TRIM MAP 82F.040

headwaters of Kutlits Creek (Klewchuk, A.R. 20,365).

Within the next two years Dragoon Resources Ltd. explored the David claims utilizing geological mapping, soil and rock geochemistry, geophysics and diamond drilling, and established a 'drill-indicated' gold reserve of just less than 100,000 tonnes of 10 grams gold/tonne (Murrell et al, 1991). The gold mineralization is within a steep west-dipping, north-northeast-striking shear zone which averages more than two meters in thickness. Most of the drilling was carried out during the winter of 1990-91.

### 1.50 Scope of present program

In 1999, a small program of rock geochemistry was utilized to evaluate an area south of the main zone of gold mineralization, where previous exploration had identified high gold values in soils and rocks.

## 2.00 GEOLOGY

### 2.10 Regional Geology

The David property lies within the Purcell Anticlinorium, a geologic sub-province between the Rocky Mountain Thrust and Fold Belt to the east and the Kootenay Arc to the west. The core of the Purcell Anticlinorium is made up of the Purcell Supergroup, an eleven kilometer thick sequence of dominantly fine-grained clastic and carbonate rocks.

The oldest known member of the Purcell Supergroup is the Aldridge Formation, a thick sequence of fine-grained siliciclastic rocks deposited largely by turbidity currents. Reesor (1958) has divided the Aldridge Formation in the Purcell Mountains into three informal units: **rusty weathering siltstone, quartzitic wacke and argillite** of the lower Aldridge Formation; **grey weathering quartz wacke and siltstone** of the middle Aldridge Formation; and laminated argillite of the upper Aldridge Formation.

The Aldridge Formation is gradationally overlain by shallower-water deltaic clastics of the Creston Formation. The Creston Formation is in turn overlain by predominantly dolomitic siltstones of the Kitchener Formation. The Aldridge Formation has been intruded by a series of gabbro to diorite composition sills and dikes known as the Moyie Intrusions; they are interpreted to be penecontemporaneous with deposition of their host sediments (Hoy, 1989). Moyie Intrusions are common in the Aldridge Formation and are rarely present within the Creston and Kitchener Formations.

Cretaceous granodiorite and quartz monzonite intrusives cut through these Purcell Supergroup rocks as batholiths and small stocks. Apparently late-stage quartz monzonite to syenite composition intrusives of this suite are known to occur locally as dikes within fault structures.

The Purcell Anticlinorium is transected by a number of steep transverse and longitudinal faults. The transverse faults appear to have been syndepositional (Lis and Price, 1976) and Hoy (1982) suggests a possible genetic link between mineralization and syndepositional faulting.

Longitudinal faults which more closely parallel the direction of basin growth faults may have played a similar role. Gold mineralization, most of which is believed Cretaceous in age, appears to be related to felsic intrusive activity and controlled by fault or shear structures.

Detailed interpretation of structure is hindered by the thickness and monotonous character of some of the litho-stratigraphic units. For example, the middle Aldridge Formation is lithologically quite uniform over a thickness of almost 2500 meters. Furthermore, glacial drift cover is extensive and recessive-weathering structural breaks that might host gold mineralization are usually not well exposed.

## 2.20 Property Geology

The David property is underlain by fine-grained clastic rocks of the middle Aldridge Formation. Bedding is northeast-striking with steep to moderate west dips. Structure on the claim block is dominated by NNE-oriented faults and shear zones, most of which are steeply west-dipping normal faults; some may be of reverse movement. The most prominent of these is the Baldy Fault which crosses the property and separates middle Aldridge Formation on the east from Creston Formation on the west (Fig. 3). No transverse east-striking faults are known although topographic linears of this orientation, namely Kutlits and North Moyie Creeks, suggest such breaks may be present.

Numerous small northeast-oriented quartz veins are present and many carry anomalous gold mineralization. The main zone of gold mineralization on the property is a NNE-striking shear zone composed of wavy, lensy quartz veins and intensely sheared middle Aldridge Formation sediments. The gold mineralized zone and its immediate host rocks are characterized by strong silicification, related bleaching and elevated lead and copper values. Chlorite and pyrite occur within and marginal to the mineralized zone. Surface trenching and subsequent diamond drilling by Dragoon Resources Ltd. established a 150 meter long and a 150 meter deep extent to the higher gold values, with a resultant 'drill-indicated' tonnage and grade of "approximately 96,000 tonnes grading 13.08 grams/tonne gold (uncut) or 7.11 grams/tonne gold (cut) (Murrell et al, 1991). Assay values greater than 30 grams/tonne gold were cut to 30 grams/tonne gold.

