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# REPORT ON KOKANEE EXPLORATIONS LTD.'S

# CASH PROPERTY

## EAST WILD HORSE RIVER

S. Brian Hamilton

August, 1990

INDEX

REPORT ON THE CASH PROPERTY
FOR SARTIGAN GRANITE CORP.
East Wild Horse River

S.B. Hamilton August, 1990

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## INTRODUCTION

This report was requested by Mr. Douglas Angell of Sartigan Granite Corporation to evaluate the 1990 work in progress on the Cash claims conducted by Kokanee Explorations Ltd. and to recommend further exploration on the property.

## PROPERTY LOCATION, ACCESS AND TOPOGRAPHY

The Cash property is located approximately 25.0 km northeast of Cranbrook B.C on the East Wild Horse River. Access to the property is readily available by well developed gravel logging roads. The property is situated 16.0 km from highway and rail.

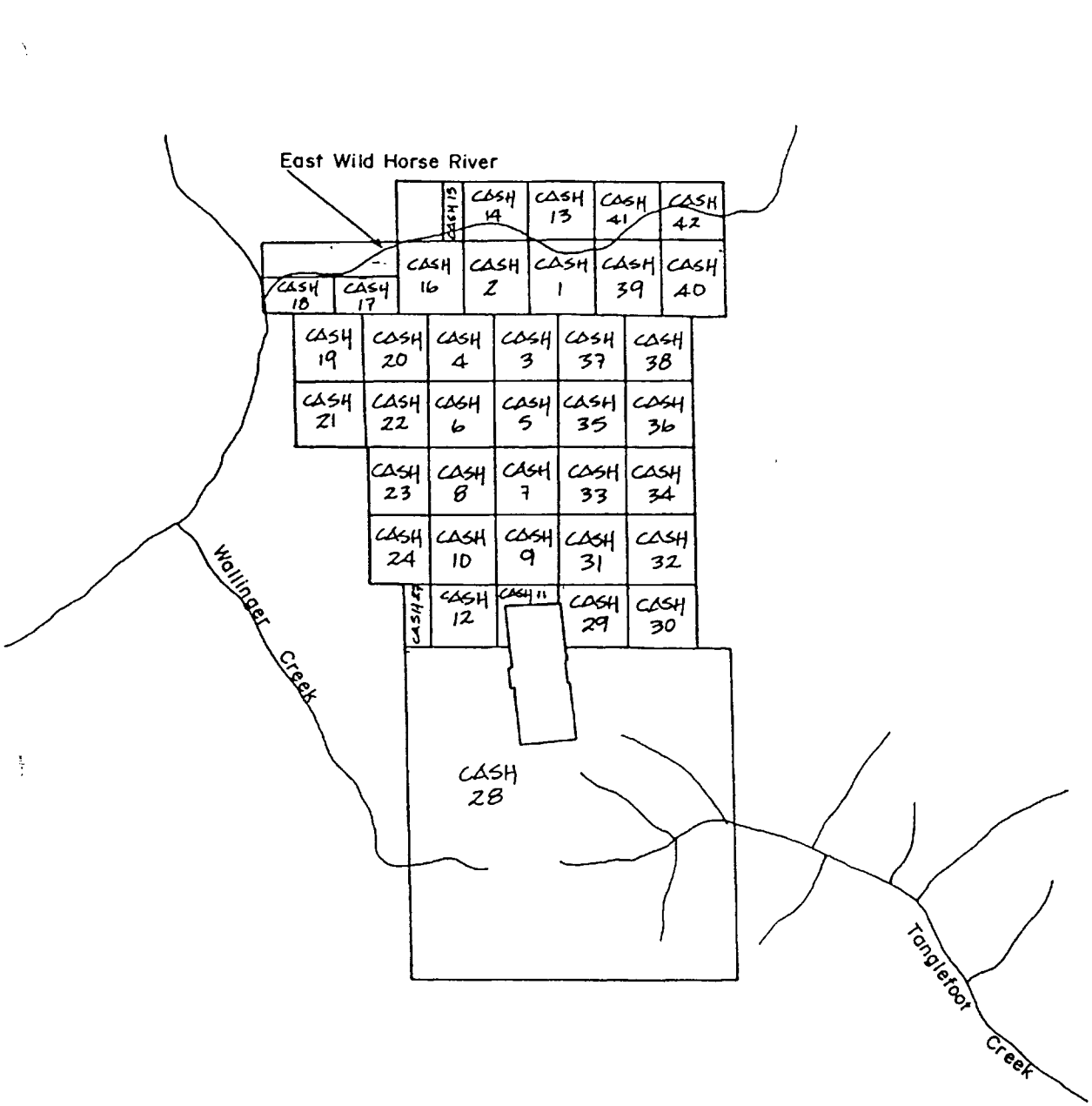
The topography of the claims rises from the 4000 foot level on the East Wild Horse River to over 6500 feet. Relief is not too severe. The area of the claims has been logged intensively. The skid roads provide easy access for exploration work and the location of drill holes.

As part of the Rocky Mountain system the area has typically a general Rocky Mountain climate, which includes moderate snow packs in winter and relatively dry summers.

The property consists of 43 claims owned by Kokanee Explorations Ltd. The unpatented 2-Post placed claims and one 4-Post claim are shown on Map 2 and listed in Appendix II.


GLEN PROPERTY

| KOKANEE EXPLORATIONS LTD. | |
|---|---|
| Option for Sartigan/Granite Corp.<br>GLEN PROPERTY<br>LOCATION MAP<br>0 100 200 MILES<br>0 100 200 300 KILOMETRES | |
| MAP # 1 | July 1990 |




Cash 25 + 26 are fractional claims between Cash 8 + 7, Cash 43 is a fractional claim between Cash 6, 8, 22 and 23.

0 1000 2000 3000 m

# KOKANEE EXPLORATION

## CASH PROPERTY

CLAIM MAP

Scale: 1:50 000

Date: APRIL 1990

REGIONAL GEOLOGY

The Cash claims are underlain by Precambrian and Cambrian metasediments. The Cambrian overlies the Precambrian with sharp, angular unconformity that is marked by a thick polymiticconglomerate. The Precambrian (Kitchener Fm.) consists mainly of hornfels, calc-silicates, dolomitic quartzites and quartzites. The Cambrian (Cranbrook Fm.) is composed mainly of meta-conglomerate, meta-quartz grit, dolomite and marble.

PROPERTY GEOLOGY

Immediately east of the property, a large Cretaceous monzonite-syenite stock intrudes Ordovician sediments. On the property, 2000 feet west of this large stock, a small syenite plug intrudes Cambrian marble and quartzites. Detailed geological mapping on the property has outlined a Cambrian basement high. This basement high produced a facies change in the Lower Cambrian stratigraphy. Black pyritic mudstones, calcareous mudstones and thin bedded argillaceous limestone occur south of the "high", while dolomite, limestone, and quartzite form the basal Cambrian, north of the "high." Lower Cambrian carbonates on top and along the north flank of the basement "high" host large sulphide bearing breccia structures which appear to be solution collapse breccias.

The presence of the large monzonite-syenite stock in the claim area is of particular interest. A number of similar stocks occur throughout the trench area. In two cases significant mineralization appears to occur in relationship with the intrusive stocks. In both instances the mineralization is of commercial importance and a definite genetic relationship between the ore and the syenite intrusive stocks appears to be indicated. The properties are the Estella Mine and the Bull River Mine, a Placid Oil Development (see pages 9 + 11 of this report).

The Estella lead - zinc ore occurs along the east flank of a stock and is closely associated with the porphyritic sills and dykes that

radiate from the parent stock. The mineralization usually lies along the bottom of the sills. As the porphyries pinch out, so does the ore.

Sixteen miles south of the Cash group are located the Placid Oil Claims, near the mouth of the Bull River. Mineralization is in gold, copper, lead and zinc. Again, the main copper rich mineralization is situated close to a large monzonite-syenite stock.

PAST WORK

In 1971, an IP survey found a large unexposed sulphide bearing breccia structure. The structure is located near the southern boundary of the Cash property. This structure consist of angular, coarsely crystalline, vuggy dolomite clasts, minor black argillite clasts in a black pyritic mudstone and massive pyrite matrix. In 1974, one hole by Cominco cut 800 feet of sulphide (pyrite) bearing breccia, with rare tetrahedrite, galena and sphalerite. Random grab samples from the core were run for lead-zinc. Most of these samples had anomalous values in lead-zinc. This structure has not been pursued to the north by drilling or geophysics.

Two and a half kilometres north of the above structure a second sulphide bearing breccia has been discovered. This structure is marked by a gossan 800 feet long and 300 feet wide. Assays from the gossan average 0.28% lead, 0.06% zinc, 1.03% copper and 0.25 oz/T silver. The breccia consists of meta-dolomite clasts in a matrix of pyrite, magnetite, tremolite and actinolite, with serpentinization occurring throughout the structure.

