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Prospecting and Soil Sampling

of the

Olympia-Big Chief claims

Mt. McLennan area

Kamloops Mining Division

(N.T.S. 82M/12)

(Lat. 51'36"N; Long. 119'46'30"W)

by

D.W. Ridley (owner-operator)

November 1989

GEOLOGICAL BRANCH ASSESSMENT REPORT

19,819

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INTRODUCTION:

The Olympia-Big Chief claims were staked in mid-March 1989 to cover ground on which several old workings are thought to occur (Minister of Mines 1913). The Big Chief adit was re-located during staking.

The first phase of my proposal was carried out during May 18-29, 1989 and employed two prospectors. Due to financial limitations the second phase has been put on hold, as mentioned in my original proposal. The first phase work program consisted of detailed prospecting, soil, rock sampling and geological mapping of the Big Chief adit area as well as trenching and re-sampling of previous trenches in the vicinity.

Reconnaissance prospecting was carried out over about 50% of the remaining claim area.

During the course of this program a total of 26 rock and 75 soil samples were collected requiring 2h man-days of fieldwork. I was ably assisted by my wife, Catherine, who participated in all phases of the work.

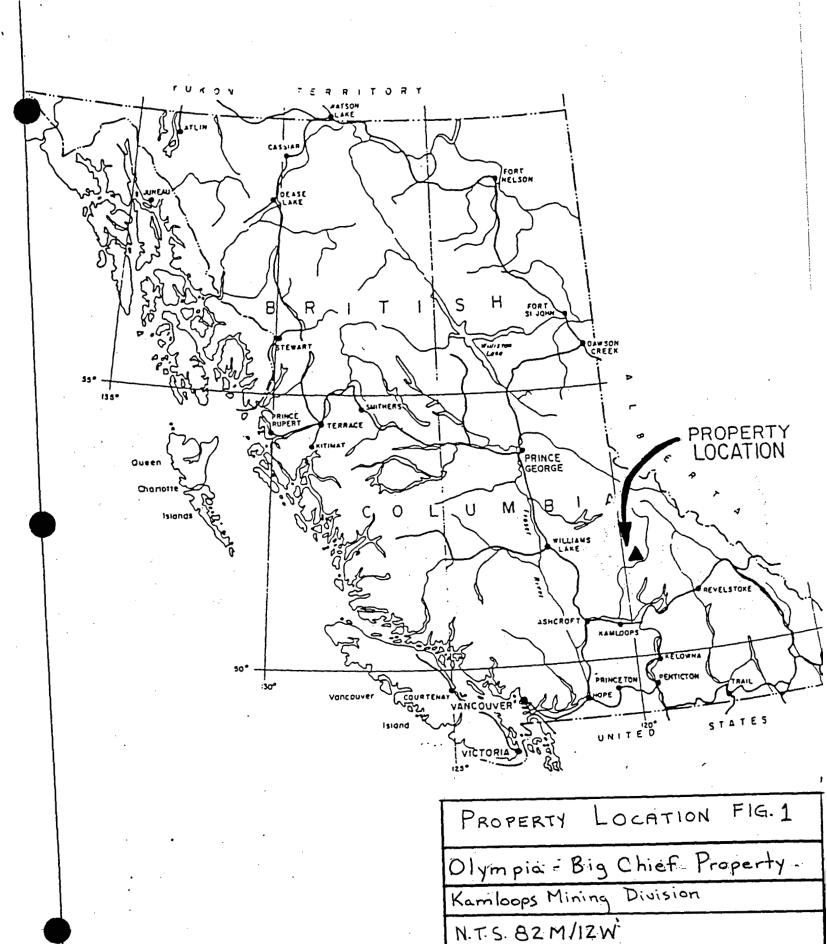
Work was successful in determining the relative potential of the Big Chief workings which consist of low-grade copper-lead-gold-silver mineralization. Grades are non-economic and it is recommended that no further work be carried out here beyond sending the soil samples in for ICP and gold analysis. Additional work may than be contemplated. The area northeast and upslope of the grid should be prospected to determine the nature of the Bloom anomaly.

High grade quartz float was found in the southeastern portion of the property on the Olympia #2. Here, abundant float is found with grades of up to 4.6% lead, 1.4% zinc and 122 ppm silver (uncorrected ICP analysis)

although outcrop exposures of a quartz stockwork is essentially non-anomalous. This is an area of heavy overburden and little exposure but there is abundant angular mineralized float. Meta-sed float was found about 200 metres downslope in which pyrite-arsenopyrite-galena occur as crudely-layered, finely disseminated grains. This suggests the possibility of discovering stratabound mineralization on the property.

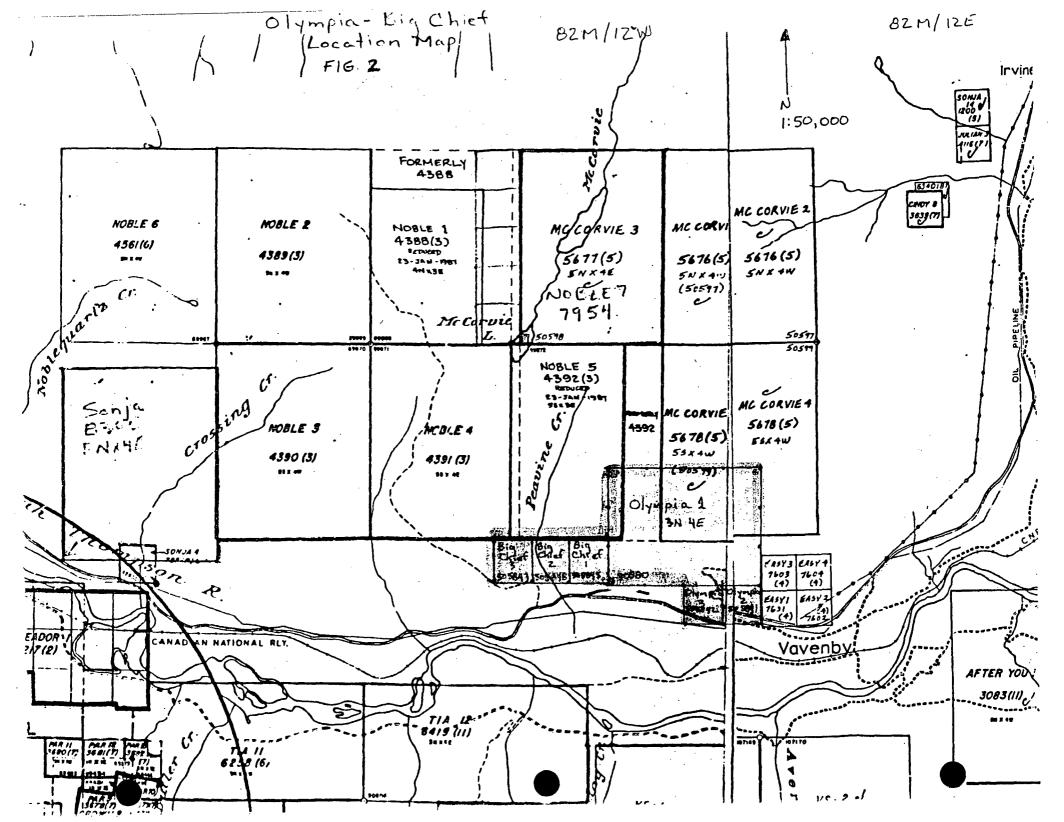
In addition, limestone production is a distinct possibility. Limited production took place on the Olympia #2 prior to 1930. A good road is abailable and the workings could be re-habilitated without large expenditures. Work will progress over the winter to try and determine this potential.