A number of northeast-oriented gabbro to diorite composition sills and/or dikes cross the claims; geologic mapping done in the early 1990's established that some of these mafic intrusives are discontinuous, presumably due to structural attenuation during lateral movement along zones of northeast shearing (Klewchuk, 1991, A.R. 20,873).

### 3.00 ROCK GEOCHEMISTRY

Two man-days were spent examining an area along the southern boundary of the David claims where previous work had detected high gold values in float and bedrock. Thirteen rock samples were collected from both float and bedrock, of various styles of quartz veining, including massive quartz veins, quartz breccias and sheared sediments with quartz veins.

Samples were analyzed for geochemical gold by Rossbacher Laboratories Ltd. of 2225 Springer Avenue, Burnaby, B.C., V5B 3N1. Sample locations are shown in Figure 3, analytical results are given in Table 1 and sample descriptions are provided in Appendix 1.

### Results

Almost all of the rock samples collected are anomalous in gold; 10 of the 13 samples have greater than 100 ppb gold, with three samples having 500 ppb or more gold. The highest gold value, from sample Dave 09 is of a quartz-feldspar breccia. The limonite-stained feldspar is cut by very thin light gray quartz veins.

### 4.00 CONCLUSIONS

A rock geochemistry program along the southern boundary of the David claims has shown that anomalous gold occurs here. Further work such as geologic mapping and additional rock geochemistry is needed to establish whether higher gold values are present in potentially economic concentrations.



# ROSSBACHER LABORATORY LTD.

## CERTIFICATE OF ANALYSIS

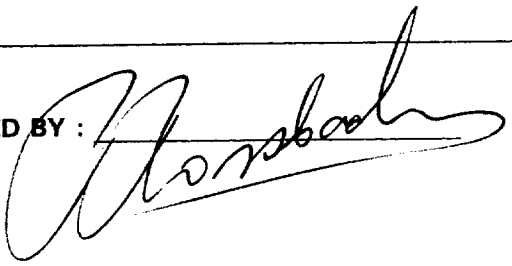
2225 Springer Ave., Burnaby,  
British Columbia, Can. V5B 3N1  
Ph:(604)299-6910 Fax:299-6252

To : Peter Klewchuk  
246 Moyie Street  
Kimberley, B.C. V1A 2N8  
Project: Dave  
Type of Analysis: Geochemical

Certificate: 99523  
Invoice: 50251  
Date Entered: 99-11-26  
File Name: KLE99523.G  
Page No.: 1

PRE FIX	SAMPLE NAME	PPB Au
A1	Dave 01	130
A1	Dave 02	190
A1	Dave 03	30
A1	Dave 04	290
A1	Dave 05	500
A1	Dave 06	70
A1	Dave 07	200
A1	Dave 08	280
A1	Dave 09	1600
A1	Dave 10	10
A1	Dave 11	290
A1	Dave 12	820
A1	Dave 13	210

Table 1. Geochemical analyses of rock samples, David claims.

CERTIFIED BY : 