In 1973, Cominco drilled two short holes (from one site) into the breccia structure. These holes did not cut the sulphides below the zone of weathering and therefore were of limited value. However, the holes intersected a 22 foot thick zone of highly oxidized sulphides from which fragments of sphalerite were retrieved,

including a two foot piece of core which ran at 7.7% zinc. Core loss in this zone was 90%. Scattered galena and chalcopyrite occur throughout the holes. Core loss in limonite rich zones was rarely less than 90%. This breccia structure produces a good magnetic anomaly.

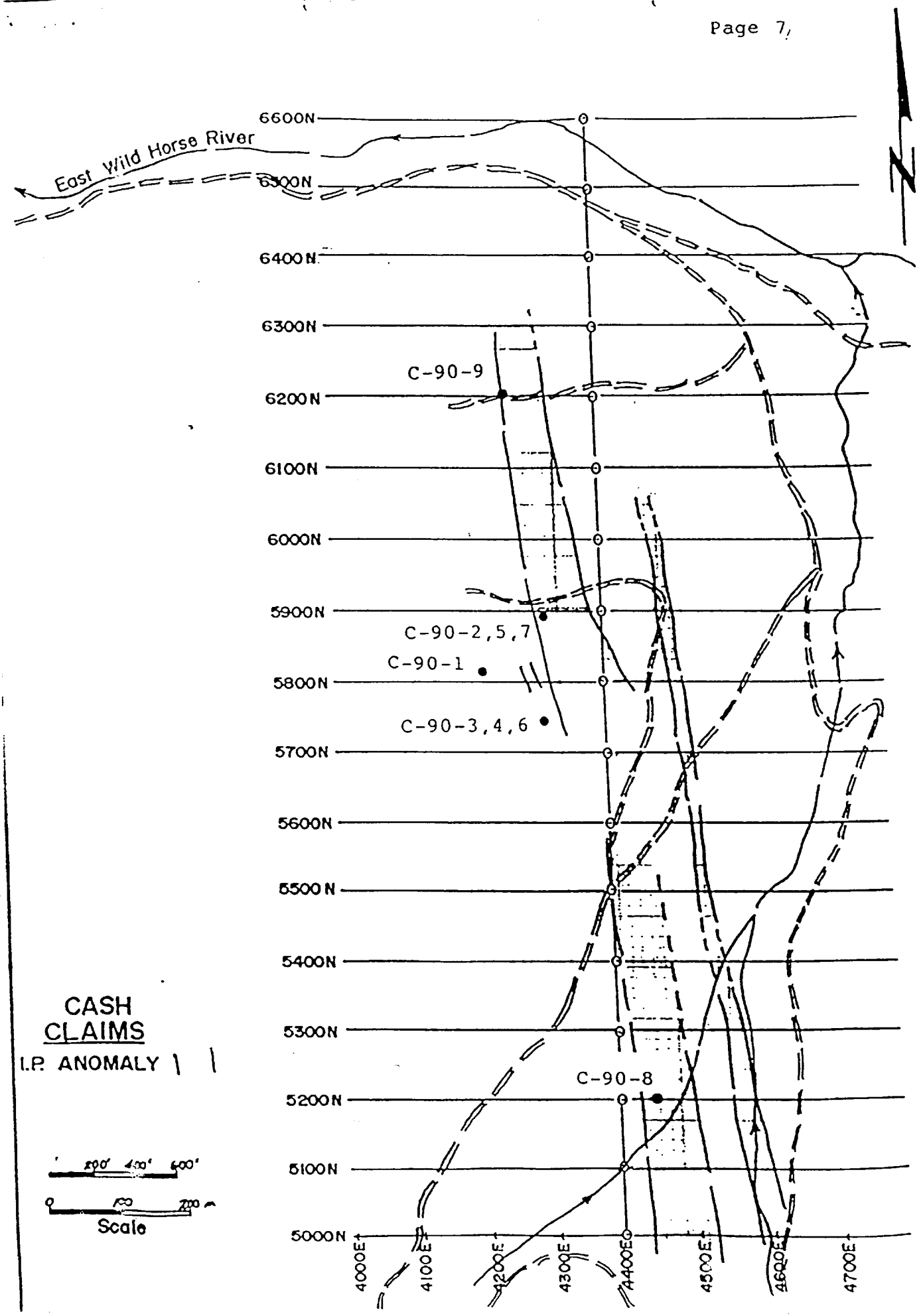
A magnetic survey south and on-strike of the gossan zone found two significant anomalies. Both anomalies are still covered. One anomaly measures 600' by 400' and the other is 400' by 1200' long and is open to the south.

**PRESENT 1990 WORK** (Map 3)

An I.P. survey has shown a continuous anomaly, relative to the gossan showings that extend for over 1300 metres and is open on both ends. The magnetic survey has outlined two prominent highs. The 1990 program of geophysical work (Mag, IP) and diamond drilling was undertaken in January and February of 1990 with a total expenditure of $250,000. These figures included nine diamond drill holes totalling 6164 feet.

The results of the drilling have proven up the original premises that the ore occurrences resemble that of a precious metal enriched skarn type deposit (P.M.E). The author will refer to existing mineral deposits in British Columbia that offer close similarities to the Cash showing later in this report.

Assay results of the first drill holes are outlined below:
This property had nine holes drilled this past winter, intersecting significant base and precious metal values. These intersections were in the central part of the 1300m long I.P anomaly, with coincident magnetic highs.

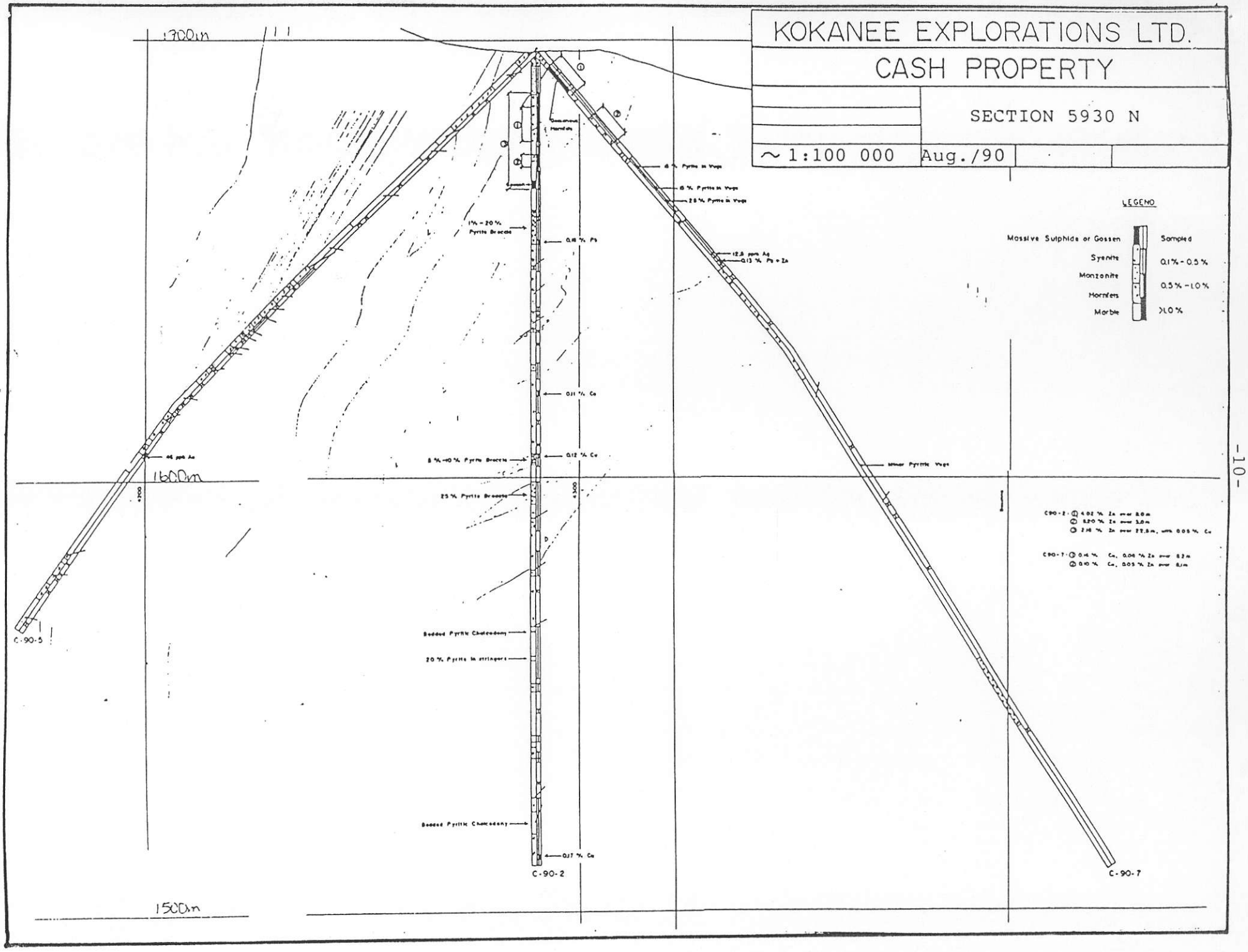

East Wild Horse River
6600N
6500N
6400N
6300N
6200N
6100N
6000N
5900N
5800N
5700N
5600N
5500N
5400N
5300N
5200N
5100N
5000N
4000E
4100E
4200E
4300E
4400E
4500E
4600E
4700E
C-90-9
C-90-2,5,7
C-90-1
C-90-3,4,6
C-90-8
N
CASH
CLAIMS
I.P. ANOMALY
Scale