The southeastern portion of the property warrants a substantial followup program of detailed prospecting, geological mapping, soil geochem, rock sampling and VLF-EM geophysics. Hand trenching and blasting of the anomalous zones would be carried out after all the data has been digested.



D.w. Ridley.

Nov. 1989



DESCRIPTION OF PROPERTY:

The Olympia-Big Chief property consists of twelve metric units and five two-post claims. Pertinent data relating to these claims is listed below:

Claim Name	Record Number	No. of units	Owner	Record Date
Olympia l	8399	12	D. Ridley	March 21 1989
Olympia 2	8700	1	D. Ridley	March 21 1989
Olympia 3	8401	1	D. Ridley	March 21 1989
Big Chief	8705	1	D. Ridley	March 22 1989
Big Chief 2	8403	1	D. Ridley	March 22 1989
Big Chief 3	814014	1	D. Ridley	March 22 1989

At present the southern portions of the Olympia 1 and all of the two-post claims are subject to expropriation in the event of hydro-electric power development of the North Thompson River (OC 267; approved Jan. 26 1971). There are no restrictions on mineral exploration of the ground until such development, if any, proceeds.

LOCATION, ACCESS AND TOPOGRAPHY:

The property is located in the North Thompson region of British Columbia, approximately 20 kilometres east of Clearwater and approximately three kilometres northwest of Vavenby on the southeastern slopes of Mt.

Mc Lennan. The claims are roughly centered at 51'36" north latitude and 119'46'30" west longitude on NTS map sheet 82M/12.

Access to the property is readily available via B.C. highway 5 which

passes immediately south of the claims. The Montana Creek forest road provides access to the eastern and northern portion of the property while the 7lh forest road provides access to the south-central portion of the claims. The latter passes through private land and as such permission should be obtained before using it. Several four-wheel drive cat roads are present off the 7lh road and may be useful to provide machinery access to the south-central part of the property if required. Again permission should be obtained before use.

The claims are in an area of relatively steep mountain topography ranging from 550 to 1280 metres. The southern slopes are typically covered by a mixture of mature and second growth Douglas Fir and pine with some poplar-aspen groves. Underbrush is not heavy over most of the property with small areas where alder and willow predominate. Logging has been carried out over much of the property although clear-cut slash is mainly confined to the north and eastern portions near the Montana Creek road and its arteries. A temperate climate, moderate precipitation, low elevation and southern exposure combine to allow access between early April to late November.

HISTORY:

The Mt. McLennan area has received intermittent exploration activity since about 1913 and is first documented in British Columbia Ministry of Mines report for that year. The report describes work carried out on the Bonnie Jean and Dreadnought groups situated as follows, "The Bonnie Jean group comprises the Bonnie Jean, Lizzie M and Hercules mineral claims situated on the extreme summit of the mountain and staked from south-east to north-west. The Dreadnought group comprises the Olympia, Dreadnought and Chieftian mineral claims, situated along the slope of the mountain and staked from north to south, nearly paralleling the course of the river."

The report goes on to say, "the most work done in one place being in a gulch on the Olympia about 800 feet above river valley and overlooking the townsite of Vavenby." A shipment, from the Dreadnought No. 2 open cut consisting of 3, 400 lb. selectected quartz was reportedly sent to the Tacoma smelter and returned "\$38.87 a ton in all values" (1913 prices). Geographical references, in the 1913 report, concerning the location of the Dreadnought group seems to be at odds with the location of the known re-located showings currently shown on the Minfile Map 82M (Seymour Arm) particularly the distance from the Vavenby rail station. No production was recorded at this time from the Bonnie Jean group although a grab sample from a quartz vein heavily impregnated with iron pyrites and scattered grains of galena taken from an open cut some 900 feet lower in elevation than the main showings assayed; Gold, \$5.20 (1913 prices), silver, 4.2 oz. a ton.

During the 1920's considerable work was carried out on several different claims immediately west and north-west of the present Olympia-

Big Chief property. Undoubtably some of this work was on ground previously referred to as the Bonnie Jean group in earlier reports. In 1922 the Last Chance and Naomi groups were prospected by Neil Morrison of Vavenby. On the Last Chance a sample from the dump was found to contain: Gold, 0.6 oz; silver 0.4 oz. (the tunnel was caved in when visited). This is probably the "Morrison" mentioned in contemporory literature. On the Naomi a "picked sample from same cut showing streaks of black material; Gold, 2.9 oz. silver 2.4 oz." was found on the surface but was rapidly dug out.

Work continued on these and other located claims on Mt. McLennan for the remainder of the 1920's and lapse into obscurity around the close of the decade. No significant deposits were uncoveted although a great amount of work was expended in the area and it was shown that several small relatively high-grade showings were to be found in a small area.

The area appears to have been quiet until the early 1960's when the showings on top of Mt. McLennan again received serious exploration work. In 1962 a program of sampling and re-habilitation of the old workings was instituted. Results were inconclusive and apparently the ground remained vacant for the next 10 - 15 years. Since the late 1970's the Mt. McLennan showings have received considerable exploration work including diamond drilling.

Placer-Dome currently holds a large land position called the Noble claims which cover all of Mt. McLennan north and west of the Olympia-Big Chief property.

Apparently some limestone was produced from a quarry on the Olympia #2 as old workings were re-located during this work program. Reference is made to Walker (1930, pg. 153A) who states, "The only limestone found

in any quantity close to transportation is in the large limestone belt crossing North Thompson valley near Vavenby just east of the map area. An attempt, in a small way, was being made to quarry and burn this limestone. The kiln was constructed by driving into the limestone on the steep hillside, raising to surface, and erecting a short stone stack above the raise."

No further documentation has been found concerning the quarrying operations although from the present condition of the workings it would appear that any production was on a small scale.

