

ASSESSMENT REPORT

on

GEOLOGICAL MAPPING, ROCK GEOCHEMISTRY & VLF-EM GEOPHYSICS

ZINGER CLAIMS

Upper Perry Creek Area

FORT STEELE MINING DIVISION

NTS 82 F/9 E TRIM 82F.050

Latitude 49° 26' N Longitude 116° 11' W UTM 5475000N 560000E

By

PETER KLEWCHUK, P. Geo.

January, 2000

CEOLOGICAL SURVEY BRANCH



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1.00 INTRODUCTION

This report describes a program of geological mapping, rock geochemistry and VLF-EM geophysical surveying completed on the Zinger property in the upper Perry Creek drainage during 1999.

1.10 Location and Access

The Zinger claims are located approximately 30 kilometers west-southwest of Cranbrook, B.C., in the Fort Steele Mining Division (Fig. 1). The claim block straddles a ridge between Perry Creek and Hellroaring Creek, near the headwaters of both drainages. The claims are centered near 49° 26' N Latitude and 116° 11' W Longitude / UTM 5475000N, 560000E.

Access to the property is via logging roads up either Perry Creek or Hellroaring Creek.

1.20 Property

The Zinger claims are a contiguous group of 20 two-post claims owned by the author (Fig. 2).

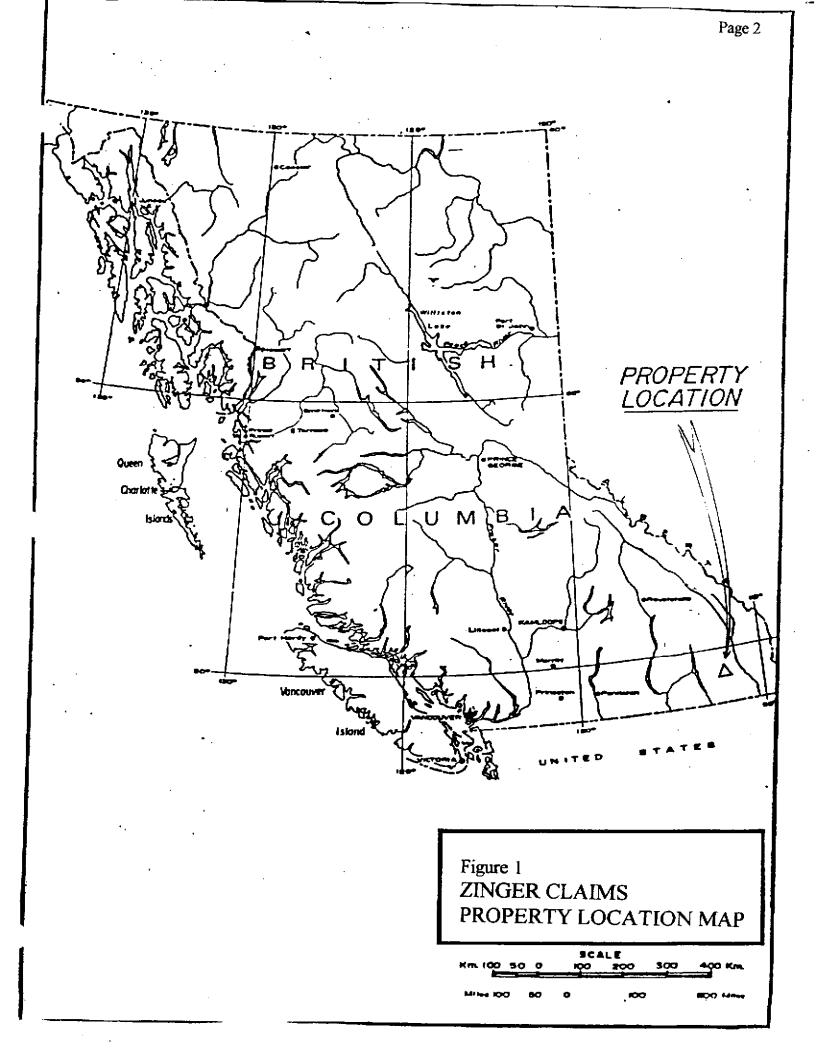
1.30 Physiography

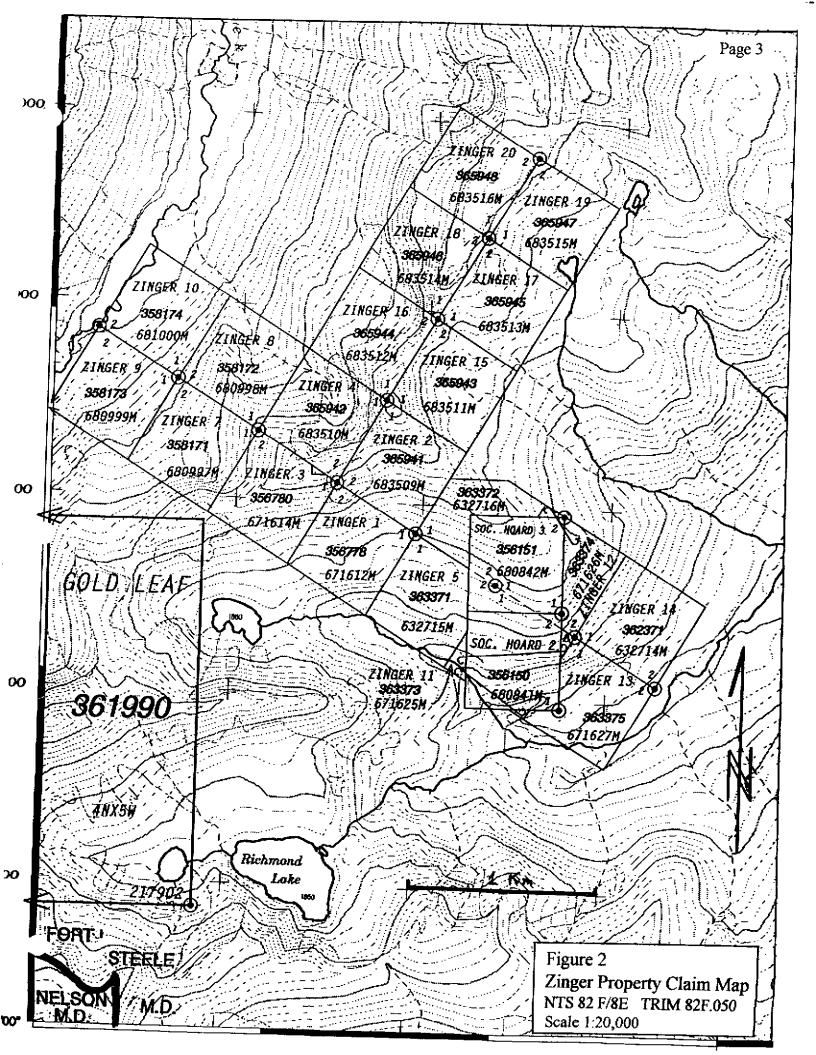
The Zinger claim group occurs within the Moyie Range of the Purcell Mountains, in moderately rugged terrain near the headwaters of Perry and Hellroaring Creeks. Elevation on the claim block ranges from 1520m to 2220m. Forest cover consists of a mixture of Pine, Fir and Larch. Lower elevation portions of the claim block in the Perry Creek drainage have been recently clear-cut logged.