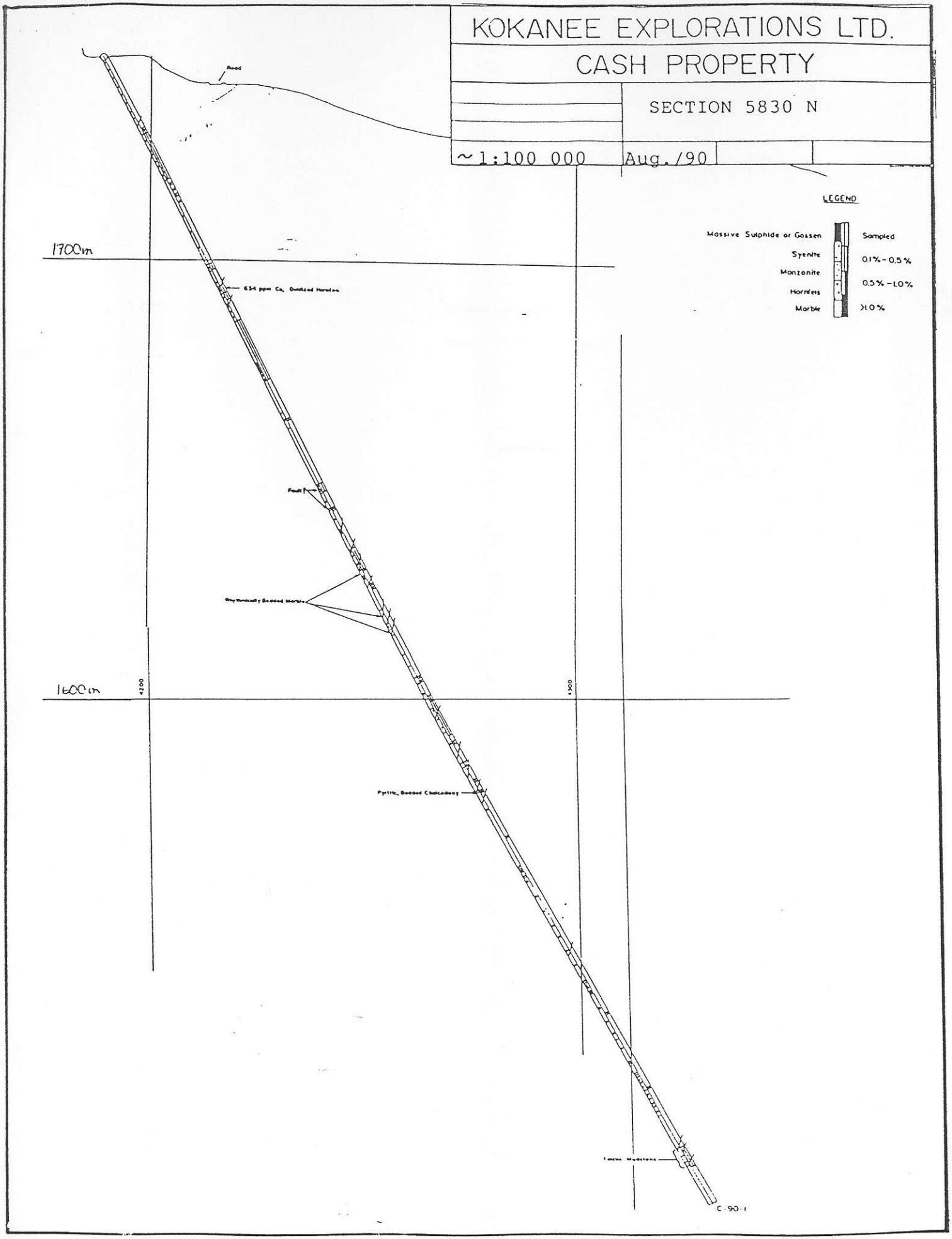
| Hole | Section | Departure | Bearing | Dip | Total Depth |
|---|---|---|---|---|---|
| C-90-1 | 5810N | 4204E | 090° | -60° | 978' |
| C-90-2 | 5898N | 4300E | -- | -90° | 716' |
| C-90-3 | 5745N | 4313E | -- | -90° | 555' |
| C-90-4 | 5745N | 4313E | -- | -90° | 395' |
| C-90-5 | 5898N | 4300E | 270° | -45° | 587' |
| C-90-6 | 5745N | 4313E | 090° | -50° | 945' |
| C-90-7 | 5898N | 4300E | 090° | -50° | 762' |
| C-90-8 | 6200N | 4400E | -- | -90° | 523' |
| C-90-9 | 6200N | 4250E | -- | -90° | 572' |

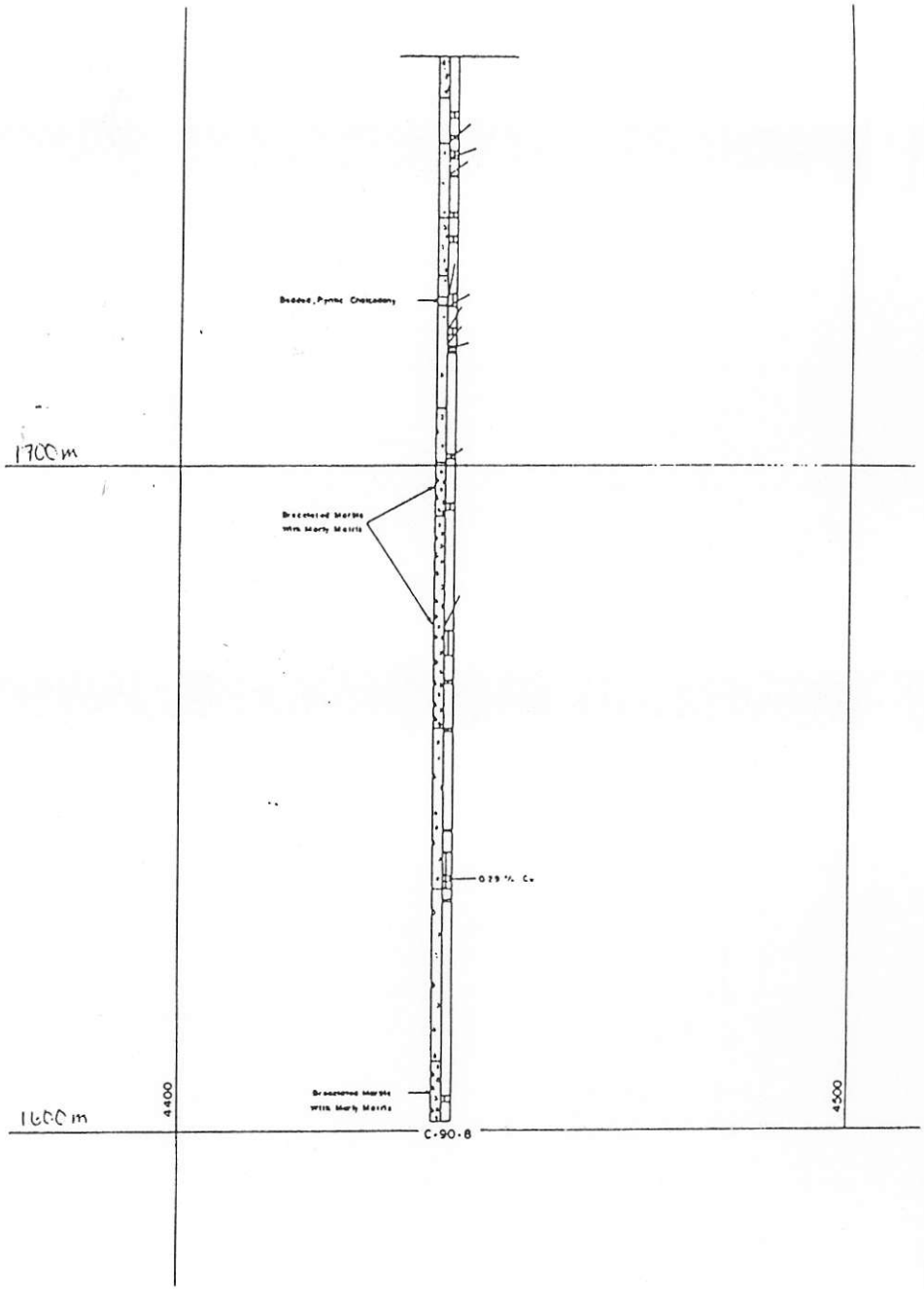
Numerous zones of anomalous values of base and precious metals were encountered, including the zones reported below. In addition, some preliminary thin section work has identified skarnification of the carbonate rock by the syenite intrusives. As well, internal sedimentation, commonly associated with karst carbonate hosted deposits, has been identified.