WORK PROGRAM:

During May 1989 a preliminary exploration program was carried out on the Olympia-Big Chief claims consisting of cleaning-out and sampling old working, geological mapping, soil and rock sampling of the Big Chief adit area. In addition, reconnaissance prospecting traverses of the central and eastern portions of the claims were carried out. The program was designed to assess the mineralized zone found around the Big Chief adit as well as the potential of the property as a whole. This program employed two prospectors for twenty-four man-days in the field.

During the course of the program a total of 75 soil and 26 rock samples were taken. The rocks were sent to Acme Analytical Labs., in Vancouver, where they were analyzed by 30 element I. C.P. and geochemically for gold. The soil samples were analyzed at home utilizing a "Bloom THM" kit obtained from Min-En Labs., Vancouver.

REGIONAL GEOLOGY:

The Olympia-Big Chief property lies within the Kootenay Terrane and is along the western margin of the Omineca Structural Belt in the Clearwater-Vævenby map-area of south-central B.C. The most recent mapping of the area is by Schiarizza et al (1987) which provides a detailed report of the area. The geology of the claims has largely been projected from this source.

Mapping by Schiarizza et al (1987) indicate the entire property to be under-lain by a northwesterly striking and gently dipping sequence of mixed meta-volcanics, meta-sediments and limestones of the Devono-Mississippian Eagle Bay formation. These rocks are intruded by a granodiorite pluton a short distance north of the claim which is part of the Cretaceous Raft Batholith. In addition, several small dykes and sills of syenitic composition are found to cut Eagle Bay rocks.

Two thrust faults and several north to northeast trending faults are shown to disrupt Eagle Bay rocks a short distance west of the claims. One thrust fault separates the Tshinakin limestone member of unit EBG from phyllitic sandstone and grit of unit EBS. The other thrust known as the Vavenby Fault, cuts across the lower portion of the Olympia-Big Chief claims separating dark gray phyllite and slate of unit EBP from meta-volcanics, meta-seds and limestone of unit EBG. This fault has widespread regional significance and is thought to be in part responsible for the mineralization at the Tinkirk and possibly Big Chief showings.

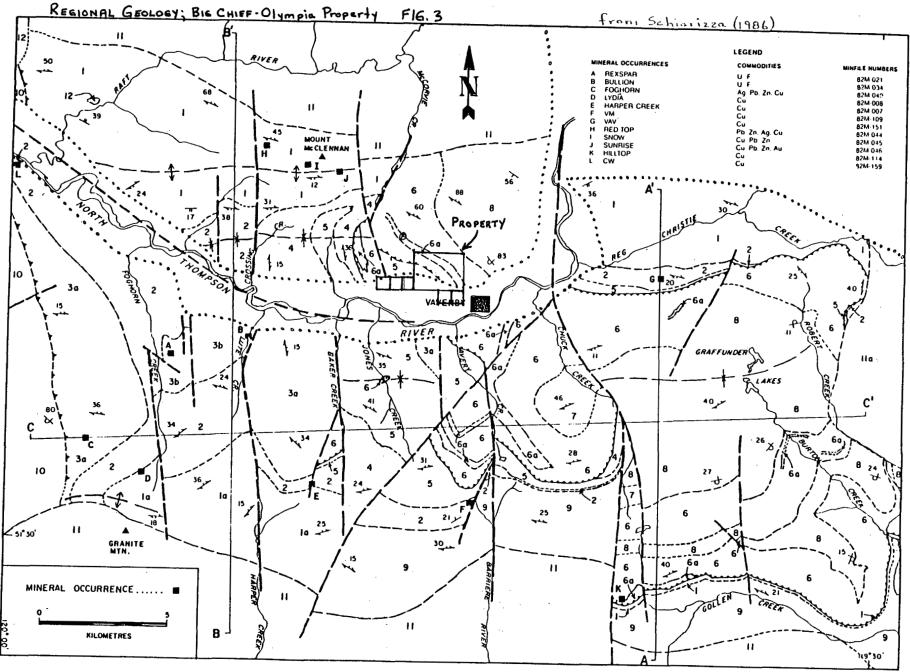


Figure 9-1. Generalized geological map of the Vavenby area.

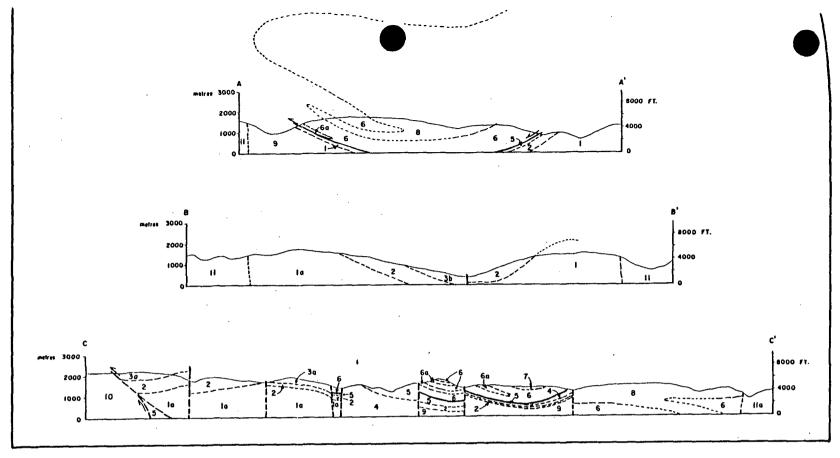


Figure 9-2. Vertical cross-sections to accompany Figure 9-1.