1.40 History of Previous Exploration

The Zinger claims are situated near the headwaters of Perry Creek which was the site of a placer gold rush near the turn of the century. Intermittent placer gold production has occurred since that time. Numerous old workings on and in the vicinity of the Zinger claims date back to the early part of this century. Several adits and shafts on the old 'Yellow Metal' property, which is now the northern part of the Zinger claims, are described in B.C Ministry of Mines Annual Report for 1916.

More recent lode gold exploration activity started in the early 1980's following a dramatic increase in the price of gold. Numerous claims were staked to cover prospective lode gold sources of known placer streams near Cranbrook, including this part of Perry Creek.





In 1985 Partners Oil and Minerals Ltd. took reconnaissance soil samples along the trail above Gold Run Lake and detected significant gold anomalies (Brewer, 1985, A.R. 15,284). In 1987 they conducted grid soil sampling and established the presence of a large and rather strong gold anomaly (Bishop, 1987, A.R. 16,656).

Also in the mid-1980's, the 'Yellow Metal' prospect was explored using soil geochemistry and ground geophysics (Mark, 1986, A.R. 15,387).

In 1993 Consolidated Ramrod Gold Corporation staked a large claim block in the area. Their work included soil geochemistry, road building, trenching and diamond drilling in the area of the present Zinger claims; trenching near the approximate up-slope cut-off of one of the soil anomalies exposed a strong NNE-striking gold-mineralized quartz vein / shear zone system (Klewchuk, 1994, A.R. 23,398).

In 1997 and 1998 VLF-EM surveys were conducted over parts of the claims; some survey lines crossed one of Ramrod's gold-in soil anomalies. A northwest trending VLF-EM anomaly was identified, crossing regional stratigraphy a short distance west of a strong gold-in-soil anomaly (Klewchuk, 1998, AR 25,634).

1.50 Purpose of Survey

During 1999 a program of geological mapping, rock geochemistry and local detailed VLF-EM geophysical surveying was carried out on the Zinger claims in a continuing attempt to locate bedrock sources of gold mineralization. This work was funded in part by a B.C. Department of Energy and Mines Prospector Assistance Program.

2.00 GEOLOGY

2.10 Regional Geology

The area of the Zinger claims is underlain by the Mesoproterozoic Purcell Supergroup, a thick succession of fine grained clastic and carbonate sedimentary rocks exposed in the core of the Purcell Anticlinorium in southeast British Columbia. These rocks are believed by most workers (eg. Harrison, 1972) to have been deposited in an epicratonic re-entrant of a sea that extended along the western margin of the Precambrian North American Craton.

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. 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 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. The Grassy Mountain Stock, a Cretaceous granitic plug, outcrops east of Hellroaring Creek about 5 kilometers north of the Zinger claims.

2.20 Property Geology

The Zinger property is underlain mainly by rocks of the Creston Formation with the extreme western edge of the claim block possibly underlain by Kitchener Formation rocks. Kitchener Formation crops out west of the claim block along the Hellroaring Creek road and the lowermost bedrock exposures on the west edge of the property appear to be near the Creston - Kitchener contact. On the property, the Creston Formation consists mainly of shallow water laminated and thin bedded argillites, medium thick bedded siltstones and medium and thicker bedded quartzites. The lithologic character can vary extensively over a short distance, making it difficult to block out separate map-units.

Argillaceous and silty beds are vari-colored with shades of green, gray, blue-gray, purple and brown. Quartzites and siltstones are white, light purple to pink, and shades of light brown and gray. Thicker quartzite and silty quartzite beds are commonly graded or have cross-bedding and / or internal laminations. Mud-chip breccias are not uncommon; these are usually less than one meter in thickness and typically purple in color but can occur within white graded quartzites. Many argillite beds display mud cracks, attesting to the shallow water depositional regime. Extensive quartz veining is present over the property but varies considerably in intensity from place to place.

Structure

Beds mostly strike northeasterly and dip moderately to steeply to the northwest. The variation in dip is probably related to drag folding along steeply dipping fault and shear structures that parallel the strike of beds but have generally steeper dips. Where drag folding has been observed, the sense of movement is west side up, suggesting reverse or thrust faulting. The strike and dip of beds is commonly slightly wavy and there is local thickening and thinning of individual beds, apparently due to deformation. Across the claim block there is widespread structural deformation with numerous scattered fault and shear zones. These zones of deformation cannot always be followed along strike; they appear at least locally to die out,

suggesting an 'en echelon' or reticulate pattern. Argillaceous zones have responded to deformation in a more ductile manner than the quartzites and have taken up most of the stress as they are typically more sheared, usually with an abundance of thin wavy quartz veins. Quartzites and siltstones are locally brecciated with a matrix of usually narrow quartz veins. Fault repetition of the Creston Formation strata probably exists on the property but the amount of displacement on any of the fault structures has not been determined.

Development of quartz veins and shearing on the property appears to have occurred at about the same time. In a few places there is evidence of northwest structure breaking up northeast quartz veins but elsewhere northwest veins cut across northeast shearing.

Intrusions

Narrow gabbro dikes occur in the Creston Formation on the Zinger claims and nearby. These are presumably part of the Moyie Intrusions, which are considerably more prolific in the underlying Aldridge Formation (not exposed on the Zinger claims). Narrow gabbro intrusions were observed on the Zinger 6 and Zinger 8 claims. These are bedding-parallel and appear to be sills although they may be structure-parallel dikes. The gabbro on the Zinger 6 claim is sheared and poorly exposed, about 7 or 8 meters wide, and has a variably pyritic quartz vein zone on its west side.

A strongly magnetic gabbro dike occurs west and south of the Zinger claims. The western exposures mapped (Figure 3) are near old workings which were visited to observe the features considered important by early explorers in the area. The gabbro dike is about 15 meters wide, fine to medium grained, and trends roughly east-west, crossing the regional structure. South of Gold Run Lake this gabbro is broken up by NNE structures and locally extends into the NNE structures. The gabbro dike is altered with carbonate, magnetite and epidote common. An adit is developed on the upper (south) contact of the gabbro dike, where it is carbonate altered and sheared. A thin quartz vein breccia zone is also developed on this contact.

The Cretaceous Grassy Mountain Stock, a quartz monzonite to granodiorite composition felsic intrusion, crops out on the ridge west of Hellroaring Creek about 5 kilometers north of the Zinger property and is the closest known such intrusive to the Zinger claims. There is only very little evidence that has been seen on the claims to date to tie gold mineralization to felsic intrusive activity such as the Grassy Mountain Stock; feldspar crystals are sometimes seen with quartz veins.

Alteration

Alteration on the Zinger claims includes silicification, chloritization and hematite and pyrite alteration. Leaching of the pyrite results in limonitic staining of the rocks.

Chlorite is rather weakly developed in a few places; it may be a peripheral alteration to more intense silicification and pyritic alteration.