The association of the mineralization in drill core with the I.P. zone is extremely encouraging in the first detailed exploration carried out to date on this property.

Further drilling will test the strike of the three known zones encountered (copper, zinc and lead zones) and their character, at depth. As well, it will confer the relationship of the mineralization to the I.P. zone and the syenite porphyry intrusive. The zonal arrangement of minerals is a common feature of known P.M.E occurrences.


KOKANEE EXPLORATIONS LTD.
CASH PROPERTY
SECTION 5930 N
~ 1:100 000
Aug./90
1700m
1600m
1500m
LEGEND
Massive Sulphide or Gossen
Syenite
Monzonite
Hornfels
Marble
Sampled
0.1% - 0.5 %
0.5% - 1.0 %
>1.0 %
C-90-5
C-90-2
C-90-7
1% - 20 % Pyrite Breccia
0.18 % Pb
12.8 ppm Ag
0.13 % Pb + Zn
0.11 % Cu
8 % - 10 % Pyrite Breccia
0.12 % Cu
25 % Pyrite Breccia
Bedded Pyritic Chalcedony
20 % Pyrite in stringers
Bedded Pyritic Chalcedony
0.17 % Cu
46 ppb Au
Minor Pyritic Vugs


KOKANEE EXPLORATIONS LTD.
CASH PROPERTY
SECTION 5830 N
~1:100 000
Aug./90
LEGEND
Massive Sulphide or Gossen
Syenite
Monzonite
Hornfels
Marble
Sampled
0.1% - 0.5 %
0.5% - 1.0 %
>1.0 %
1700m
1600m
4200
4300
Road
634 ppm Cu, Oxidized Hornfels
Fault
Rhythmically Bedded Marble
Pyritic, Bedded Chalcedony
C-90-1




LEGEND

| | |
|---|---|
| Massive Sulphide or Gossen | Sampled |
| Syenite | 0.1% - 0.5 % |
| Monzonite | 0.5% - 1.0 % |
| Hornfels | |
| Marble | >1.0 % |

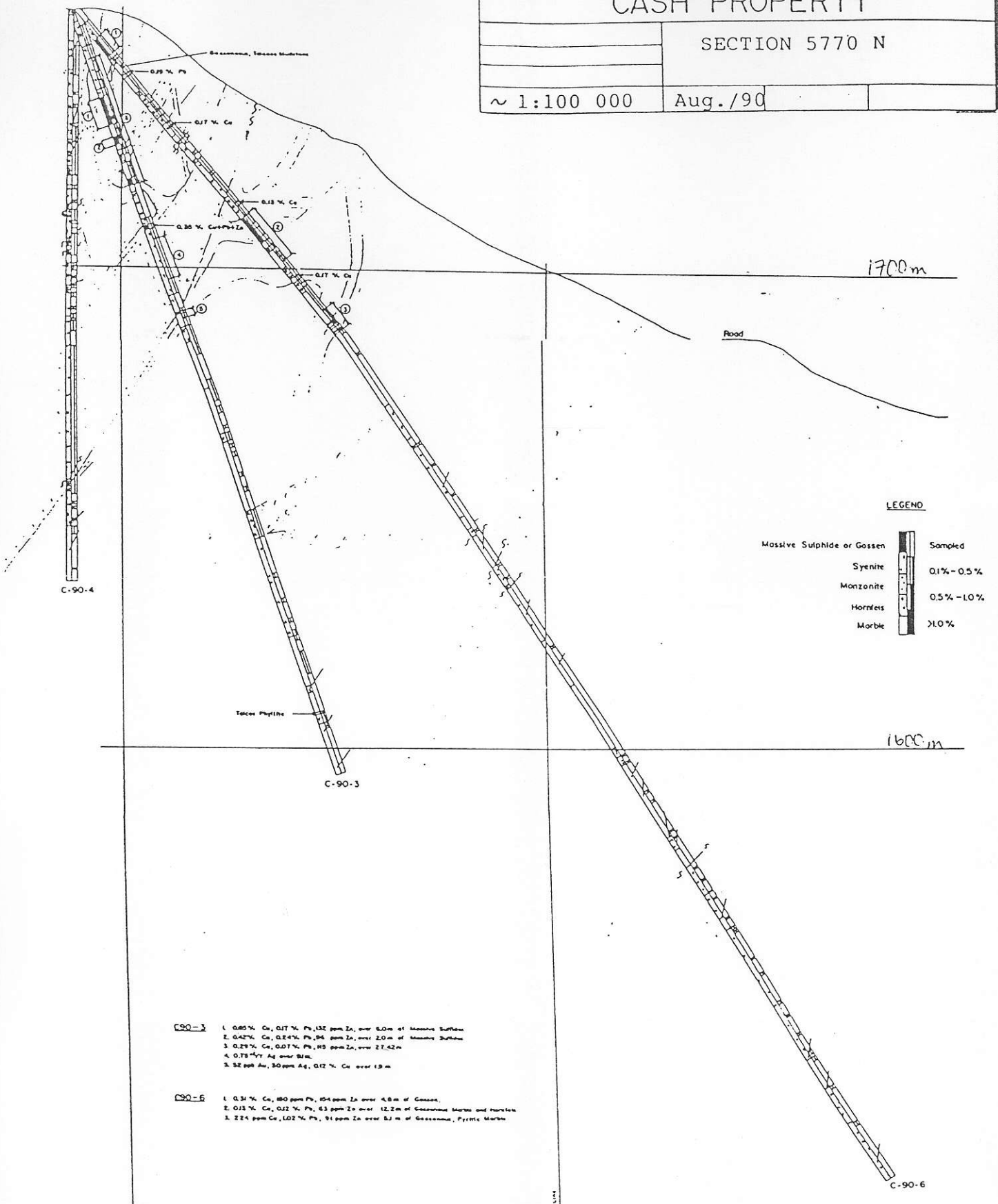
| KOKANEE EXPLORATIONS LTD. | | | |
|---|---|---|---|
| CASH PROPERTY | | | |
| | SECTION 5210 N | | |
| ~ 1:100 000 | Aug/90 | | |

# KOKANEE EXPLORATIONS LTD.

## CASH PROPERTY

SECTION 5770 N

~ 1:100 000 | Aug./90




C90-3
1. 0.65 % Cu, 0.17 % Pb, 132 ppm Zn, over 6.0m of Massive Sulfides
2. 0.42% Cu, 0.24% Pb, 194 ppm Zn, over 2.0 m of Massive Sulfides
3. 0.29 % Cu, 0.07 % Pb, 115 ppm Zn, over 27.42m
4. 0.73 oz/t Ag over 0.6m
5. 52 ppb Au, 30 ppm Ag, 0.12 % Cu over 1.9 m

C90-6
1. 0.31 % Cu, 180 ppm Pb, 154 ppm Zn over 4.8 m of Gossan
2. 0.13 % Cu, 0.12 % Pb, 63 ppm Zn over 12.2m of Gossanous Marble and Hornfels
3. 224 ppm Cu, 1.02 % Pb, 91 ppm Zn over 8.5 m of Gossanous, Pyritic Marble

PRECIOUS METAL ENRICHED SKARN POTENTIAL IN THE EAST KOOTENAYS

All intersections are close to the surface and reveal a system that has significant economic concentrations of base and precious metals. The surface drilling also encountered sections of gossan with low leached metal values.

Kokanee is currently outlining its drill targets to continue the evaluation of these zones which are associated with the 1300 metre long I.P. zone. Both the I.P. zone and the mineralized zones remain open along strike. With the length and mineralization found to date in the early stages of exploration on the Cash property, the company is very encouraged by the potential for a very sizable deposit of mineralization.

The necessary requirement for P.M.E deposits is the presence of alkaline intrusives. This seems to be true in the East Kootenay Trench area where there are scattered high alkaline intrusives barely exposed at surface. These intrusions range from quartz monzonites to syenites with various intermediate phases, and are located in the Purcell as well as the Hughes Range of The Rocky Mountains.