LOWER CAMBRIAN AND OLDER (7) TO MISSISSIPPIAN (CONTINUED) MIOCENE OR PLIOCENE EAGLE BAY FORMATION (UNITS 1 TO 8) (CONTINUED) 12 OLIVINE BASALT 6 CALCAREOUS CHLORITE SCHIST AND GREENSTONE DERIVED FROM MAFIC VOLCANIC CRETACEOUS POCKS: LESSER AMOUNTS OF CHLORITIC DOLOSTONE AND LIMESTONE. 68 - LIGHT GREY LIMESTONE GRANITE AND GRANODIORITE: 11a INCLUDES ABUNDANT PEGMATITE **DEVONIAN TO PERMIAN** DARK GREY PHYLLITE INTERCALATED WITH SILTSTONE, SANDSTONE, GRIT AND PEB-BLE CONGLOMERATE: LESSER AMOUNTS OF LIMESTONE AND DOLOSTONE FENNELL FORMATION 4 GRIT, QUARTZITE, CHLORITE MUSCOVITE QUARTZ SCHIST, LESSER AMOUNTS OF 10 BASALT GABBRO, CHERT MINOR AMOUNTS OF SANDSTONE, LIMESTONE, INTRAFOR-LIMESTONE, CHLORITE SCHIST, AND DARK GREY PHYLLITE MATIONAL CONGLOMERATE 314 — CHLORITE SERICITE SCHIST DERIVED FROM QUARTZ HORNBLENDE FELDSPAR CRYSTAL-LITHIC TUFFS AND (2) PORPHYRITIC FLOWS: 3b — FELDSPAR PORPHYRY. FELDSPATHIC SCHIST. SERICITE-FELDSPAR-QUARTZ SCHIST. METAVOLCANIC BRECCIA. TRACHYTE DEVONIAN (7) 9 GRANITIC ORTHOGNEISS LOWER CAMBRIAN AND OLDER (7) TO MISSISSIPPIAN 2 SERICITE QUARTZ PHYLLITE DERIVED LARGELY FROM FELSIC TO INTERMEDIATE VOL-CANICS: LESSER AMOUNTS OF CHLORITE PHYLLITE, DARK GREY PHYLLITE AND SILTSTONE, SERICITIC QUARTZITE, AND PYRITIC CHERT (EXHALITE?) EAGLE BAY FORMATION (UNITS 1 TO 8) B GRIT, QUARTZITE, CHLORITE-MUSCOVITE-QUARTZ SCHIST 1 OUARTZITE, CHLORITE-MUSCOVITE QUARTZ SCHIST: LESSER AMOUNTS OF LIME-7 INTERMEDIATE METATUFF, QUARTZITE, CHLORITE-SERICITE-QUARTZ SCHIST, LIME-STONE, CALC-SILICATE SCHIST, LIGHT TO DARK GREY PHYLLITE. AND GREEN CHLORITE STONE, DOLOMITE CHLORITE SCHIST SCHIST: 1a — INCLUDES ABUNDANT ORTHOGNEISS AND QUARTZ-SERICITE SCHIST DERIVED FROM QUARTZ PORPHYRY from Schiarizza (1986)

LEGEND

PROPERTY GEOLOGY:

Exposure on the property varies from poor on the lower slopes to moderate on the higher, steeper slopes. The Tshinakin limestone member is well exposed forming a belt of low lying cliffs trending north-westerly through the property. Several steep-sided gullies and road cuts also provide extensive exposures. Mapping of the property was carried out on a reconnaissance scale with detailed grid mapping on the Big Chief #1, (Fig. 6). Terminology and lithological units are those presented in Schiarizza et al (1987).

In the south-western portion of the property a small fault-bounded wedge of dark gray phyllite intercalated with siltstone, sandstone, grit and pebble conglomerate of unit EBP is structurally overlain by medium to dark green calcareous chlorite schist and greenstone of unit EBG.

The Tshinakin limestone member (EBGt) provides a reliable marker horizon about the mid-way point in the stratigraphic succession of unit EBG (Schiarizza et al (1987)). This member forms extensive outcrops trending north-westerly through the central portion of the property.

Near the base of the Tshinakin limestone, lenses of meta-sedimentary rocks consisting of siliceous phyllite, calcareous phyllite, impure limestone and quartzite which range up to several hundred metres thick and pinch out quickly along strike into mafic metavolcanic rocks are host to many Pb-Zn-Ag showings in the core of the Nikwikwaia synform on the Adams Plateau southeast of Adam's Lake. (Schiarizza et al. 1987, pg. 17).

The Mt. McLennan deposits occur at the base of a limestone in metasedimentary rocks of unit EBQ which is correlated to unit EBG. (Schiarizza 1987, pg. 21). Therefore the occurrance of similar meta-sed lenses in unit EBG on the Olympia-Big Chief claims is a distinct possibility.

No such lenses were observed between unit EBP and the Tshinakin limestone. However reference is again made to Schiarizza et al (1987, pg. 19) where it is stated; "The succession is overturned and is inferred to comprise the lower limb of a large nappe structure." If such is the case the favourable horizon, if it exists, would be found on the east side of the Tshinakin limestone in an area that has as yet received little attention.

Syenite bodies were found intruding unit EBP in the Big Chief grid area and the Tshinakin limestone in the south-eastern portion of the property on the Olympia #2 claim. In both areas the syenite appears to be sills along bedding or foliation planes and is spatially related to the Big Chief mineralized structure and to the showings on the Olympia #2.

The Vavenby thrust was not located with any degree of cetainty during the present work program. It is tentatively believed to be located upslope of the Big Chief grid as shown in Schiarizza et al. A northerly trending fault or shear is inferred on the Big Chief grid roughly following the course of the gully and hosting the mineralization.

MINERALIZATION:

The property has been divided into three sections for ease of

discussion. Mineralization occurs as i) galena-pyrite-chalcopyrite-sphalerite-bearing quartz veins, ii) massive to semi-massive pyrite in chloritic schist and iii) disseminated sulphides in dark gray meta-sediments. The latter occurances are float boulders, the source of which has yet to be located.

A brief description of the mineralized zones on the property follows;

BIG CHIEF GRID:

This area is located in the south-western portion of the Olympia #1 and the north-wastern part of the Big Chief #1 mineral claims between 2300 and 2500 feet elevation. The Big Chief adit is located on the Big Chief #1 claim near the east boundary at 2440 feet elevation on the west wall of a steep gully. Geology and rock sample locations are presented on Fig. 6 and analysis results and sample descriptions are presented in the appendix. A total of sixteen rock samples were taken from the Big Chief grid area with six from inside the adit and ten from the surface.

The Big Chief structure hosts the best mineralization on the grid and was developed by means of adit 28 metres long and several open-cuts on surface. It is not known when this development took place although it is assumed to have been during the early years of activity.

The structure consists of a quartz vein 1 to 3 metres wide striking 164' and dipping 50'W, in pebble conglomerate of unit EBP. The quartz contains scattered bunches and veinlets of sulphide consisting of pyrite, chalcopyrite, minor galena and sporadic sphalerite in a gangue of quartz with minor carbonate. The best mineralized section is exposed in two

surface cuts immediately south of the adit and were found to contain up to; 2% copper, 0.9% lead, 6.6 oz/ton silver and 830 ppb gold (89-DR-21 and DR-23; uncorrected I.C.P. analysis).

Underground sampling proved disappointing and resulted in no significant values other than occasional zinc enrichment. Apparently the adit was begun as an open-cut across the vein for 3 metres than driven as a drift along strike when sufficient backs were provided by the initial cross-cut. A syenite dyke 5 metres in from the portal cuts off the vein. The dyke is 2 metres wide and strikes 116' dipping at 68SW. The wallrock beyond the dyke is carbonaceous to graphitic phyllite with quartz stringers and well mineralized with disseminated pyrite and occasional chalcopyrite. The drift was continued in this rock a further 18 metres. No base or precious metal values were found in this section.