## 5.00 REFERENCES

- Hoy, T., 1982      The Purcell Supergroup in southeastern British Columbia: sedimentation, tectonics and stratiform lead-zinc deposits. In : Precambrian sulphide deposits; H.S. Robinson Memorial Volume (R.W Hutchison, C.D. Spence, and J.M. Franklin, Eds.) Geol. Assoc. Can. Special Paper 25.
- Hoy, T., 1989      The age, chemistry and tectonic setting of the Middle Proterozoic Moyie Sills, Purcell Supergroup, Southeast British Columbia; Canadian Journal of Earth Sciences, V.26, p. 2305-2317.
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- Klewchuk, P., 1991      Report on geology, geophysics, geochemistry, trenching and diamond drilling, David, Lew, Harmony and Rob claims, Fort Steele Mining Division, B.C. Ministry of Energy, Mines and Petroleum Resources, Assessment Report 25,771.
- Lis, M.G. and Price, R.A., 1976      Large scale block faulting during deposition of the Windermere Supergroup (Hadrynian) in southeastern British Columbia: Geol. Surv. Can. Paper 76-1A, p135-136.
- Murrell, M.R., Klewchuk, P., and Bapty, M, 1991  
Property development report, David (David, Lew, Harmony, Rob claims), Fort Steele Mining Division, Internal Report for Dragoon Resources Ltd.
- Reesor, J.E., 1958      Dewar Creek map-area with special emphasis on the White Creek Batholith, British Columbia: Geol. Surv. Canada, Memoir 292, 78 p.

## 6.00 STATEMENT OF EXPENDITURES

3 ½ man-days, field work, drafting and report	\$850.00
4X4 truck 2days @ \$75/day	150.00
Geochemical Analyses 13 samples	139.10
Freight	10.75
Field, drafting and report supplies	23.00

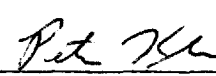
**TOTAL EXPENDITURE****\$1147.85**

## 7.00 AUTHOR'S QUALIFICATIONS

As author of this report I, Peter Klewchuk, certify that:

1. I am an independent consulting geologist with offices at 246 Moyie Street, Kimberley, B.C.
2. I am a graduate geologist with a B.Sc. degree (1969) from the University of British Columbia and an M.Sc. degree (1972) from the University of Calgary.
3. I am a Fellow of the Geological Association of Canada and a member of the Association of Professional Engineers and Geoscientists of British Columbia.
4. I have been actively involved in mining and exploration geology, primarily in the province of British Columbia, for the past 23 years.
5. I have been employed by major mining companies and provincial government geological departments.

Dated at Kimberley, British Columbia, this 25<sup>th</sup> day of January, 2000.