Other mineral occurrences in the immediate area of the Cash property are detailed below.

a) The Estella Property

Located at Wasa B.C and approximately 8.0 km from the Cash showing, is a possible example of a P.M.E type mineral deposit. The showing is in close contact with a syenite intrusive stock that outcrops at the mouth of the basin at 2000 metres elevation. The mineral occurrence, that of a semi bedded deposit carrying high Ag, Pb, and Zn values, is situated in the Lower Aldridge formation.

The last figures on production were reported in 1951 at:

| width | oz | % | % |
|---|---|---|---|
| 47.811 tons 5.8' | 1.9 Ag | 5.8 Pb | 19.0 Zn |

Later cleanup figures at 150 - 160 tons per day indicated grades of 15% combined Pb - Zn with an approximate 1:2 ratio. Assaying indicated minor cobalt, 0.153% Co. The ore zones are often with porphyric sills and dykes that radiate from the parent stock. The mineralization usually underlies the sills. As the porphyries pinch out, so does the ore.

b) Kootenay King

This property, located in the Middle Aldridge Formation above Fort Steele B.C, has been a source of continued interest because of the similarities in the ore stratification with Sullivan type ore.

The prospect also lies within the Middle Aldridge member of the Purcell Supergroup and is confined to the more quartzitic members of that sequence. There are indications of carbonaceous horizons in the ore zone. The Middle Aldridge Formation does contain a 30 - 100 metre wide section of dolomitic limestone below the Kootenay King. Dolomitic sediment frequently occurs near the base of the Middle Aldridge Formation.

Production records of the Kootenay King production indicated 13,000 tons of 10 - 15% combined lead and zinc was mined. Individual samples indicate a 1:2 ratio of lead to zinc with banded folded ore sections.

c) Bull River Mine

This property is situated in the Rocky Mountain Trench approximately 20 kilometres southwest of the Cash property. The claims are located to the west of the Bull River on a

section of Middle Aldridge quartzites. Mineralization was discovered in the late 1960's and an extensive diamond drilling program outlined a substantial mineralized zone. Mineralization consisted of fracture filling and veins in the quartzitic sections of the Middle Aldridge. Mineral assemblage was chiefly copper, silver and gold. During the life of the operation 97,105 tons were mined.

This operation is not a true P.M.E. deposit. The closest Cretaceous intrusives to the property are situated four miles to the west. They exist as a number of stocks scattered over a 2.0 kilometre area, but undoubtedly originating from a single deeper seated batholitic body. The composition of the rock would be classed as a syenite - quartz monzonite with little or no free silica.

PRECIOUS METAL ENRICHED SKARNS

Over 350 skarn occurrences are known to exist in British Columbia and at least 126 are enriched in precious metals. Of these, 99 precious metal (P.M.E.) skarn deposits have produced a total of 342 tons of silver and 95 tons of gold, the latter representing approximately 10 percent of the total world production of gold from skarns.

Gold production from skarn in British Columbia has come chiefly from two world class deposits, the Nickel Plate and Phoenix mines at Hedley that together were responsible for 82% of the gold and 57% of the silver producers from skarn. It is the size and grade of these properties and the grade of their deposits that makes the search for other P.M.E skarn deposits in this province so potentially rewarding.

Although the world class Nickel Plate and the Hedley Mascot mine have been in operation for 60 years, chiefly as a gold, silver and minor copper producers, it was as late as 1987 that the importance of the P.M.E skarn was recognized and an open pit was begun. Recent discoveries of major P.M.E skarn deposits in Nevada, U.S.A (1986), Australia (1986) have increased interest in skarn deposits world wide. The Fortitude and McCoy Creek deposits in Nevada are excellent examples of Au, Ag, producing skarns that produced in the 1980's after the original ore deposits were depleted. The Texada Island skarn deposits, i.e Little Billie, Copper Queen and Marble Bay, that have produced 2954 kg of gold and 14,174 kg of silver. These properties are familiar to the author, having been employed during 1946 -1947 at the Little Billie. At that time they were considered to be relatively simple contact metamorphic occurrences with little continuity. The ore bodies were present along the contacts of the Cretacous intrusives and the marble metamorphics. Spectacular Au, Ag and Cu occurred as high enrichment zones within the mineralized skarn. It was not until the last ten years that the Texada Islands deposits were recognized as P.M.E skarn occurrences together with high magnetic mineralization.

The Heino Money Pit deposit located in the Nakusp area began as a high grade gold operation in 1982. Further exploration exposed P.M.E skarns and exploration and production has followed since that time. Total production from the operation has been 107.00 kg Au, 103.00 Kg Ag.

Fortitude

Prime examples of P.M.E deposits in the northwest United States are the Upper and Lower Fortitude gold, silver and copper deposits at Battle Mountain Nevada, and The Leadville deposit in Central Colorado. Mining at Copper Canyon began in 1866 and continued until the 1970's. The Fortitude deposit was only discovered in the late 1980's. The property is related to a "wallrock" copper

Antler sequence of carbonates and coarse clastic rock contacting a granodiorite intrusive stock at Copper Canyon. Skarn minerals consist of garnet-diopside-actinolite-tremolite-quartz and calcite.

Mineralization has a definite zonal arrangement with Au, Ag, and Cu closest to the contact. Au and Ag are in the middle range and Pb, Zn and Ag make up the outer rim. The temperature ring for the minerals contained within the skarn indicates a temperature range of 200 - 500 degrees celsius.

The size of the Fortitude ore deposit is 10,3000,000 tons containing 6.9 g/T Au, 24.7 g/T Ag and 0.5% Cu. The McCoy Creek P.M.E deposit in the same general area has reserves of 8,700,000 tonnes containing a 1.9 g/T Au and 0.1% Cu (geology of The Fortitude Gold - Silver Skarn deposit. Copper Canyon, Lander County Nevada. P.R. Wotuba, R.G Benson K,W Schmidt, 1987).

The mineralization content varies with the type of the skarn mineralization present is the actinolite dominant assemblage is characterized main stage sulphides. Mainstage sulphides include pyrrhotite, chalcopyrite, pyrite, sphalerite and galena.

Leadville

The Leadville district in Lake County on the west flank of The Mosquito Range in Cental Colorado, has produced silver, zinc, lead, gold and minor metals valued at $512,000,000 during the approximate life of Leadville through 1963. At today's prices this total amount would come to $4.8 billion dollars.

The ore deposits are in a sequence of dolomites and quartzites, Cambrian through Mississipan in age and about 500 feet thick which is extensively intruded by porphyry, sills dykes and plugs of Tertiary age. The sedimentary rocks and sills dip about 15 deg. E and are broken by many faults.

The ore deposits are principally blanket or manto replacement deposits largely confined to three dolomite units in the stratigraphic sequence. Of these the uppermost or Leadville Dolomite is most productive. Most ore bodies are on the underside of porphyry sills and particularly beneath sills that occupy unconformities. Deposits originating from vein zones usually occupy the sections of quartzites, sills and dolomites.

The primary ores consist principally of pyrite, marcasite, sphalerite and galena but locally contains chalcopyrite, silver minerals bismuth minerals and gold. Principal gangue minerals are monganosiderite and jasperoid. The ore deposits have a crude zonal pattern centred around an intrusive core at Breech Hill, which evidentially influenced ore deposition thermally, with rock alteration in the sediments, especially the dolomites, resulting in fine textured dolomite. On Breech Hill which is extensively intruded by porphyry, dolomites of the Leadville and Dyer where metamorphosed to magnetite-diopside-forsterite rock subsequently altered to magnetite serpentine.

SUMMARY

Although this report dwells upon examples of P.M.E deposits in other areas of British Columbia, as well as Nevada and Colorado, the primary purpose of this portion of the report is to provide current comparables. The information gathered largely over the past ten years is an excellent source of information and necessary in exploration for similar P.M.E skarn deposits in the southeastern portion of B.C.

Numerous similarities of the Cash property geology can be noted in nearly all of these studies especially in the Fortitude and Leadville mineral occurrences. The chances for a commercial P.M.E. skarn on the Cash group are very good. The only undetermined factors are tonnage and grade. Many of the other criteria have been met.

## CONCLUSIONS AND RECOMMENDATIONS

The nine diamond drill holes that have been drilled on the Cash property to date, some of which were widely spaced, have produced very interesting results for the work done. Nearly all the work was conducted in the region of gossan outcropping and magnetic highs.

Future work to fill in the intervals of ground not explored, to also test the continuity of ore intersections and further outline any additional ore occurrences at depth is required to fully evaluate the P.M.E. skarn potential of the Cash property.

Additional drilling to test the zone at depth along the intrusive contact with the sediments and to evaluate the favourable sedimentary zones is also recommended. Additional IP and magnetometer studies are required to define the potential skarn zones. The information from these surveys will define further drill targets.