On the opposite side of the gully stripping and shallow trenches expose a quartz system about 3.3 metres wide in which scattered grains of pyrite and rare chalcopyrite-galena can be found. (89-DR-hh to DR-h6) The general strike of this system is Ohh' dipping nearly vertically to the northwest. No values were found to be associated with this trend, however, a small 5 cm. wide quartz vein which strikes 130' and dips 35SW was found to be anomalous in copper and silver (89-DR-h7). This trend is approximately the same as the Big Chief structure and they are hosted in similar rock-types.

Additional workings occur in the south-eastern portion of the grid where rusty-weathering highly-fractured milky-white quartz is exposed in two badly sloughed trenches (89-DR-19 and 20). Sulphides were virtually non-existant and when found consisted of rare grains of pyrite enclosed

in galena.

Two samples of quartz outcrop 200 metres up the Big Chief gully from L2+00N were found to be non-anomalous (89-CR-16 and CR-17).

CENTRAL CLAIM AREA:

The central claim area was prospected on a reconnaissance scale with particular attention paid to the 711 road as this had numerous outcrops in the road-cuts. No economic grade mineralization was found in outcrop along the road however several anomalous values were found in float.

Chloritic schist with semi-massive pyrite (up to 25%) was found at two locations along the road and was found to contain anomalous values for gold (up to 690 ppb). This float approximates descriptions of similar material sampled in the 1913 Minister of Mines report which was found to contain \$5.20 in gold (1913 prices).

Sulphide-rich float was found at many scattered locations and although values are hardly considered economic a detailed prospecting program is needed in order to determine the true potential of this area.

SOUTHEAST CLAIM AREA:

Three exploration targets are found in this area; i) a small erratic quartz vein system in the Tshinakin limestone and quartz float containing good lead, zinc and silver values (89-DR-1 and DR-3); ii) sulphidebearing dark gray meta-sed float containing anomalous values of base metals and highly anomalous arsenic; iii) old workings related to limestone

production.

A small and erratic quartz stockwork was found to outcrop in the Tshinakin limestone on the Olympia #2. It is sparsely mineralized with galena, sphalerite and pyrite and can be traced for 25 metres of strike (89-DR-3). However a sample of float or subcrop located close by yielded very good base metal values of 4.6% lead, 1.4% zinc and 122.5 ppm silver (uncorrected ICP analysis). This material is different from the previously mentioned outcrop occurance in i) overall size of float boulders as compared to the much narrower outcropping structure and ii) a much higher percentage of sulphide minerals as opposed to gangue. It may be argued that the outcrop occurance is actually a stringer system off the much wider and better mineralized float material. A soil geochemistry and VLF-EM survey would be neccessary to prove or disprove this theory.

Dark-gray sulphide-bearing meta-sediment float was found about 200 metres downslope from the above occurrances and was found to contain anomalous base metal values. The float is very angular and abundant where found, suggesting a local source. Mineralization consists pyrite-arsenopyrite-galena as fine crudely-layered disseminations making up 10% or more of the rock (89-DR-14). The possibility of stratabound mineralization in this area cannot be ruled out as the overall geological environment is good.

Limestone production is the final target in this area. Old workings and reports (Walker, 1930) indicate some production had taken place prior to 1930. The workings consist of an adit about 40 metres long, ending in a raise to surface about 20 metres deep. The portal was caved at the time

*95 | 5100 | Fe202 | MINO2 (FOR 2 | CACO; | MOCO2 | Total | S | CAO MOO 120 | S | CA

of examination and as such measurements are rough approximations. Market research is needed before any additional work is carried out on these workings to determine the relative value of the deposit.

BLOOM THM SOIL SURVEY:

A soil survey utilizing a "Bloom Total Heavy Metals" test kit obtained from Min-En Labs,. Vancouver, B.C. was conducted over the Big Chief grid. A total of 75 samples were collected from the B or BF horizon, generally between 15-25 cms. below the surface and placed in Kraft soil envelopes. They were air-dried for two weeks and then subjected to the "Bloom" test using materials and instructions contained in the kit. Analysis procedures are presented in the appendix.

Soil development on the grid was good overall and it is assumed that the results are representative of underlying bedrock conditions. Results obtained are quantative rather then qualitative and as such are presented on a scale of 1 to 10 with 10 being extremely anomalous (see Fig. 8).

Anomalies encountered with the "Bloom" test usually represent hydromorphic dispersions of metals and as such are normally located downslope from the anomaly source. Certain factors bear on this generality such as i) amount of bedrock weathering ii) groundwater seeps iii) slope iv) depth and type of overburden, and must be taken into account when interpretation is being carried out. In addition extreme care must be exercised in order to develop consistent analysis procedures and quard against contamination of the working solutions. A highly anomalous and a non-anomalous sample were set

aside for control purposes and used after every 10th application to ensure the integrity of the working solutions. Soil samples collected for the survey have been retained and may be submitted to a lab for ICP analysis at a later date.

The majority of samples were essentially non-anomalous and values of less than one can be considered background. Several scattered anomalies of one were found although no significance can be attached to them as this is only slightly above background. Values of two and over are believed to represent true anomalies and two groups are recognized i) in the northeast corner of the grid at the east end of line 2+00N and 1+50N and ii) south of the Big Chief adit.

The first anomaly is weak with a value in the 2 and 3 range trending northeast off the grid. It occurs in a gully and is likely a dispersion effect. Prospecting upslope of this anomaly is recommended.

The second anomaly is strong with values of 5 to +10 and is due entirely to mineralization in a trench on the Big Chief structure. This illustrates the effectiveness of the Bloom test in exploring for this type of mineralization.

CONCLUSIONS:

Based on the known data it can be concluded that;

i) Old workings exist on the property and more may be expected to be found by detailed prospecting.

- ii) The property is underlain by a package of rocks which are geologically favourable for the occurrance of both base and precious metal mineralization.
- iii) Some potential is possible for the occurrance of stratabound base metal mineralization in the southeast portion of the claims.
- iv) Some potential is possible for the production of limestone although a great deal of market research would be required before a definitive answer is found.

RECOMMENDATIONS:

It is recommended that further work be carried out on the property in the form of;

- i) Detailed prospecting coupled with contour soil sampling of the central claim area to find the source of the pyritic chlorite schist float which carries anomalous gold values and to determine which rock types are present.
- ii) Detailed prospecting of the southeast protion of the property. This would be grid oriented and would include soil geochemistry, geological mapping, rock sampling and VLF-EM geophysics. A limited trenching program may be carried out depending on results.
- iii) Research into limestone production to determine this potential. A small work program of sampling and mapping is advised when methods and analysis requirements are figured out.