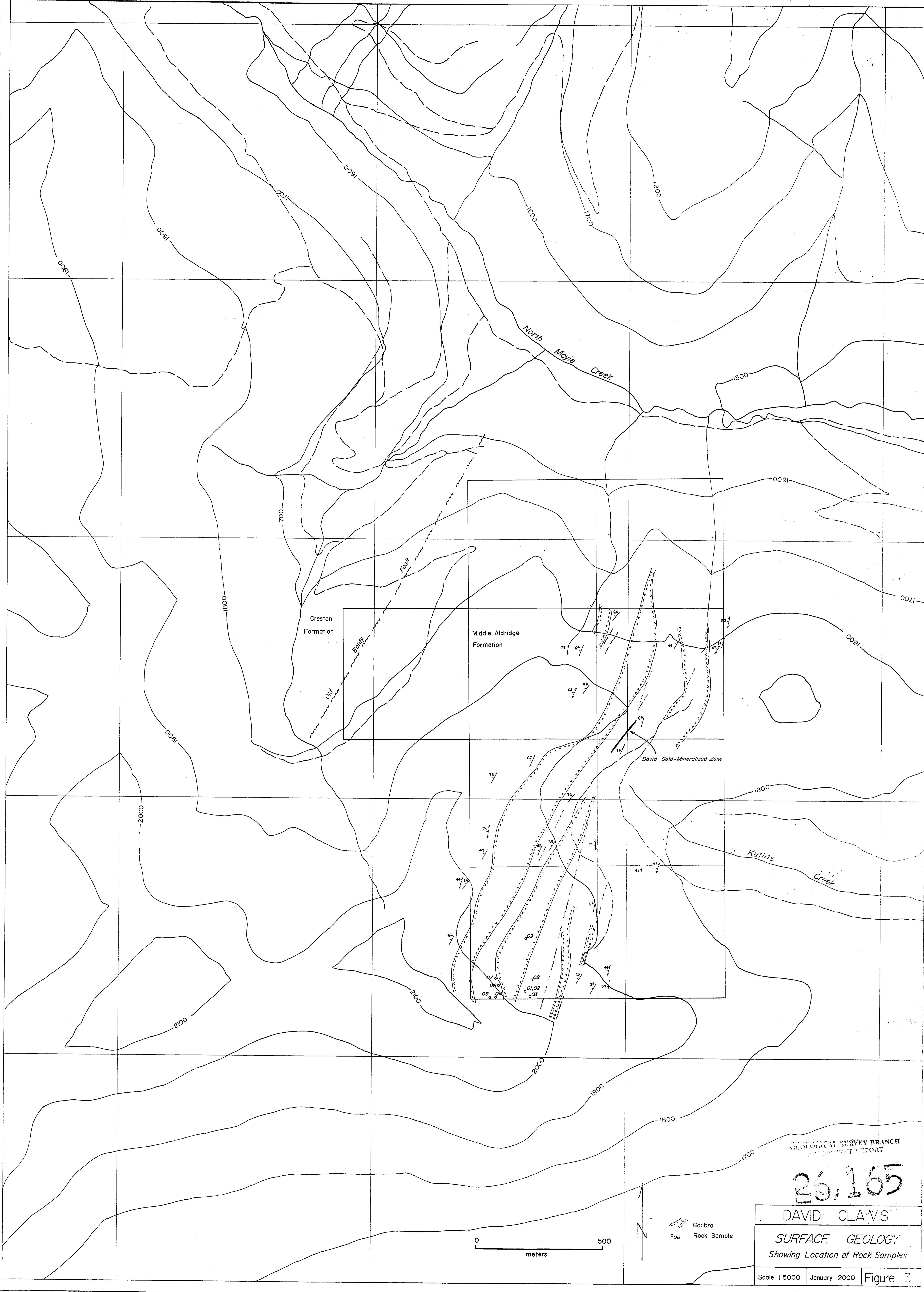
  
 \_\_\_\_\_  
 Peter Klewchuk  
 P. Geo.



## Appendix 1.

1999 ROCK GEOCHEMISTRY  
Sample Description

- Dave 01      Float quartz, sheared sediments, limonite and hematite.
- Dave 02      Float quartz, sheared sediments, limonite and hematite.
- Dave 03      Float, coarse, granular white to light gray, limonitic quartz.
- Dave 04      Quartz vein breccia. Bleached, limonitic siltstone / quartzite fragments. Thin glassy light gray quartz veins.
- Dave 05      Similar to 04. Vuggy, limonitic quartz veins and sedimentary rock fragments.
- Dave 06      Narrow shear in bedrock. Silicified quartzite with thin, light gray quartz veinlets.
- Dave 07      Narrow shear in bedrock. Silicified quartzite with thin mm to 3 cm wide light gray QV.
- Dave 08      Limonitic light gray quartz float.
- Dave 09      Float of medium grained, massive granular light gray quartz with limonitic streaks, possible visible gold.
- Dave 10      Similar to 09. Some very vuggy quartz.
- Dave 11      Thin QV and banded, silicified siltstone with fine, disseminated pyrite. QV are lensey, vuggy, with disseminated, coarse euhedral pyrite.
- Dave 12      Quartz and quartz-feldspar breccia. White feldspar, light gray quartz. Feldspar is limonite-stained on weathered surface. Irregular veinlets of limonite (pyrite?). Feldspar is cut by very thin light gray quartz veins.
- Dave 13      Mottled light gray quartz. Limonitic fractures, disseminated pyrite and ragged patches of galena.



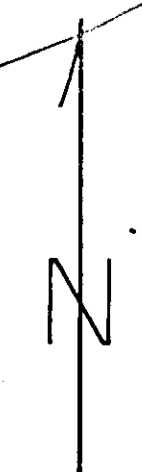
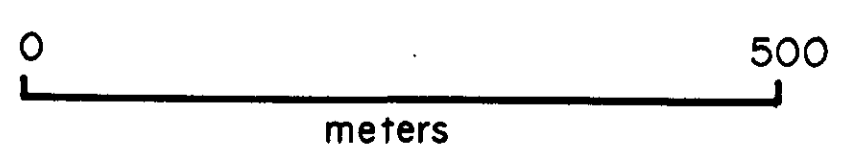
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DAVID CLAIMS

SURFACE GEOLOGY  
 Showing Location of Rock Samples

Scale 1:5000 January 2000 Figure 3



Gabbro  
 Rock Sample