## PROPOSED BUDGET - CASH CLAIMS

PHASE I

| | |
|---|---|
| Linecutting (grid extension) | $ 15,000 |
| IP/Mag/EM Geophysics | 35,000 |
| Geological Mapping/Prospecting | 25,000 |
| Road/Drill Site Preparation | 40,000 |
| Drilling, Assaying et al 10,000 feet @ $34/foot | 340,000 |
| Contingency | 45,000 |
| TOTAL | $500,000 |

PHASE II

| | |
|---|---|
| Definition and Deep Drilling of Zones 13,000 feet | $445,000 |
| Contingency | 55,000 |
| TOTAL | $500,000 |

Signed: S. B. Hamilton

S. Brian Hamilton, P.Eng.

BIBLIOGRAPHY

1) Ministries of Mines Reports, B.C. 1957 - 1963.

2) A.D Ettlinger and G.E Ray, B.C Gash, B.R Fagen, Precious Mineral Exploration Skarns in British Columbia, 1989.

3) P.E Wotuba, E.G. Benson, K.W Schmidt, Geology of Fortitudes Gold - Silver Skarn Deposits, Copper Canyon, Lowden County, Nevada, 1986.

4) Ogolen Twets, Ore Deposits in the United States 1933 - 1967, Rocky Mountain Serial, Leadville County, 1987.

5) Ore Deposits in the United States, Rocky Mountain Series AIME, 1967.

APPENDIX I

STATEMENT OF QUALIFICATIONS

ENGINEER'S CERTIFICATE

I, S. Brian Hamilton, of 327 - 12th Avenue South, Cranbrook in the province of British Columbia DO HEREBY CERTIFY THAT:

1. I am a consulting Geologist with offices at 327 - 12th Avenue South, Cranbrook, British Columbia;

2. I am a graduate of the University of British Columbia (1948) with a degree in Geological Sciences. I have worked as a geologist since that time;

3. I am a member in good standing of the Association of Professional Engineers of the Province of British Columbia, Registration No. 6561, issued on the 28th of November, 1967;

4. I examined the property and have reviewed the various assessment reports on the area;

5. I do not own any shares, beneficial or otherwise, in Kokanee Explorations Ltd. or Sartigan Granite Corp., and no shares have been offered to me. I do not have any direct, indirect or contingent interest in any properties of Kokanee Explorations Ltd. or Sartigan Granite Corp.;

6 I hereby consent to the use of this report or any part thereof to satisfy the requirements of any securities commission or stock exchange in Canada and to it being quoted in prospectus or public statement.

DATE AT Cranbrook, British Columbia this 14th day of August, 1990.

S. Brian Hamilton

APPENDIX II

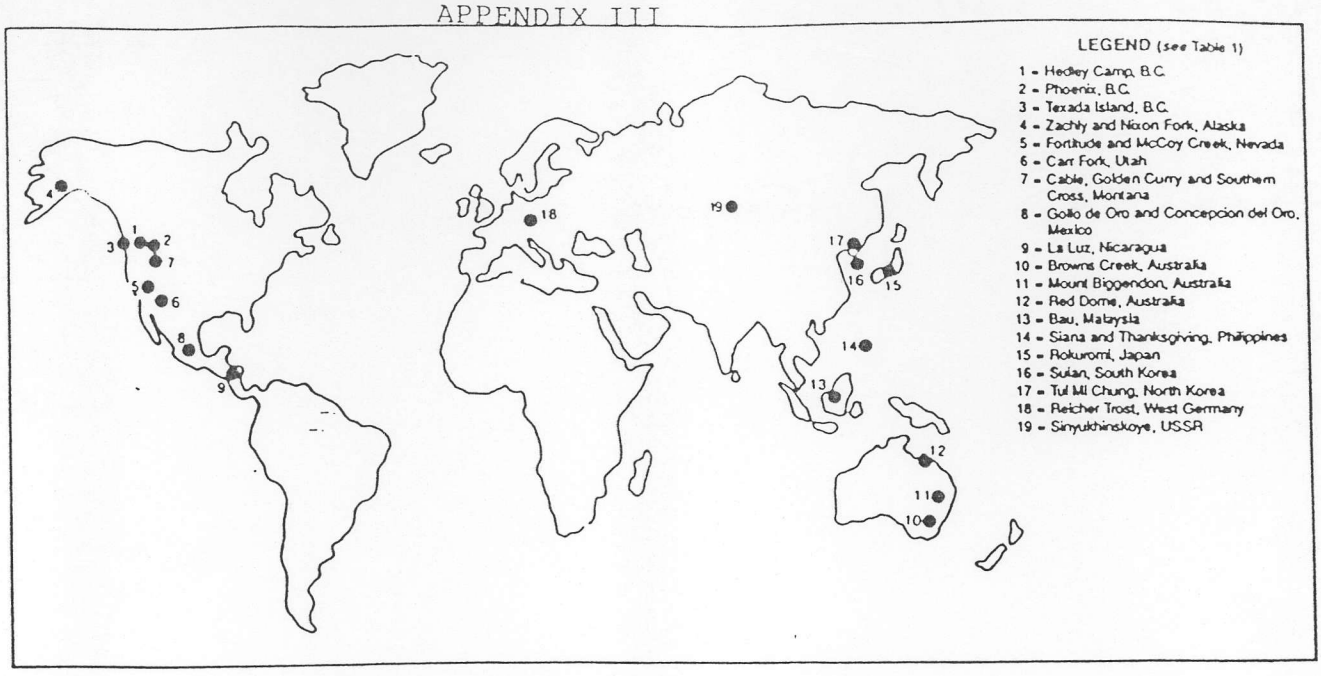
CLAIMS

## CASH Property

Fort Steele M.D.

| Claim | Units | Record # | Anniv. Date |
|---|---|---|---|
| 1 | 1 | 3643 | Oct. 7/90 |
| 2 | 1 | 3644 | Oct. 7/90 |
| 3 | 1 | 3645 | Oct. 7/90 |
| 4 | 1 | 3646 | Oct. 7/90 |
| 5 | 1 | 3647 | Oct. 8/90 |
| 6 | 1 | 3648 | Oct. 8/90 |
| 7 | 1 | 3649 | Oct. 8/90 |
| 8 | 1 | 3650 | Oct. 8/90 |
| 9 | 1 | 3778 | Nov. 1/90 |
| 10 | 1 | 3779 | Nov. 1/90 |
| 11 | 1 | 3780 | Nov. 1/90 |
| 12 | 1 | 3781 | Nov. 3/90 |
| 13 | 1 | 3913 | Dec. 30/90 |
| 14 | 1 | 3914 | Dec. 30/90 |
| 15 | 1 | 3915 | Dec. 30/90 |
| 16 | 1 | 3916 | Dec. 30/90 |
| 17 | 1 | 3917 | Jan. 2/91 |
| 18 | 1 | 3918 | Jan. 2/91 |
| 19 | 1 | 3919 | Jan. 2/91 |
| 20 | 1 | 3920 | Jan. 2/91 |
| 21 | 1 | 3921 | Jan. 2/91 |
| 22 | 1 | 3922 | Jan. 2/91 |
| 23 | 1 | 3953 | Feb. 14/91 |
| 24 | 1 | 3954 | Feb. 14/91 |
| 25 | 1 | 3955 | Feb. 14/91 |
| 26 | 1 | 3956 | Feb. 14/91 |
| 27 | 1 | 3957 | Feb. 15/91 |
| 28 | 20 | 3958 | Feb. 15.91 |
| 29 | 1 | 3959 | Feb. 16/91 |
| 30 | 1 | 3960 | Feb. 16/91 |
| 31 | 1 | 3961 | Feb. 16/91 |
| 32 | 1 | 3962 | Feb. 16/91 |
| 33 | 1 | 3963 | Feb. 16/91 |
| 34 | 1 | 3964 | Feb. 16/91 |
| 35 | 1 | 3965 | Feb. 16/91 |
| 36 | 1 | 3966 | Feb. 16/91 |
| 37 | 1 | 3967 | Feb. 16/91 |
| 38 | 1 | 3968 | Feb. 16/91 |
| 39 | 1 | 3969 | Feb. 16/91 |
| 40 | 1 | 3970 | Feb. 16/91 |
| 41 | 1 | 3971 | Feb. 16/91 |
| 42 | 1 | 3972 | Feb. 16/91 |
| 43 | 1 | 4196 | Mar. 6/91 |
| | 62 | | |