SAMPLE DESCRIPTIONS:

1 Big Chief Grid:

- 89-CR-07: B.C. Adit; 10 m. in from portal on W wall; 7cm. wide qtz. vein in graphitic phyllite; minor sphalerite; sample across 1.5 m
- 89-CR-13: B.C. Adit; across from DR-50; qtz. vein approx. 30 cm. wide in black phyllite wallrock with pyrite (1-2%) and minor chalco and mariposite; sulphides are finely dissem. in white limonite stained qtz. on E wall
- 89-CR-14: B.C. Adit; 2 m N of CR-13; E wall; qtz. veinlet with minor ankerite 3 cm wide black argillite; 2-3% pyrite sampled along vein for 1.5 m
- 89-CR-16: Adit Cr. @ 168 m N of BL; 2+00N; on W wall; outcrop qtz. vein (322'/78NE) exposed 1 m wide with 1-3% dissem. pyrite; occasional chalco(?); in a bleached limonite-stained quartzite; vein is at least 1 m wide; poorly exposed
- 89-CR-17: Adit Cr. @ 205 m N of BL; 2+00N; siderite-quartz float
- 89-DR-05: B.C. Trench; qtz. vein 2.5 m wide carrying minor pyritechalcopyrite-galena; poor exposure; malachite stain; sample across 2.5 m
- 89-DR-06: B.C. Adit; south wall @ portal; grab of best mineralization; qtz. with minor galena-pyrite-chalcopyrite
- 89-DR-07: B.C. Adit; 10 m in from portal; qtz. veins in black siliceous argillite; scant pyrite; sample across 1 m
- 89-DR-08: Open-cut east of adit; vein system in conglomerate; rare and sporadic pyrite-galena-chalcopyrite; sample across 2.5 m of structure
- 89-DR-09: B.C. Trench; milky-white fractured qtz. with chalcopyrite-pyrite and minor galena; malachite stain; poorly exposed
- 89-DR-16: B.C. Adit; grab from vein (hanging wall of dyke); heavy pyrite in form of fine dissem. (20-30% sulphide); very siliceous; pyrite often euhedral; across 50 cm
- 89-DR-17: B.C. Adit; vein on hanging wall of dyke; heavy pyrite (finely dissem.) and massive forming pods and lenses in silicified, clay altered wallrock; sample across 60 cm.

- 89-DR-19: Chieftan Trenches; Trench #2 white fractured limonite stained qtz. with minor pyrite and rare chalcopyrite-galena across 1 m; poorly exposed vein
- 89-DR-20: Chieftan Trenches; Trench #1; white fractured limonie-stained qtz. minor pyrite; across 85 cm; poor exposure
- 89-DR-21: Big Chief Trench #4; chalcopyrite-rich shoot in Big Chief vein structure; shoot approx. 10 cm wide; massive chalco blebs as well as fine dissem. of chalco with minor galena in milky white limonite stained fractured qtz.; qtz. approx. 2.2 m wide @ thispoint; sample across 1.5 m of best mineralization
- 89-DR-22: Qtz. float up to 10% dissem. pyrite; (350 m W of B.C. gully) veins exposed upslope but not sampled
- 89-DR-23: B.C. Trench #3; chalco-galena-pyrite-finely dissem. in qtz. as @ Trench #4; across 1 m
- 89-DR-31: B.C. Grid; chip across 1,5 m quartz system; minor pyrite, chalco, malachite and galena; trend 210'/90
- 89-DR-40: B.C. Grid; (L1+25N; 1+00W) carbonitized meta-basalt(?) subcrop with qtz. carbonate veinlets and carrying 1-2% finely dissem. pyrite; sample across 1.5 m
- 89-DR-44: B.C. East Trenches; chip across 1 m S side of trench; mariposite-bearing chlorit-sericite schist wallrock fragments with fine pyrite in fractured milky-white qtz.
- 89-DR-45: (con't N of DR-44); across 1.7 m; milky-white limonitestained fractured qtz. with minor pyrite and rare chalcosphalerite; structure trends 044'/85NW
- 89-DR-46: (con't N as DR-44); across 0.5 m
- 89-DR-47: 5 m N of DR-46; small qtz. vein (5 cm wide) on different plane to main structure (1308?35SW); chalco-rich knob; not representative of whole vein
- 89-DR-51: B.C. Adit; 21.5 m in from portal; rusty-black argillite with qtz. veinlets and small 1-2 cm thick intervals of massive pyrite; sample across 35 cm

2 Central Claim Area:

- 89-CR-06 714 Rd. east of 1E post; massive pyrite (up to 30%) angular boulder; distinct rusty/powdery weathering, qtz. veinlets shot through rock, (chlorite schist ?)
- 89-CR-19: 714 Rd.; approx. 25 m below third switchback on road; float of vuggy, angular qtz. boulder with up to 10% dissem. pyrite; q6z. contains ankerite and calcite
- 89-CR-24: 714 Rd. approx. 25 m below CR-19; limonite-stained qtz.-dolomite float boulder with pyrite, 2-3%; minor galena
- 89-CR-25: 714 Rd.; quartz carbonate veinlets (3-5 cm wide) shear zone in black phyllites which are folded and contorted; carry minor pyrite (1%); sample across 2 m
- 89-DR-10: 100 m E of Olympia ID post 1E on 714 Rd.; angular float; heavily limonite stained chloritic schist (?) with qtz. stringers; up to 20% dissem. pyrite
- 89-DR-11: 714 Rd. 2200' elev.; angular float; quartz with minor dissem. pyrite
- 89-DR-13: 714 Rd. elev. 2520' (approx. 100 m below 2nd switchback); qtz. vein subcrop in gray-green dolostone; minor byrite; mariposite in dolostone
- 89-DR-14: 714 Rd. elev. 2480; qtz.-carbonate altered quartzite(?) with up to 7% finely dissem. pyrite, angular float
- 89-DR-53: 714 Rd. approx. 60 m down from DR-13, elev. 2469'; subcrop in road cut; qtz-sericite schist with 10-15% finely dissem. pyrite; sample across 2 m
- 89-DR-54: Approx. 100 m E of 3rd switchback; on skid road in 2nd gully E of 3rd switchback; altered limestone with qtz. flooding and veining; angular float; 5-10% dissem. pyrite in both qtz. veinlets and wallrock

3 Southeast Claim Area:

89-CR-Ol: On power line, below limestone cliffs; float; fine grained light gray limestone with qtz. veinlets; minor galena

89-DR-01: 2400' elev. Olympia #2; qtz. float (40 cm smallest dimension) with galena-sphalerite and minor pyrite outcrop of small qtz. stockwork about 50 m upslope; float is widespread here.