Silicification includes development or introduction of quartz veins as well as a pervasive silicification which results in a fine-grained, glassy or cherty texture. Pyrite is commonly present with the pervasive silicification and with many quartz veins, although some quartz veins appear to be barren of pyrite; there may be more than one age of development of quartz veins. Pyrite is also commonly disseminated in sediments immediately adjacent to quartz veins.

Pyrite alteration with its resultant limonitic weathering appears to be a key alteration related to gold mineralization. Although significant gold is not always present where pyrite occurs, there is always pyrite and some quartz with better gold values. Careful detailed mapping and sampling within areas of stronger limonitic alteration may prove to be very important in defining the best gold concentrations. Commonly only very thin quartz veins (mm scale) occur within areas of limonitic weathering. These veins are both shear-parallel (NE-striking) and cross-cutting; where more intensely developed, they form usually small crackle-type breccias. The thin quartz veins tend to carry pyrite and they also can be anomalous in gold.

Some limonitic alteration zones are as narrow as 5 meters.

Many of the Creston quartzite and silty quartzite beds are purple colored from fine disseminated hematite. This is a regional characteristic of the Creston Formation and may reflect the shallow water origin of the unit. Specular hematite is also common in many quartz veins on the property; and tends to occur in quartz veins which do not carry pyrite. It is not clear whether hematite alteration is related to the introduction of gold mineralization in any way.

Quartz Veining

Numerous quartz veins occur on the Zinger claims, ranging in thickness from less than 1 mm to greater than 2 meters wide. Quartz veining is not uniformly developed and is probably related to more than one individual factor. The majority of the quartz veins seen are northeast-striking, parallel to regional bedding and fault or shear structures. Two other prominant but less well developed sets are present. One is a northwest set of quartz veins, cross-cutting the regional structure and the other is a 'flat' set of veins which typically dip less than 40°. Gold mineralization occurs with all 3 vein sets but appears to be more prevalent in the northeast set The northeast and northwest veins are the thickest; the flat veins are rarely more than a few cm thick.

Narrow alteration zones can be associated with some quartz veins, for example, thin argillic alteration zones were noted with some flat-lying quartz veins.

Quartz veins are typically lensey in nature, in part reflecting their genetic relationship to tectonic deformation. They occur where limonitic alteration is present but also occur where no obvious alteration is present.

Many of the quartz veins are pyritic and all of the significant gold values were obtained from rock samples that carry pyritic quartz veining.

On the Zinger 17 to 20 claims (formerly the Hawk #1 claim and referred to as the Yellow Metal Prospect), at least two ages of trenching are present. Older trenches generally focused on larger quartz veins and to some degree on quartz breccia zones. Newer trenches were put in with a tracked excavator some time after the 1985 soil geochemistry (Mark, 1986, A.R. 15,387). Unfortunately, no public record of the excavator trenching program exists and it is unknown if any sampling was done as part of the program. The excavator trenches, which generally cross the bedrock structure, were probably located to test the soil geochemistry results. For the most part these trenches cross altered bedrock which hosts mainly thin (mm scale) quartz veins, and rare quartz veins up to 15 cm width.

Two quartz-enriched zones exist SE of Zinger 17, adjacent to the access road that was constructed for the Hawk #1 trenching. The lower zone is off the switchback at ~1850 meters elevation; here prominent quartz veining, shearing and folding occur within a strong alteration zone. The second zone is ~1980 meters elevation, at the end of a short branch road. Here a wide quartz zone at least 7 or 8 meters wide is present with vuggy, pyritic quartz.

3.00 GEOCHEMISTRY

3.10 Soil Geochemistry

No soil samples were collected on the Zinger claims during the course of this program but at least three separate soil geochemistry programs have been conducted on the present claim block by previous owners of the ground.

In 1985 and 1986 reconnaissance lines and a follow-up grid were completed north and east of Gold Run Lake with most of the grid area returning anomalous gold values, many with numbers greater than 500 ppb gold (Brewer, 1985, A.R. 15,284, and Bishop, 1987, A.R. 16,656).

In 1993 Consolidated Ramrod Gold Corp. verified these soil geochemistry results with two small grids and a third grid to the northwest, on what is now the Zinger 7 to 10 claims. These results are not in the public domain but anomalous gold was obtained over most of the area of the grids, with a number of values greater than 1000 ppb gold.

In 1985 a soil geochemistry grid was completed on the old Hawk #1 claim, in an area presently covered mostly by the Zinger 15 to 20 claims. Widespread high gold values were obtained here as well.

These soil geochemistry results demonstrated an extensive distribution of significant gold in the soils and, although restricted in the areal coverage, the results further suggest a northeast (parallel to regional structure) and northwest (crossing regional structure) control. The Zinger claims were staked mainly on the strength of these previous soil geochemistry results and the rock geochemistry program started in 1999 is an important step in establishing and defining the presence of significant gold in bedrock on the property.

3.20 Rock Geochemistry

A 'first pass' rock geochemistry program was conducted on the Zinger claims in 1999. Sampling attempted to evaluate soil geochemistry results. Rocks were selectively sampled for their visually favourable appearance and an attempt was made to spread the sampling out across the claims. Favourable-looking quartz and alteration is quite widespread on the property and considerable opportunity exists to expand on the rock geochemistry.

One hundred and seventeen rock samples were collected on and near the claims. Rock samples were taken mostly of bedrock, with a few samples of float (commonly from the dumps of old workings) also collected. The rock samples represent a variety of lithologies, alteration and 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 Figures 3 & 4, analytical results are provided in Tables 1 & 2 and shown in plan on Figure 4; sample descriptions are provided in Appendix 1.

Results

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Most of the rock samples collected have significant gold values; of 117 samples taken, 58 samples or 50% have gold values >100 ppb and 22 samples or 18.8% have values >1000 ppb. Eleven samples initially ran >2000 ppb gold; these were subsequently assayed (Table 2); these multi-gram samples lie along a general northeast trend over a strike length of 2300 meters (Figure 4). To some degree this may be a reflection of the sampling density. Clusters of relatively higher anomalous gold values are also present.

ROSSBACHER LABORATORY LTD.