# APPENDIX III



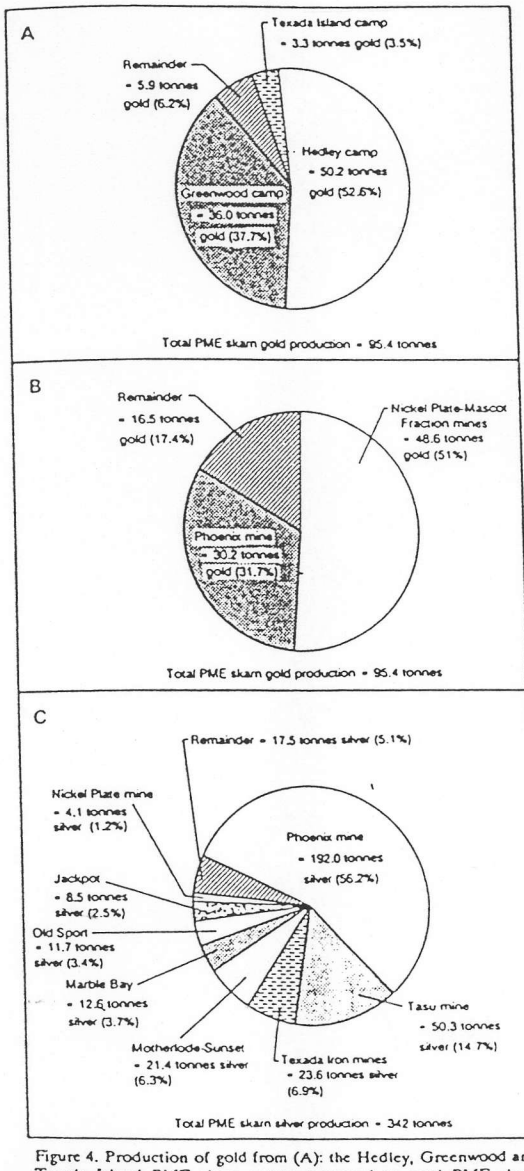




Figure 4. Production of gold from (A): the Hedley, Greenwood and Texada Island PME skarn camps compared to total PME skarn production. (B): the Nickel Plate and Phoenix mines compared to total PME skarn production. (C): production of silver from eight major skarn deposits compared to total PME skarn silver production.

GOLD AND SILVER PRODUCTION FROM 49 PME SKARN DEPOSITS IN BRITISH COLUMBIA
(Listed in order of gold production)

| DEPOSIT | GOLD PRODUCTION (kg) | SILVER PRODUCTION (kg) | BELT | TERRANE |
|---|---|---|---|---|
| Nickel Plate | 41705.00 | 4160.00 | IMT | QEN |
| Phoenix | 30225.00 | 192055.00 | OMN | QEN |
| Mascot Fraction | 6937.00 | 1707.00 | IMT | QEN |
| Motherlode | 5391.00 | 21406.00 | OMN | QEN |
| Old Sport | 3869.00 | 11731.00 | INS | WR |
| Marble Bay | 1544.00 | 12621.00 | INS | WR |
| French | 1362.00 | 181.00 | IMT | QEN |
| Tasu | 1340.00 | 50394.00 | INS | WR |
| Texada Iron | 888.00 | 23644.00 | INS | WR |
| Dividend-Lakeview | 504.00 | 68.00 | IMT | QEN |
| Cornell | 471.00 | 2194.00 | INS | WR |
| Little Billie | 363.00 | 1198.00 | INS | WR |
| Emma (Bluebell) | 212.00 | 2434.00 | OMN | QEN |
| Good Hope | 178.00 | 120.00 | IMT | QEN |
| Oro Denoro | 117.00 | 954.00 | OMN | QEN |
| Heino-Money | 107.00 | 103.00 | OMN | QEN |
| Lily Mine | 51.19 | 862.54 | INS | WR |
| Copper Queen | 47.00 | 355.00 | INS | WR |
| Jackpot | 31.41 | 8500.00 | OMN | ANA |
| Dewdney | 22.45 | 1707.00 | INS | WR |
| Canty | 16.00 | NR | IMT | QEN |
| Greyhound | 16.00 | 349.00 | OMN | QEN |
| Marshall | 15.00 | 18.00 | OMN | QEN |
| Morrison | 8.00 | 26.00 | OMN | QEN |
| Orinoco | 7.65 | 950.01 | OMN | QEN |
| Silverado | 5.56 | 10.29 | INS | WR |
| Beano | 3.29 | 1.4 | INS | WR |
| Mormon Girl | 3.29 | 9.64 | OMN | ANA |
| Loyal Canadian | 0.90 | 4.41 | OMN | QEN |
| Morning | 0.87 | 0.74 | INS | WR |
| Molly B | 0.68 | 3.48 | CC | ST |
| Rely | 0.56 | 4.97 | OMN | QEN |
| Cambrian Chief | 0.52 | 125.00 | CC | WR |
| Sunnyside | 0.37 | 81.64 | OMN | QEN |
| Maid of Erin | 0.34 | 1500.00 | INS | AX |
| Blue Grouse | 0.21 | 2509.00 | INS | WR |
| Lucky Mike | 0.06 | 4.26 | IMT | QEN |
| Gribble Island | 0.03 | 1.30 | CC | UM |
| Geo (Star of the West) | 0.03 | NR | INS | WR |
| Contact | 0.00 | 10.45 | OMN | CA |
| East Copper Isl | 0.00 | 0.71 | INS | WR |
| Hab Bob | 0.00 | 41.14 | INS | WR |
| Roadside | 0.00 | 6.22 | CC | WR |
| Sir Douglas Haig | 0.00 | 0.18 | OMN | QEN |
| Salmo-Malarctic | 0.00 | 36.35 | OMN | ANA |
| Merry Widow (a) | NR | NR | INS | WR |
| Peggy (b) | NR | NR | IMT | QEN |
| Elk (c) | NR | NR | OMN | QEN |
| Silver Queen (d) | NR | NR | OMN | QEN |
| TOTAL PRODUCTION (kg) | 95444.41 | 342108.73 | | |

(a) 1683507 t of iron concentrate produced. Some silver byproduct reported.
(b) Limited but unknown gold production.
(c) 154 t of silver-rich ore produced.
(d) Limited but unknown silver production.
NR = Not Reported.

HOSTING BELTS
INS = Insular
CC = Coast
IMT = Intermontane
OMN = Omineca

HOSTING TERRANES
WR = Wrangellia
AX = Alexander
CA = Cassiar
UM = Undifferentiated metamorphics
ST = Stikinia
QEN = Quesnellia
ANA = Ancestral North America

SELECTED PME-SKARNS OF THE WORLD (*see* Figure 2)

| NO. IN FIG. 2 | DEPOSIT | SIZE (tonnes) | Au (g/t) | Ag (g/t) | Cu (%) | REFERENCES |
|---|---|---|---|---|---|---|
| 1 | Nickel Plate and Hedley-Mascot, B.C. (underground) | 3 600 000 | 14.0 | 1.4 | 0.1 | National Mineral Inventory; Simpson (1986); Ray *et al.* (1987) |
| 1 | Nickel Plate-Hedley, B.C. (open pit) | 8 900 000* | 4.5* | 3.0** | 0.1 | Mascot Gold Mines Ltd. report, Nov. 1987 |
| 2 | Phoenix, B.C. | 26 956 000 | 1.1 | 7.1 | 0.9 | Peatfield (1978); Church (1986) |
| 3 | Texada Island, B.C. (Cu-Au skarns) | 310 000 | 2.4 | 16.0 | 3.0 | Peatfield (1987) |
| 4 | Zackly, Alaska | 1 200 000 | 5.5 | 30.0 | 2.7 | Meinert (1987a) |
| 4 | Nixon Fork, Alaska | NA | NA | NA | NA | |
| 5 | Fortitude, Nevada | 10 300 000 | 6.9 | 24.7 | 0.1 | Blake *et al.* (1984); Wotruba *et al.* (1986) |
| 5 | McCoy Creek, Nevada | 8 700 000 | 1.9 | NA | 0.1 | Tingley and Smith (1982); Lane (1987) |
| 6 | Carr Fork, Utah | 61 000 000 | 0.4 | 10.7 | 1.8 | Cameron and Garmoe (1983) |
| 7 | Cable, Montana | 1 000 000 | 6.0 | 5.0 | 3.0 | Holser (1950); Earll (1972) |
| 7 | Golden Curry, Montana | 930 000 | 8.5 | 4.2 | 0.33 | Roby *et al.* (1960); Orris *et al.* (1987) |
| 7 | Southern Cross, Montana | 400 000 | 13.0 | 16.0 | 0.1 | Emmons and Calkins (1913); Earll (1972) Orris *et al.* (1987) |
| 8 | Golfo de Oro, Mexico | 5 000 000 | 4.5 | 10.0 | NA | Orris *et al.* (1987) |
| 8 | Concepcion del Oro, Mexico | 15 000 000 | 1.7 | NA | 2.0 | Buseck (1966); Einaudi *et al.* (1981) |
| 9 | La Luz, Nicaragua | 16 000 000 | 4.1 | 1.2 | 0.44 | Sillitoe (1983); Orris *et al.* (1987) |
| 10 | Browns Creek, Australia | 740 000 | 7.5 | 9.0 | 0.4 | Taylor (1983); Meinert (1987a) |
| 11 | Mount Biggendon, Australia | 500 000 | 15.0 | NA | NA | Clarke (1969) |
| 12 | Red Dome, Australia | 13 800 000 | 2.0 | 4.6 | 0.46 | Torrey *et al.* (1986) |
| 13 | Bau, Malaysia | 2 400 000 | 7.2 | 0.1 | NA | Boyle (1979); Bowles (1984) |
| 14 | Siana, Philippines | 5 400 000 | 5.1 | 10.0 | NA | Orris *et al.* (1987) |
| 14 | Thanksgiving, Philippines | 1 700 000 | 6.4 | 40.6 | 0.4 | Philippine Bureau of Mines and Geosciences(1986); quoted in Orris *et al.* (1987) |
| 15 | Rokuromi, Japan | 160 000 | 4.1 | 1.0 | NA | Grant (1950); Orris *et al.* (1987) |
| 16 | Suian, South Korea | 530 000 | 13.0 | 4.9 | NA | Elevatorski (1981); Orris *et al.* (1987) |
| 17 | Tul Mi Chung, North Korea | 400 000 | 12.0 | NA | NA | Watanabe (1943); Gallagher (1963) |
| 18 | Reicher Trost, West Germany | < 10 000 | 20.0 | 0.1 | NA | Orris *et al.* (1987) |
| 19 | Sinyukhinskoye, USSR | NA | NA | NA | NA | Grab sample collected by Ettlinger, 1988 |
| *** | Salsione, France | 1 500 000 | 13 | 33 | 0.15 | Elevatorski (1981); Meinert (1987a) |