89-DR-03: 50 m upslope from DR-1; qtz. stockwork system about 1 m wide carrying minor dissem. galena-sphalerite in light gray massive limestone; sample across structure 1 m; structure trends 140'

89-DR-O4: 2300' elev. Olympia #2; dark-grey siliceous meta-sediment with up to 10% crudely layer fine-grain sulphides (pyrite-arsenopyrite-galena); angular float; quite alot lying around

GEOCHEMICAL ANALYSIS CERTIFICATE

1CP - . SOO GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HHO3-H2O AT 95 DEG. C FOR OHE HOUR AND IS DILUTED TO 10 ML WITH WATER. THIS LEACH IS PARTIAL FOR MN FE SR CA P LA CR MG BA TI B W AND LIMITED FOR MA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM. - SAMPLE TYPE: ROCK AUT AMALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE. n r

DATE RECEIVED:	APR 4 1989	DATE REPORT MAILED	: April 7/89	SIGNED BY	
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							CC	AST	MT.	GEO	LOG	CAL	PRC	JEC	T OI	YMP	IA	Fi	le :	# 89	-070	8										
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89-DR-5	1	637	229	293	13.7	17	' 1	229	1.58	17	- 5	ND	1	68	4	2	2	3	.54	.038	2	4	.23	11	.01	- 4	.05	.02	.01	2	107	
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89-DR-8 .	. 9	64	253	8	1.1	29) {	177	1.36	15	5	HD	1	66	1	2	2	9	. 17	.172	6	12	.05	127	.01	2	.12	. 01	.03	1	18	
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89-DR-10	5	141	352	7		72	46	1115	23.13	321	5	ND	1	31	3	109	2	10	1.11	.061	2	11	.27	19	.01	9	.17	.01	.14	1	690	
89-DR-11	2	85	37	9	.1	48	12	1168	4.74	26	5	ND	1	15	3	2	2	23	4.37	.072	3	66	1.14	47	.01	2	.75	.01	.03	1	13	
89-CR-1	1	39	2589	29	5.5	7	1	451	. 63	4	. 5	ND	1	122	1	5	2	14	17.43	.057	2	4	7.01	18	.01	(.02	.01	.01	1	4	
89-CR-5	- 55	19	50	43	. 9	7	11	5189	7.04	179	5	ND	1	180	1	12	2	12	13.72	.007	3	2	3.15	36	.01	3	.11	.01	.06	1	460	
STD C/AP-D	10	64	10	130	1 7 7	73	31	1038	4 08	13	19	R	10	50	20	14	19	61	48	.092	40	56	. 91	177	. 87	37	1.78	. 06	.13	12	520	

⁻ ASSAY REQUIRED FOR CORRECT RESULT -

GEOCHEMICAL ANALYSIS CERTIFICATE

ICP - .500 GRAM SAMPLE IS DIGESTED WITH 3ML 3-1-2 HCL-HH03-H20 AT 95 DEG. C FOR ONE HOUR AND IS DILUTED TO 10 HL WITH WATER.

THIS LEACH IS PARTIAL FOR MM FE SR CA P LA CR MG BA TI B W AND LIMITED FOR MA K AND AL. AU DETECTION LIMIT BY ICP IS 3 PPM.

- SAMPLE TIPE: ROCK AU* ANALYSIS BY ACID LEACH/AA FROM 10 GM SAMPLE.

DATE	REC	EIVE	ED:	JUR !				REPO				J		- 1		:					- 1				. J.WA	NG; CE	RTIFIE) B.C.	ASSATI	irs	
Sample#	MC PPN	Cu PPK	Pb PPH	2n PPH	Ag PPN	Ni PPM	Co PPH	Nn PPK	7e	A5 PPH	U PPM	AU PPM	Th PPM	ST PPK	Cd PPN	Sb PPN	Bi PPH	y PPM	Ca 3	P	P. P	CT PPH	Mg \$	Ba PPM	7i \$	B PPN	Al \$	Ha \$	K \$	PPK	Au* PPB
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25 5 684 3.06 2 255 2 8 4.82 .023 35 1.49 72 .01 12 .22 .02 .08 89-CR-07 21 1258 16 . 5 HD 6 .88 .010 .35 47 .01 2 10 .09 .02 .03 89-CR-13 65 . 6 27 5 635 1.24 10 ND 90 2 5 490 2.50 8 3.58 .018 36 1.22 85 .01 6 .21 .01 24 ND 1. 213 5 2 99-CR-14 40 8 941 . 2 20 65 2 .56 .039 2. 11 .23 6 .01 10 .07 .02 .01 2 89-CR-15 .1 30 5 430 1.24 8 5 HD 2 2 2 2 1 1 5.37 .018 2 33 1.38 16 .01 7 .01 89-CR-17 12 2 2171 2.73 2 1 360 2 .1 1 25.65 .003 5 .26 21 .01 .01 29-CR-19 70 HD 1 344 3 2 - 11 .1 9 6 1207 4.18 5 16 3.67 . 03 .01 -08 89-CR-24 25 111 103 24 15 2454 7.89 35 5 HD 1 228 13 22 16.71 .035 5 289 15 .15 . 8 2 26 6 1.89 .011 6 24 .17 88 .01 5 .30 .01 . 08 1 89-CR-25 13 7 123 .1 23 10 479 1.41 4 5 MO ŧ 1 1 .07 26 .01 2 .22 .11 .03 5 247 2.26 15 5 ND 19 3 2 3 .76 .969 2 7 89-DR-13 1 20 11 .1 15 .19 .051 2 34 .01 35 .01 16 .01 99-DR-14 34 5 1 51 3.31 12 HD 2 16 9 .3 4 5 . 9 59-DR-16 3 13 1.05 .106 16 .14 40 .01 .31 . 08 24 13 36 69 15 547 3.67 57 5 HD 59 1 - ? . 29 36 .02 99-DR-17 10 73 29 7 327 3.20 24 5 HD 2 81 2 3 7 1,26 ,027 36 .01 .12 .04 53 2.0 38 6 .43 .062 4 11 .09 20 89-DR-19 3 115 92 514 .3 29 3 177 1.05 7 5 HD 2 46 3 4 .01 12 .11 .04 .01 10 89-DR-20 3 14 19 44 .1 .9 1 33 1.01 13 5 HD 3 30 1 2 3 10 .02 .021 9 44 .01 23 .01 2 .14 .05 .01 5 5 3 20973 / 59 99 89.8 √ 12 1 45 2.69 Ę 5 HD 2 ٠, 2 .03 .004 ? 5 .01 ģ . 01 13 . 01 89-DR-21 1 .23 59 2 .58 39-DR-22 2 66 9 18 .9 .8 5 158 1.88 27 5 NO 3 18 1 8 .15 .014 7 34 . 91 .02 .14 · 3 5234 8953 615 227.9 44 .07 89-DR-23 2 143 1.70 23 5. ND. 2 57 5 2 38 3 .27 .021 2 11 18 .01 10 .08 .03 .02 1 360 2 38 .01 33 5 .11 29-DR-31 2 48 41 34 1.0 17 2 97 1.76 25 5 HO. 1 67 1 2 11 .16 .114 5 .01 .04 .04 2 89-DR-40 15 20 1.02 ?? .02 .19 94 1.0 14 13 597 5.51 18 5 ND 3 184 1 4 2 37 4.41 .154 8 2.01 99-DR-14 2 48 12 129 .4 37 4 140 1.48 18 5 HC 3 151 2 2 2 34 1.71 .555 8 56 .07 51 .01 26 .31 .03 . 06 89-DR-45 12 70 10 131 2.5 31 4 222 1.33 9 2 44 12 .42 .076 12 .12 89-DR-46 5 59 10 58 .6 23 3 81 1.57 23 5 ND 2 59 1 2 2 21 .28 .119 6 45 .04 53 .01 2 .19 .02 .08 13 89-DR-4? 3 1576 133 107 40.8 √ 12 42 .83 5 33 ? . 03 E .01 5 . 01 .01 .91 .01 10 1 2 110 1 3 1 1 .008 2 2 89-08-51 55 13 61 2.8 62 18 412 8.58 65 5 ND 2 139 1 13. 2 10 2.54 .049 6 32 .65 25 .01 7 .30 .01 .12 91 89-DR-53 6 24 6 .05 262 .01 .01 .15 9.9 g 4 58 2.44 89 5 8 .50 .041 8 .26 HD 20 e 89-DR-51 28 34 25 20 .3 23 7 2321 4.50 238 5 1 343 2 2 4 21.45 .093 6 12 .53 128 .91 7 .10 .02 .04 HD. 1 STD C/AU-R 18 63 42 134 6.7 74 31 1025 4.10 43 18 8 40 53 18 15 17 61 ,51 .091 40 59 .84 182 .07 38 1.92 .06 .14