CERTIFICATE OF ANALYSIS

To: Peter Klewchuk 246 Moyie Street Kimberley, B.C. V1A 2N8 Project: ZING

Type of Analysis: Geochemical

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

 Certificate:
 99525

 Invoice:
 50254

 Date Entered:
 99-11-26

 File Name:
 KLE99525.G

 Page No.:
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| PRE | | PPB | PRE | | PP8 | PRE | | PPB |
|------------|-------------|-------|-----|-------------|------|-----------|-------------|--------|
| FIX | SAMPLE NAME | Ац | FIX | SAMPLE NAME | Au | FIX | SAMPLE NAME | Au |
| A1 | ZING 01 | 30 | A1 | ZING 41 | 50 | A1 | ZING 81 | 10 |
| A1 | ZING 02 | 10 | AI | ZING 42 | 10 | A1 | ZING 82 | 40 |
| A1 | ZING 03 | 5 | A1 | ZING 43 | 10 | A1 | ZING 83 | 1950 |
| A1 | ZING 04 | 5 | A1 | ZING 44 | 430 | A1 | ZING 84 | 900 |
| A1 | ZING 05 | 160 | Al | ZING 45 | 40 | A1 | ZING 85 | 4000 |
| A1 | ZING 06 | 40 | A1 | ZING 46 | 160 | A1 | ZING 86 | 60 |
| A1 | ZING 07 | 90 | A1 | ZING 47 | 660 | A1 | ZING 87 | 650 |
| A 1 | ZING 08 | 1060 | A1 | ZING 48 | 70 | A1 | ZING 88 | 70 |
| A1 | ZING 09 | 10 | A1 | ZING 49 | 330 | Al | ZING 89 | 1150 |
| A1 | ZING 10 | 10 | A1 | ZING 50 | 1160 | A1 | ZING 90 | 140 |
| A1 | ZING 11 | 130 | AI | ZING 51 | 680 | A1 | ZING 91 | 650 |
| A1 | ZING 12 | 90 | A1 | ZING 52 | 80 | Al | ZING 92 | 410 |
| A1 | ZING 13 | 20 | A1 | ZING 53 | 160 | A1 | ZING 93 | 40 |
| A1 | ZING 14 | 50 | A1 | ZING 54 | 90 | A1 | ZING 94 | 410 |
| A1 | ZING 15 | 10 | A1 | ZING 55 | 10 | A1 | ZING 95 | 110 |
| A1 | ZING 16 | 5 | AI | ZING 56 | 10 | A1 | ZING 96 | 80 |
| A1 | ZING 17 | 1500 | Al | ZING 57 | 60 | Al | ZING 97 | 10 |
| 11 | ZING 18 | 40 | A1 | ZING 58 | 20 | A1 | ZING 98 | 50 |
| A 1 | ZING 19 | 1000 | A1 | ZING 59 | 30 | A1 | ZING 99 | 10000 |
| A 1 | ZING 20 | 20 | A1 | ZING 60 | 420 | A1 | ZING 100 | >20000 |
| A1 | ZING 21 | 70 | Al | ZING 61 | 260 | A1 | ZING 101 | 350 |
| Al | ZING 22 | 2500 | Al | ZING 62 | 120 | A1 | ZING 102 | 170 |
| A1 | ZING 23 | 20 | A1 | ZING 63 | 10 | A1 | ZING 103 | 310 |
| A1 | ZING 24 | 2350 | A1 | ZING 64 | 10 | A1 | ZING 104 | 250 |
| A1 | ZING 25 | 880 | A1 | ZING 65 | 10 | A1 | ZING 105 | 190 |
| A1 | ZING 26 | 90 | A1 | ZING 66 | 10 | A1 | ZING 106 | 20 |
| A1 | ZING 27 | 13000 | A1 | ZING 67 | 20 | A1 | ZING 107 | 90 |
| A1 | ZING 28 | 280 | A1 | ZING 68 | 10 | A1 | ZING 108 | 1100 |
| A1 | ZING 29 | 16000 | A1 | ZING 69 | 5 | A1 | ZING 109 | 2900 |
| Al | ZING 30 | 500 | A1 | ZING 70 | 5 | <u>A1</u> | ZING 110 | 5000 |
| Al | ZING 31 | 120 | A1 | ZING 71 | 5 | A1 | ZING 111 | 710 |
| A 1 | ZING 32 | 230 | A1 | ZING 72 | 10 | Al | ZING 112 | 30 |
| A1 | ZING 33 | 800 | A1 | ZING 73 | 10 | A1 | ZING 113 | 330 |
| A1 | ZING 34 | 5000 | A1 | ZING 74 | 20 | Al | ZING 114 | 3100 |
| A <u>1</u> | ZING 35 | 950 | A1 | ZING 75 | 10 | A1 | ZING 115 | 120 |
| A1 | ZING 36 | 1700 | A1 | ZING 76 | 1250 | A1 | ZING 116 | 1400 |
| A1 | ZING 37 | 1250 | A1 | ZING 77 | 50 | A1 | ZING 117 | 40 |
| A1 | Z1NG 38 | 430 | A1 | ZING 78 | 10 | | | |
| A 1 | ZING 39 | 710 | A1 | ZING 79 | 70 | ł | | |
| A 1 | ZING 40 | 640 | A1 | ZING 80 | 30 | | | |

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



ROSSBACHER LABORATORY LTD.

CERTIFICATE OF ANALYSIS

To: Peter Klewchuk 246 Moyie Street Kimberley, B.C. V1A 2N8 Project: ZING Type of Analysis: Assay 2225 Springer Ave., Burnaby, British Columbia, Can. V5B 3N1 Ph:(604)299-6910 Fax:299-6252 ممر....

| Certificate: | 99525 Assay |
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| Invoice: | 50254 |
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| TX SAMPLE NAME Au Au P ZING 22 4.12 0.120 P ZING 24 1.65 0.048 P ZING 27 15.09 0.440 P ZING 29 19.21 0.560 P ZING 34 6.86 0.200 P ZING 85 5.49 0.160 P ZING 99 14.41 0.420 P ZING 100 31.90 0.930 P ZING 109 3.98 0.116 P ZING 110 6.86 0.200 | PRE | | g/t | oz/t | | | |
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| P ZING 29 19.21 0.560 P ZING 34 6.86 0.200 P ZING 85 5.49 0.160 P ZING 99 14.41 0.420 P ZING 100 31.90 0.930 P ZING 109 3.98 0.116 P ZING 110 6.86 0.200 | p | ZING 24 | 1.65 | 0.048 | | | |
| P ZING 29 19.21 0.560 P ZING 34 6.86 0.200 P ZING 85 5.49 0.160 P ZING 99 14.41 0.420 P ZING 100 31.90 0.930 P ZING 109 3.98 0.116 P ZING 110 6.86 0.200 | P | ZING 27 | 15.09 | 0.440 | | | |
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| P ZING 99 14.41 0.420 P ZING 100 31.90 0.930 P ZING 109 3.98 0.116 P ZING 110 6.86 0.200 | Р | ZING_34 | 6.86 | 0.200 | | | |
| P ZING 99 14.41 0.420 P ZING 100 31.90 0.930 P ZING 109 3.98 0.116 P ZING 110 6.86 0.200 | Ρ | ZING 85 | 5.49 | 0.160 | | | |
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Gold occurs within northeast-oriented quartz veins and shear zones, in 'cross-cutting' northwestoriented quartz veins and in relatively flat lying veins.

The results confirm the presence of gold on the property and validate the soil geochemistry results obtained by previous workers.

3.00 GEOPHYSICS

3.10 Introduction

In 1999, a small VLF-EM survey was carried out near the common corner of the Zinger 1 to 4 claims where previous reconnaissance surveying had detected an anomaly. A total of 1.4 kilometers of line was surveyed on 6 lines, oriented at an azimuth of 030°, parallel to the regional structure. Figure 5 shows the survey line locations relative to the claim block and shows VLF-EM survey data consisting of Dip angle readings and calculated Fraser Filter values.

- 3.20 VLF-EM Survey
 - 3.21 Instrumentation and Survey Procedure

The VLF-EM (Very Low Frequency Electromagnetics) method uses powerful radio transmitters set up in different parts of the world for military communication and navigation. In radio communication terminology, VLF means very low frequency, about 15 to 25 kHz. Relative to frequencies generally used in geophysical exploration, the VLF technique actually uses very high frequencies.