NA = values not available.

*Recently downgraded to 8 250 000 tonnes grading 3.02 g/t Au (Corona Corporation announcement, Dec. 1988).

**Estimated silver grade.

***Not shown in Figure 2.

APPENDIX IV

# INDUCED POLARIZATION SURVEY

ON THE

CASH PROPERTY

FOR

KOKANEE EXPLORATIONS LTD.

BY

SJ GEOPHYSICS LTD.

Fort Steele M.D., N.T.S. 82G

February 1990

Report By
Syd J. Visser
SJ Geophysics LTD.

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## INTRODUCTION

A induced polarization survey was completed during the period of January 30, 1990 to February 8, 1990 on the Cash claim group by SJ Geophysics Ltd., at the request of Mr. Dave Pighin, geologist with Kokanee Exploration Ltd. The survey grid is located on the Cash claim group located approximately 12 Km NE of Fort Steele, on the Wild Horse river, in the Fort Steele Mining mining district of B.C. (N.T.S. 82G).

The purpose of the survey was to search for sulphide concentrations, in a skarn environment.

## FIELD WORK

The induced polarization survey was completed during January 30, and February 8, 1990. The field crew which consisted of one technologist/operator and 4 helpers, commuted daily from accommodations in Cranbrook to the survey area. Ten short lines were surveyed for a total of approximately 6.5 kilometers. A pole-dipole array with an "a" spacing of 25M for one line and an "a" spacing of 50M for the remaining lines along with a "N" of 1 to 6 was used for the survey.

The equipment used was a Mk-2, 7.5 KW time domain transmitter, with a cycle time of 2 sec. on and 2 sec off, and a Mk-4 time domain receiver. The delay time of the receiver was set at 160 msec with 10 integrating windows with a width of 65 msec each, for a total chargeability window of 650 msec. The total chargeability was recorded and plotted by computer for interpretation purposes.

The deep snow conditions and the steep topography slowed the survey considerably.

L1600N) and the computer generated model of the same line (MODEL L6000N (in appendix 1 with section L6000N)).

The locally high chargeability anomalies within the anomalous region appears to coincide with a low resistivity as shown clearly on line 5800N to 6200N between 4300E and 4400E. These anomalies are likely due to sulphides. The resistivity within the wide anomalous zone appears to vary along the strike and along its width with the average resistivity being higher on the east side of the base line (4400E) and north of line 5100N suggesting a change in lithology across the base line and line 5100N. This indicates that the weakly anomalous part of the wide anomalous zone may be due to a high background near a contact that likely carries some disseminated sulphides.

It is not clear how continuous the anomaly is between lines 5300N and 5800N since the length of the survey lines on lines 5600N and 5500N were somewhat short (due to topography) and possibly should have been surveyed with a 25M dipole length for greater detail. The anomaly appears to be weaker and possibly deeper in this area, suggesting that there is a cross structure or a change in the character of the anomaly between lines 5300N and 5800N, although the low chargeability and high resistivity noted on line 5500N may be an artificial effect due to poor chainage or topography.

The anomalous chargeability area on the eastern end of lines 5800N to 6000N is coincidental with a resistivity high and is expected to be due to a change in lithology although the survey did not extend far enough to the east to confirm this.

## DATA PRESENTATION

The chargeability and the apparent resistivity are plotted on 10 pseudosections. The filtered (21 point triangular filter) or average apparent resistivities and chargeabilities, calculated from averaging all the values inclosed by a 45 deg line below the plotting point as seen on the pseudosections, were plotted as contour maps. The following is a list of the enclosed plots:

| Sections | | |
|---|---|---|
| L5000N to L6200N | Induced Polarization Pseudosections | In Text |
| Model L6000N | Induced Polarization Pseudosections | In Text |
| Plate G1 | Contoured Elevations Topography Map Lines 5000N to 6200N | In Text |
| Plate G2 & G2A | Induced Polarization Filtered Chargeability | In Envelope |
| Plate G3 & G3A | Induced Polarization Filtered Apparent Resistivity | In Envelope |
| Plate G4 | Induced Polarization Compilation Map | In Envelope |

## INTERPRETATION

The I.P. survey results indicate that there is a wide high chargeability zone striking across the length of the survey area, as shown on the compilation map Plate G4 and the filtered chargeability maps Plate G2 and Plate G2A. The chargeability within this region varies from a low of approximately 5 msec up to approximately 22 msec. The anomalous highs likely consists of a number of parallel good anomalies within a weakly anomalous background, as indicated by the detailed (25m dipole) data from line 6000N (SECTION

RECOMMENDATIONS

It is recommended to drill the high chargeability anomalies as marked on the compilation map. It is impossible to get dip information from this data therefore it is recommended to drill vertical hole in the center of the anomalies until dip is established.

The weak part of the anomalies should also be tested since precious metals and base metals may be in the lower chargeability zones surrounding a more massive pyrite zone.

The magnetic data, which was not available to the writer, could be useful in establishing the dip, and magnetic mineral zonation of the I.P. anomalies, and aid in more accurately locating the contact zones (if 12.5M station spacing was used) seen in the I.P. survey. The magnetic data should therefore be carefully correlated to the I.P. results.

When weather permits the survey grid should be completed by extending lines 5500N and 5600N and completing lines 5400N and 5700N. Since the anomalies are open to the east and the west it is also recommended to extend the survey in both these directions.

If drilling indicates that the targets are massive sulphides then it may be more cost effective to survey the extension of the grid with EM techniques such as HLEM (Max-Min)

CONCLUSION

The I.P. survey results indicated a wide weak chargeability anomalous zone striking across the length of the grid centered on a resistivity boundary. A number of parallel strong I.P. anomalies are located within the above zone. The strongest most consistent of these anomalies coincide with a resistivity low. This anomalous zone is open both to the north and the south of the grid.

A second chargeability anomaly which is coincidental with a resistivity high is located on the north east edge of the survey area.

It is recommended to extend the present survey area when whether permits and to follow up the present I.P. survey with drilling.

Syd Visser, B.Sc., F.G.A.C.

Geophysicist
SJ Geophysics Ltd.

# APPENDIX I

## STATEMENT OF QUALIFICATIONS

I, Syd J. Visser, of 8081-112th Street, Delta, British Columbia, hereby certify:

That I am a Consulting Geophysicist of S.J.V. Consultants Ltd., located at 8081-112th Street, Delta, B.C.

1) I am a graduate from the University of British Columbia, 1981, where I obtained a B.Sc. (Hon.) Degree in Geology and Geophysics.

2) I am a graduate from Haileybury School of Mines, 1971.

3) I have been engaged in mining exploration since 1968.

4) I am a Fellow of the Geological Association of Canada.

5) This report is compiled from data obtained from a Induced Polarization survey carried out by S.J.V. Consultants Ltd..

Syd J. Visser, B.Sc., F.G.A.C.
Geophysicist