- ASSAY REQUIRED FOR CORRECT RESULT -

FINANCIAL STATEMENT

for

OLYMPIA-BIG CHIEF PROPERTY

1989 Prospecting Season

OLYMPIA-BIG CHIEF Property:

		\$1200.00 \$1200.00
	FOOD:	\$ 332.35
	TRAVEL: 4-wheel drive Jeep	\$ 331.62
	SUPPLIES:	\$ 194.54
	ACCOMODATION:	# 446.56
	SAMPLE ANALYSIS: i) Rocks; 26 @ \$13.75 ea \$357.50	
	ii) Soils; 75 @ \$ 2.00 ea 3150.00	
	TOTAL ANALYSIS COSTS:	\$ 507.50
	REPORT PREPARATION: D.W. Ridley, 5 days @ \$100/day Photocopying	\$ 500.00 \$ 25.16
TOTA	COSTS:	\$4737.73

March 14, 1990

D.W. Ridley

STATEMENT of QUALIFICATIONS:

- I, David Wayne Ridley of Eagle Creek, B.C. state;
- All statements pertaining to this report are true and correct as I know them.
- 2) I have prospected independently for nine years. (1980-1989)
- 3) I have been employed in the exploration industry for six years as a prospector. (1983-1989)
- L₁) I graduated from the Mineral Exploration Course for Prospectors held by Ministry staff at Mesachie Lake, B.C., 1984.

D.W. Ridley

December 15 1989

MIN-EN Laboratories Ltd.

Specialists in Mineral Environments

Corner 15th Street and Bewicke 705 WEST 15TH STREET NORTH VANCOUVER, B.C. CANADA V7M 1T2

April 1979.

BLOOM TEST

EXCHANGEABLE HEAVY METALS IN SEDIMENTS

COLD AMMONIUM CITRATE TEST

Preparation of Field Solutions:

Stock Dithizone Solution (0.01%): with pipette, measure 100 ml of Toluene into 8-oz. polyethylene screwtopped bottle, and mark bottle at this level with china marking pencil for future reference; shake in contents of one vial of dithizone; shake, wrap bottle in aluminum foil to keep out light, and allow to stand for at least 1 hour before using.

Field Dithizone Solution (0.001%): add one part stock dithizone solution and nine parts of toluene to polyethylene wash bottle, shake to mix, wrap with aluminum foil to keep out light. These liquids may be measured in the field with one of the marked culture tubes; a supply of toluene may be carried in the field in a 32-oz. polyethylene screw-topped bottle.

Field Solution: with graduated cylinder, measure one part of 5X Buffer and four parts of metal-free water into 32-oz. polyethylene screw-topped bottle; shake to mix as needed; transfer portions of this reserve supply to polyethylene wash bottle for field use.

PROCEDURE:

- Measure out one scoopful of sample, (approx 0.25 gm.) leveled with spatual or pen-knife, and tap into marked culture tube.
- 2. Add Field Solution to 3 ml mark.
- Add 1 ml of Field Dithizone Solution, bringing level to 4 ml mark.
- 4. Insert a polyethylene stopper from one of the vials into the end of the culture tube, and shake briskly fifty times (15 seconds).

PROCEDURE CONT'D:

- 5. Allow Dithizone Solution to collect at surface of liquid and observe color. If green, record 0; if blue green, record 1: if blue, record 1; if purple or red, proceed with Step 6.
- 6. Add 1 ml more of Field Dithizone Solution, bringing level to 5 ml mark, and shake briskly 20 times (five seconds). If color is blue, record 2; if purple or red, repeat the shake-out adding Dithizone Solution in increments of 2,4,4 and 4 until blue end-point is reached; record total volume of Dithizone Solution needed to reach blue end-point; if the blue end-point is over-shot, the recorded value may be interpolated.

NOTES:

- 1. Although this procedure does not differentiate between zinc, lead or copper, it is considerably more sensitive to zinc than to the other metals. Thus in general, a high heavy-metal value indicates a high zinc content.
- 2. For a 0.25 g sample in this test, one ml of dithizone at the blue end-point is roughly equivalent to 1 part per million of exchangeable heavy metals expressed as zinc, this factor will vary with the texture of the sample and the timing of the shake-out
- 3. It is important to standardize the timing of the shake-out in the procedure, as increasing the time of the sequence will give higher values.
- 4. Serious contamination in the course of the procedure is possible by inadvertent contact with the fingers or contaminated objects; all high values should be checked by repeating the entire procedure.
- 5. Dithizone solution decomposes in light to a yellow solution; this effect may be minimized by keeping all dithizone solutions in the dark, either under cover or in bottles wrapped in aluminum foil.

EQUIPMENT:

- graduated cylinder
- 1 - Deeminac
 - wash bottle
 - 20x150 mm culture tubes & stoppers
- aluminum scoops
- test tube brush
 - aluminum foil

REAGENTS

2x500 ml Toluene 1x200 ml 5X Buffer 3x10 mg Dithizone