A Crone Radem VLF-EM receiver, manufactured by Crone Geophysics Ltd. of Mississauga, Ontario was used for the VLF-EM survey on the Zinger claims. Seattle, Washington, transmitting at 24.8 Khz and at an approximate azimuth of 247° from the survey area, was used as the transmitting station.

In all electromagnetic prospecting, a transmitter produces an alternating magnetic (primary) field by a strong alternating current usually through a coil of wire. If a conductive mass such as a sulfide body is within this magnetic field, a secondary alternating current is induced within it, which in turn induces a secondary magnetic field that distorts the primary magnetic field. The VLF-EM receiver measures the resultant field of the primary and secondary fields, and measures this as the tilt or 'dip angle'. The Crone Radem VLF-EM receiver measures both the total field strength and the dip angle.

The VLF-EM uses a frequency range from about 15 to 28 Khz, whereas most EM instruments

use frequencies ranging from a few hundred to a few thousand Hz. Because of its relatively high frequency, the VLF-EM can detect zones of relatively lower conductivity. This results in it being a useful tool for geologic mapping in areas of overburden but it also often results in detection of weak anomalies that are difficult to explain. However the VLF-EM can also detect sulfide bodies that have too low a conductivity for other EM methods to pick up.

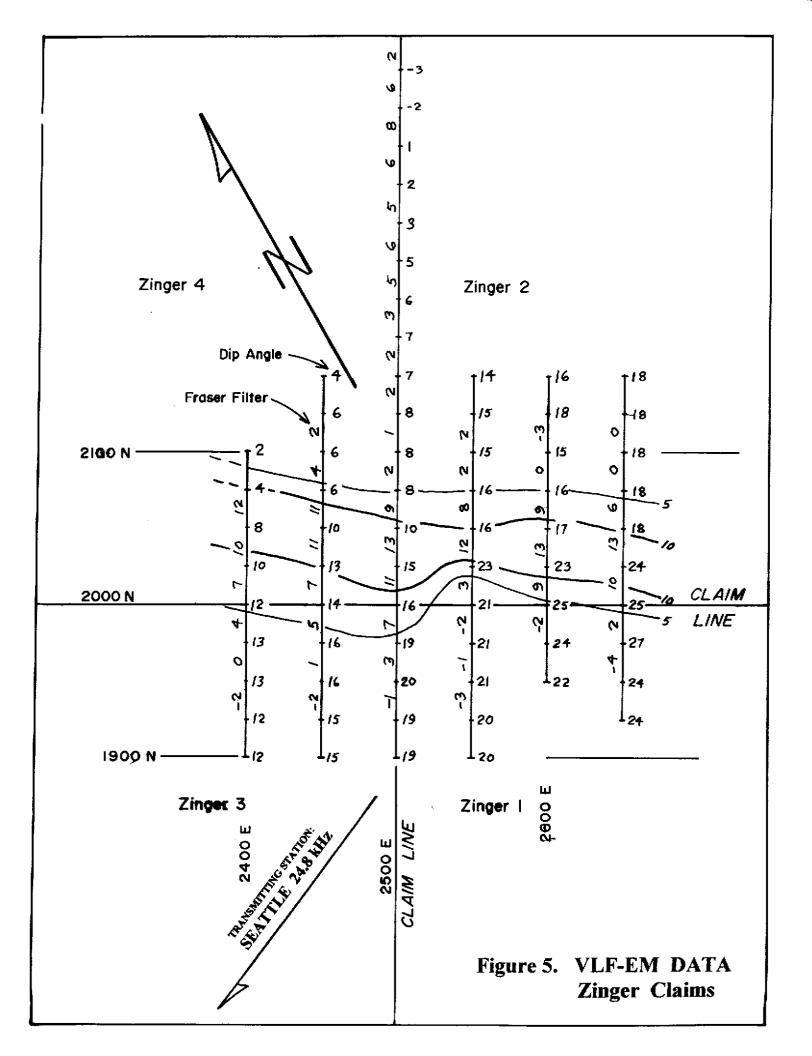
For the survey on the Zinger claims, readings were taken every 25 meters along 030° azimuth survey lines as shown on Figure 5. Bedrock geology observed on the property suggests that favorable anomalies would be oriented either northeast or northwest, parallel to and crossing the regional structural pattern.

Results were reduced by applying the Fraser Filter; dip angle readings and the Fraser Filter values are shown in Figure 5. Fraser Filter values are plotted between the dip angle readings which are at survey points. The higher Fraser Filter values (5+) are also contoured.

The Fraser Filter is essentially a 4-point difference operator which transforms zero crossings into peaks, and a low pass operator which induces the inherent high frequency noise in the data. Thus the noisy, often non-contourable data are transformed into less noisy, contourable data. Another advantage of this filter is that a conductor which does not show up as a zero crossover on the unfiltered data quite often shows up on the filtered data.

3.22 Discussion of Results

The VLF-EM survey on the Zinger claims partially outlined a distinct part of a northwest oriented anomaly (azimuth of $\sim 120^{\circ}$) that cross-cuts the regional structure at close to 90°. The anomaly occurs on all 6 survey lines for a defined strike length of at least 150 meters; it has a similar moderate strength on all 6 lines and remains open to both the northwest and southeast. This anomaly occurs near the upper part of a soil geochem anomaly obtained by Consolidated Ramrod Gold Corporation in 1993, and is near a number of anomalous rock geochem samples, including a 4-sample cluster with gold values ranging from 950 to 5000 ppb (assay of 6.86 grams /tonne) The VLF-EM anomaly detected by the survey may be an important structure related to the deposition of gold in this portion of the Zinger claims.



4.00 CONCLUSIONS

Geologic mapping has identified a number of northeast trending quartz vein / shear zone systems on the Zinger claim block.

Selective rock sampling on the Zinger claims has established the presence of extensive significant gold mineralization, with a northeast-oriented trend of multi-gram gold values extending across a strike length of 2300 meters. Anomalous gold values were obtained from most of the samples collected, demonstrating that gold mineralization in bedrock is widespread on the property. Gold can be present in large and small quartz veins and is present in northeast-trending veins and in some 'flat-lying' veins. Gold is associated with pyrite and can be associated with copper mineralization and lead mineralization.

'Cross-cutting' northwest-oriented VLF-EM anomalies have been identified near areas of favourable limonitic alteration and higher gold values in both soils and bedrock. These VLF-EM anomalies may reflect cross-cutting structures that have influenced the deposition of gold.

The Zinger claim block hosts widespread gold mineralization on surface. Bedrock lithologies range from argillite to quartzite and, although gold can be found in different lithologies, it appears that brittle rocks such as quartzites are the better hosts. Quartz veins are common but not uniformly developed and limonitic zones that might be anomalous in gold are also widespread, such that a greater level of detail is required to relate the high gold samples to specific bedrock features that may then constitute drill targets.

5.00 REFERENCES

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6.00 STATEMENT OF EXPENDITURES

| 18 days, field work @ \$300/day | \$5400.00 |
|--|------------------|
| 4X4 truck 18 days @ \$75/day | 1350.00 |
| VLF-EM rental 2 days @ \$30/day | 60.00 |
| Analytical costs | 1369.60 |
| Freight | 87.75 |
| 5 days, report and drafting @\$300/day | 1500.00 |
| Field, drafting and report supplies | 87.00 |
| TOTAL EXPENDITURE | <u>\$9854.35</u> |

7.00 AUTHOR'S QUALIFICATIONS

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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 25 years.
- 5. I have been employed by major mining companies and provincial government geological departments.

Dated at Kimberley, British Columbia, this 31st day of January, 2000.

ESSIC Pit 15 **B**- KLEWCHUK Peter Klewchuk P. Geo.

Appendix 1 Description of 1999 Zinger Rock Samples

- Zing-01 Narrow 1 cm wide vuggy pyrite-limonite rich quartz vein in light purple-green siltstone-quartzite, some phyllitic argillite. Bleached with lots of quartz gashes. Some patches of weak iron stain. QV trends 290/22S.
- Zing-02 Narrow 4 cm quartz vein in same sed package with purple hematite alteration. Quartz has orange-brown rusty patches. QV trends 028/78SE.
- Zing-03 Quartz breccia zone in sericitic quartzite. Some feldsapar(?)- patchy pods with some pyrite and limonite (above old trail). Thin flat veins have the most pyrite and limonite.
- Zing-04 Sericitic quartzite with thin 1/2 2 mm wide light gray quartz veins. Footwall part of a 2 m wide zone.
- Zing-05 Hangingwall part of Zing-04 zone. Sericitic quartzite and sheared argillite. Some orange-brown limonite (ankerite?) and disseminated pyrite in quartzite. Narrow quartz veins have a general NE orientation.
- Zing-06 Sericitic light gray-brown brecciated quartzite with very thin limonitic (ankerite?) quartz veins and thicker rusty, vuggy pyritic quartz veins. "Quartz breccia". NE trend. Fairly wide zone of brecciation includes samples 07 and 08, maybe 25 m wide.
- Zing-07 Similar to Zing-06. Light gray quartzite with vuggy white to very light gray quartz veins with abundant dark orange-brown limonite patches. Minor fine disseminated pyrite in quartzite.
- Zing-08 Similar to Zing-06 and 07. Things are poddy but persistent. The alteration is subtle. Purple siltstone and quartzite with thin rusty quartz veins. Fine disseminated pyrite in quartzite.
- Zing-09 10 m beyond 08, on contour. Mud chip breccia unit with some weak limonitic, pyritic quartz pods. Orange-brown limonite in quartz veins may be weathered ankerite or siderite. Disseminated pyrite and orange-brown limonitic spots in quartzite.
- Zing-10 10 m beyond 09, slightly uphill. Altered light purple sericitic quartzite with thread-like quartz veins with limonite and pyrite. Some larger pods of quartz in zone (not in sample).
- Zing-11 Poddy limonitic quartz veins and blasts of white quartz in light gray purple quartzite and sheared phyllitic argillite. Abundant very fine-grained disseminated pyrite in quartzite. Euhedral medium-grained pyrite in quartz veins. Part of NE structure?

- Zing-12 Sheared siltstone-quartzite with lensey reddish limonitic vuggy quartz veins. Abundant fine disseminated pyrite in sheared sediments.
- Zing-13 White to light gray quartz veins up to 4 cm wide in light gray, weakly limonitic quartzite. Medium-grained pyrite locally on margins of quartz veins; disseminated fine-grained pyrite in quartz veins.
- Zing-14 Pink to light gray quartzite, cut by series of thin lensey quartz veins with locally abundant medium-grained euhedral pyrite.
- Zing-15 15-30 cm wide flat vein. Folded, pinches out. Abundant limonite and pyrite. Open vugs with small euhedral open space quartz crystals.
- Zing-16 Quartz vein within large chlorite breccia. Variably limonitic. Small vugs with encrusted fine euhedral pyrite crystals. Locally strong patches of rusty pyrite. Ruststained sericite is also common near vugs.
- Zing-17 Small blowout of quartz with limonite and pyrite. Vugs are common; most are 'clean' and may be primary; some vuggy areas are dark reddish-brown stained from oxidation of iron carbonate or pyrite.
- Zing-18 Similar to 17. Discontinuous limonite-rich quartz veins with some fresh pyrite, in light purple-gray sericitic quartzite which also hosts fine disseminated pyrite.
- Zing-19 Gray-purple-pink quartzite streaked with discontinuous cross-cutting quartz veins. Disseminated pyrite is rare to abundant, in quartz veins and sediments.
- Zing-20 Banded lensey quartz veins in sheared, sificified quartzite with argillite fragments. Limonite spots (iron carbonate?) common; fine-grained pyrite is also common.
- Zing-21 Light gray quartzite with disseminated fine-grained euhedral pyrite, cut by thin limonitic quartz veins.
- Zing-22 Same type of quartz but a separate NE set. Phyllitic silty argillite to pink-gray quartzite. Thin cross-cutting limonitic quartz veins. Disseminated pyrite in quartzite, adjacent to quartz veins.
- Zing-23 Light gray-brown quartzite, cut by series of thin lensey, orange-brown limonitic quartz veins. Small limonitic vugs.
- Zing-24 NW oriented quartz gashes. Perpendicular to NE structure and bedding. Light graybrown quartzite with thin beds of phyllitic argillite and silty argillite. Isolated patches of concentrated, disseminated pyrite.

- Zing-25 Platey-weathering silty quartzite with sub-mm. to 5 mm. rusty quartz veins. Disseminated pyrite, few small vugs. Quartz veins are parallel and sub-parallel to bedding. Discontinuous limonite-rich quartz breccia zones.
- Zing-26 Light gray-brown quartzite cut by lensey white to very light gray granular quartz veins with vugs, quartz crystals and disseminated pyrite.
- Zing-27 Sheared hematitic pale gray quartzite to argillaceous siltstone cut by wavy shear subparallel glassy granular quartz veins with locally abundant disseminated pyrite.
- Zing-28 Brecciated pale gray-purple quartzite. Some is more glassy-textured and probably silicified. Numerous irregular quartz veins as breccia matrix, mm to 2 cm wide. Quartz veins are glassy white to quite limonitic. Disseminated pyrite in both quartz veins and quartzite.
- Zing-29 Quartz vein breccia, est. 15-25% quartz veins. Pale brown-purple-gray quartzite with numerous irregular quartz veins and abundant disseminated and clustered pyrite crystals. Most quartz veins are quite vuggy.
- Zing-30 Similar to 29. Some phyllitic to sericitic argillaceous siltstone. Fresh disseminated pyrite is more common in quartzite than in sample 29.
- Zing-31 Narrow limonite-rich slip, some quartz very weak this is just off edge of good geochem. Clean, white granular quartzite with streaks of vuggy-weathered dark orangebrown oxidized pyrite. Some fresh disseminated pyrite. Some hematitic weathering pyrite; local specular hematite with white mineral, possibly feldspar.
- Zing-32 Same character zone, ~10 m further, a little stronger. Light gray to very pale purple quartzite with lensey pyritic quartz veins and limonitic fractures.
- Zing-33 2 m wide zone, same character, may be a NW extension of 32. Fine-grained, very pale purple quartzite with very fine disseminated pyrite and irregular, lensey, granular white to rusty-spotted quartz veins.

Zing-34 to 37 are all part of a NE-trending, 10-15 m wide zone of discontinuous limonite and quartz; some flat quartz veins also.

Zing-34 Pale gray-brown-purple (pinkish from hematitic oxidation) quartzite cut by mainly thin, irregular vuggy and rusty quartz veins with minor disseminated pyrite. Part of 10-15 m wide zone. Discontinuous limonite and quartz. NE trending, but also flat veins (NW trending?).

- Zing-35 Light gray, slightly purplish quartzite; some is more glassy in texture, apparently silicified. Sheared, brecciated with matrix of thin, irregular lensey pinkish (hematite-stained) granular quartz veins with locally abundant clustered and disseminated pyrite.
- Zing-36 Sheared pale gray quartzite and siltstone and phyllitic argillaceous siltstone. Quartzite and siltstone are cut by thin 'crenulated' rusty quartz veins.
- Zing-37 Silicified light gray quartzite, minor siltstone and silty quartzite. Quartz breccia with irregular shear-parallel and cross-cutting rusty, pyritic quartz veins. Pinkish hematitic staining common.
- Zing-38 NW of 32 to 37. Pale gray quartzite, brecciated with mostly shear-parallel rusty, vuggy, pyritic quartz veins. Few very thin cross-cutting rusty quartz veins.
- Zing-39 Pale gray to purple-pink weakly sheared quartzite with a few shear-parallel and crosscutting 2-4 mm wide rusty pyritic quartz veins.
- Zing-40 2 m east of 37, similar character; light gray quartzite, weakly sheared with few crosscutting pyritic quartz veins up to 12 mm wide.
- Zing-41 Light gray quartzite, cut by few irregular, vuggy quartz veins.
- Zing-42 White to very light gray quartzite cut by white and gray vuggy, locally rusty quartz veins with some euhedral quartz crystals.
- Zing-43 Old shaft dump. Re-fractured yellow-brown limonitic stained quartz out of dump. 1 m wide 088/near vertical trending vein.
- Zing-44 North on strike. Milky-white bull quartz with lots of vugs; orange-brown limonitestained. Disseminated pyrite. Some vugs are obviously from weathering of pyrite.
- Zing-45 5 m exposure, 1 m wide. White to yellow quartz, yellow-brown limonite stained; some yellow mica. Quite vuggy, no noted remaining pyrite. NE trend.
- Zing-46 Sheared quartzite, cut by irregular pinkish-stained granular rusty quartz veins, minor disseminated pyrite. Part of a 30 cm wide limonite rich narrow quartz system.
- Zing-47 Sheared light gray quartzite with a few shear-parallel and cross-cutting quartz veins. Minor disseminated pyrite; 1 m wide limonite zone, NE trending.
- Zing-48 Pale pink-gray, finely limonite-spotted quartzite, cut by numerous thin rusty quartz veins; part of a 30 cm wide limonitic zone, NE trending.

- Zing-49 Light gray, slightly pink quartzite, cut by thin irregular vuggy rusty quartz veins with disseminated pyrite.
- Zing-50 Light gray, fine-grained, almost cherty texture (silicified) quartzite cut by thin whitish quartz veins with disseminated, partly oxidized pyrite. Weak NE trending zone, 1 m wide.
- Zing-51 Light gray-brown quartzite, cut by numerous irregular white, weakly limonitic quartz veins with disseminated and clustered pyrite.
- Zing-52 Light gray to very pale bluish-gray quartzite with locally abundant yellow-brown limonitic coarse granular quartz veins. Minor disseminated pyrite.
- Zing-53 Light to medium gray argillite and silty argillite. Minor small lensey quartz veins and strongly limonitic mm width quartz veins. Limonite is dark orange-brown. Small folds present.
- Zing-54 Narrow 1 cm wide northwest quartz vein (110/75SW) with coarse specular hematite, some limonite, in host of pale purple-gray quartzite.
- Zing-55 Narrow limonitic zone of thin rusty quartz veins in light gray quartzite.
- Zing-56 Quartz vein breccia. Brecciated light gray quartzite; quartz veins are glassy, light to medium gray, commonly medium orange-brown limonitic with minor disseminated pyrite.
- Zing-57 Light gray quartzite and brown siltstone cut by whitish irregular quartz veins with local fine-grained pyrite.Same zone as Zing-56 but weaker limonitic quartz breccia.
- Zing-58 Pale gray to pinkish quartzite with thin rusty quartz veins, disseminated pyrite.
- Zing-59 Old dig-out. Sample from dump. White to light gray quartzite, thicker quartz veins with phyllitic medium gray argillite on margins. Few vugs, minor disseminated pyrite.
- Zing-60 Quartz breccia, weak iron stain, some limonite. Light gray quartzite; matrix of irregular white quartz veins up to 1.5 cm wide. Disseminated pyrite in quartz veins and quartzite.
- Zing-61 Quartz breccia; gray quartzite with limonite-spotted whitish quartz veins. Disseminated pyrite.
- Zing-62 Gray to pink quartzite, brecciated with abundant irregular thin quartz veins with oxidized and some fresh pyrite.

- Zing-63 Cream yellow-green phyllite and silty argillite with thin lensey, rusty quartz veins.
- Zing-64 1 m wide limonitic breccia zone in gray quartzite. Wavy quartz veins are lensey with vugs, disseminated pyrite.
- Zing-65 Mn-enriched breccia in blue-green-gray siltstone. Mn-stained fractures, chlorite streaks, thin white quartz veins with rusty spots (oxidized pyrite?).
- Zing-66 Light gray quartzite with thin rusty quartz veins, minor disseminated pyrite.
- Zing-67 Light gray quartzite (finely limonite-spotted), cut by irregular white quartz veins with abundant disseminated pyrite, typically concentrated at quartz vein margins. Limonite-stained from oxidation of pyrite.
- Zing-68 Intrusive dike. Yellow-white color, looks feldspar-rich, strongly vuggy leached calcite?, some garnets. Punky iron zones, albite in adjoining sediments. Dike strikes ~025°.
- Zing-69 Felsic-altered quartzite? Adjacent to intrusive; limonitic with quartz veins. Weak chloritic alteration; fractures are reddish-brown limonitic.
- Zing-70 Larger white quartz vein, part of a quartz limonite breccia. Phyllitic contacts, disseminated to clustered pyrite concentrated at vein boundaries. Hangingwall of old workings. Gabbro in zone.
- Zing-71 Light gray, brownish limonite-stained quartzite, cut by a series of thin lensey irregular brownish limonitic quartz veins; weak iron.
- Zing-72 Light gray quartzite, cut by one 2-4 cm wide vuggy white quartz vein. Vein is rodded perpendicular to contacts. Reddish-brown hematite-stained. Sample is mostly quartz. Part of a NE-trending breccia zone.
- Zing-73 15 cm NE-trending quartz vein. Iron stained with brownish limonite and local hematite-weathered pyrite cubes.
- Zing-74 Light gray quartzite, brownish limonite-stained. Few cross-cutting thin quartz veins with some vugs, minor pyrite. Part of a narrow, poddy, limonitic quartz zone.
- Zing-75 4 m wide quartz blow-out. Massive bull / white quartz, weakly iron stained. Few rusty vugs. Sericitic fractures, weak, disseminated pale green chlorite (?).

- Zing-76 Medium gray sheared siltstone and silty argillite with irregular lensey white to limonitic brown quartz veins (up to ~8 mm wide). Disseminated pyrite in quartz veins and in sheared siltstone.
- Zing-77 Pale gray-pink quartzite to light brown-pink siltstone and phyllitic argillite, cut by thin irregular pyritic quartz veins <5 cm wide; breccia zone.
- Zing-78 Orange-brown spotted light blue-gray quartzite, brecciated and intruded by white, hematite-spotted quartz veins up to 2 cm wide; no obvious pyrite.
- Zing-79 Light gray quartzite, cut by series of whitish, brown limonite-stained quartz veins. Some vugs, minor disseminated pyrite. NW trending zone.
- Zing-80 Light gray quartzite. Brownish limonite stained, cut by irregular thin lensey pyritic quartz veins.
- Zing-81 Yellow-brown limonite-stained quartz with scattered disseminated and clustered pyrite.
- Zing-82 Narrow zone of limonitic quartz veinlets in medium blue-green silty quartzite. Minor oxidized disseminated pyrite.
- Zing-83 Quartz breccia zone in light gray-brown siltstone. Abundant pyrite in thin wavy quartz veins.
- Zing-84 Limonitic quartz breccia zone in light blue-gray quartzites. Disseminated oxidized pyrite in quartz veins.
- Zing-85 Similar to 84. Quartz veins up to 15 mm wide, more pyrite.
- Zing-86 Pale purple-gray finely laminated quartzite cut by white pyritic quartz veins up to 2 cm wide. Narrow quartz vein zone.
- Zing-87 Light blue-gray quartzite host. Northeast trending silicified zone with 50 cm wide quartz veins. Some irregular vugs, fresh pyrite disseminated in quartzite.
- Zing-88 Very light blue-gray quartzite, cut by irregular vuggy quartz veins with quartz crystals. Patchy strong boxwork limonite, patchy disseminated pyrite. NE-trending zone.
- Zing-89 Silicified medium blue-gray quartzite (cherty texture), cut by pinkish irregular quartz veins up to 15 mm wide with locally abundant pyrite.

- Zing-90 Light blue-gray quartzite. Numerous lensey, irregular vuggy quartz veins with partly oxidized pyrite.
- Zing-91 Pink and brown limonite-stained quartzite, cross-cut by series of quartz veins up to 2 cm wide.
- Zing-92 Brecciated blue-gray quartzite with matrix of glassy white quartz veins. Small vugs and scattered disseminated and clustered fresh pyrite.
- Zing-93 Along NW structure. Blue-gray to purple hematitic quartzite. Thin quartz veins have abundant oxidized pyrite. Narrow perpendicular NE zones have narrow quartz veins with pyrite and limonite.
- Zing-94 Similar to 93; more quartz, pyrite and limonite. Minor sheared silty argillite. Banded wavy quartz with abundant pyrite, mostly oxidized.
- Zing-95 Light gray quartzite. Breccia texture with indistinct quartz veins and patches. Vuggy, limonitic fractures. Disseminated pyrite in quartz veins and quartzite.
- Zing-96 Parallel zone. Light blue-gray quartzite, brecciated with irregular lensey and vuggy pyritic quartz veins. Minor phyllitic silty argillite
- Zing-97 Old working. Rusty light orange breccia. Vuggy white quartz, very strong orangebrown limonitic-stained.
- Zing-98 Area of old and new workings on ridge. Mottled pale pink quartz with abundant finegrained pyrite in patches with sericite. Few vugs and patches of coarse-grained pyrite.
- Zing-99 Float from trench with quartz and Cpy. Light to medium blue-gray quartzite. Irregular thin wavy quartz veins with strong patchy fresh pyrite.
- Zing-100 Float from shaft. Brecciated light blue-gray quartzite, cut by vuggy whitish quartz veins with pyrite and chalcopyrite encrusting and filling vugs.
- Zing-101 Sample from trench. Series of parallel quartz veins up to 2 cm wide with minor pale gray-brown siltstone or quartzite. Coarse disseminated pyrite in quartz veins: fine disseminated pyrite in siltstone. Some vugs and quartz crystals.
- Zing-102 Quartz breccia with limonite in trench. Light pink-gray quartzite, cut by kensey and poddy quartz veins. Disseminated oxidized pyrite.
- Zing-103 Old trench 15 m wide. Light gray quartzite with series of vuggy, rusty quartz veins; some quartz crystals in vugs. NE-trending quartz breccia zone with limonite.

Zing-105 Light gray silty quartzite. Numerous irregular, lensey, vuggy and rusty quartz veins. Sulfides leached out.

pyritic quartz veins.

- Zing-106 Light gray-brown siltstone and quartzite, brecciated and cut by thin lensey brownish limonitic quartz veins. Pyrite mostly leached out.
- Zing-107 Mottled light gray-blue-brown quartzite cut by a few thin irregular lensey pyritic quartz veins.
- Zing-108 New (tracked excavator) trench. Light purple-gray quartzite cut by numerous subparallel to rarely cross-cutting, irregular thin vuggy rusty pyritic quartz veins. Much of the pyrite is leached out, leaving pits and 'vugs'.
- Zing-109 Three grab samples from trench. Quartzite, quartz veins and sheared silty argillite. Sediments have numerous quartz veins; lensey quartz veins in sheared silty argillite have abundant disseminated pyrite.
- Zing-110 Narrow quartz limonite zone, NE trend. Sample is mostly quartz with minor light brown limonite-stained siltstone and silty argillite. Quartz veins up to 4 cm wide. Thinner quartz veins carry abundant oxidized (largely leached out) pyrite.
- Zing-111 Same NE-trending narrow quartz limonite zone. Gray-pink hematite-stained quartzite cut by thin, sub-parallel and cross-cutting thin pyritic quartz veins.
- Zing-112 Pink quartzite within mostly more argillaceous, thin bedded sediments. Thin white clear to light gray granular lensey limonitic quartz veins. Quartz veins are <1 to ~6 mm wide. Weathered pyrite or iron carbonate?
- Zing-113 Sample of thin bedding-parallel and sub-parallel quartz veins in 'pastel'-colored yellow-brown limonitic-altered mixture of siltstone, quartzite and argillite. Argillites are also pale gray-green in color.
- Zing-114 Similar to 113. Some yellow-brown oxidized, cross-cutting coarse-grained quartz veins.
- Zing-115 Small bedding-parallel lenses of white granular quartz with patchy light orangebrown limonitic staining. Small vugs in quartz veins.

- Zing-116 Series of bedding-parallel lenses and veinlets, generally strongly rusty, in altered thin bedded or laminated argillite, silty argillite and siltstone. Narrow bedding-parallel alteration zone.
- Zing-117 Shear zone. Wavy, irregular lensey limonitic quartz veins in wavy sheared orangebrown limonitic argillite.

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