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## DETAILED GEOLOGY AND SOIL GEOCHEMISTRY <br> MERIT AND RICH MINERAL CLAIMS <br> SLOGAN MINING DIVISION

McGUIGAN CREEK, ZINCTON, B.C.
 NS $82 \mathrm{~K} / 3 \mathrm{E}$
LATITUDE $50^{\circ} 011^{\prime} \mathrm{N}^{\prime}$, LONGITUDE $117^{\circ} \mathrm{K} / \mathrm{K}^{\prime} / \mathrm{W}$.

Prepared for Owner: trove resources ltd.

Operator: Locke B. Goldsmith


ARCTEX ENGINEERING SERVICES
Locke B. Goldsmith, P. Eng. Consulting Geologist

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# DETAILED GEOLOGY AND SOIL GEOCHEMISTRY <br> MERIT AND RICH MINERAL CLAIMS <br> SLOCAN MINING DIVISION <br> McGUIGAN CREEK, ZINCTON, B.C. 

## SUMMARY

Detailed soil geochemistry and geological mapping in the vicinity of silverzinc values located in soils during 1985 in the Merit and Rich claims has suggested northeast-trending anomalous zones of approximately 200 metres in length. No mineralization was observed in outcrop. A programme of soil sampling and geological mapping on the remainder of the 1985 anomalies; along with access preparation and dozer/backhoe trenching, is recommended at a cost of $\$ 25,850$ in the balance of Phase 1 , and a total of $\$ 115,850$ in the next two Phases.

## INTRODUCTION

The property is located approximately 1.5 km south of the formerly productive Lucky Jim mine at Zincton in southeastern British Columbia. Highway 31A, which joins the towns of New Denver and Kaslo, crosses the west-central portion of the claims. The nearest centre of population where basic services can be obtained is New Denver, some 13 km to the west. A dirt road which departs southerly from Highway 31 A some 1.5 km west of Zincton and ascends the east side of the valley of McGuigan Creek provides access to the Kate and Merit Centre claims and to the southwest corner of the Merit claim. Access to the Rich and Famous Fraction claims is by foot. The Megan claim is situated on the steep slopes to the north of Highway 31A. Elevations range from 1975 m ( $3200^{\prime}$ ) on the highway to 2100 m (6900') in the east portion of the Rich claim.

| Claim Name | Units | Record Number | Recording Date |
| :--- | :---: | :---: | :---: |
| Merit | 4 | $4144(10)$ | Oct. 31, 1983 |
| Merit Centre | 4 | $4160(11)$ | Nov. 29, 1983 |
| Kate | 4 | $4480(9)$ | Sept. 4, 1984 |
| Rich | 2 | $4787(9)$ | Sept. 3, 1985 |
| Famous Fraction | $<1$ | $4481(9)$ | Sept. 4, 1984 |
| Megan | 2 | $4224(2)$ | Feb. 14, 1984 |

Total land holding is sixteen units and one very small fraction, amounting to some 400 hectares less approximately five units ( 125 hectares) in pre-existing bounding claims for a net of eleven units in 175 hectares. Various claim posts and boundaries were observed. The claims are situated in the Slocan Mining Division, NTS Map Sheet $82 \mathrm{~K} / 3 \mathrm{E}$.

History of production in the surrounding area was reviewed in a recent report (Tully, 1984) and is not repeated herein.

Geological mapping and sampling were conducted in October 1986. A total of 4.4 km of grid was established and soil sampled.

## TROVE RESOURCES LTD. MERIT CLAIM GROUP

ZINCTON B.C. SLOCAN M.D. $82 \mathrm{~K} / 3 \mathrm{E}$


PROPERTY LOCATION MAP

Locke B. Goldsmith, P.Eng., Consulting Geologist



# CLAIM MAP 



ARCTEX ENGINEERING SERVICES

## GEOLOGY

Rocks exposed within the claims and in the surrounding area belong to the Triassic-Jurassic Slocan Group, a suite of argillite, phyllite, quartzite, and limestone with occasional tuffaceous horizons. Granitic dykes, sills and stocks of variable composition are emplaced into all older strata.

Grey and black carbonaceous limestone occurs in the eastern end of the area which was mapped in detail. Exposures of black shale extend from 7+50N 10+50E to $6+75 \mathrm{~N} 9+00 \mathrm{E}$. Argillite and quartzite occupy the southwestern corner of the grid from $6+75 \mathrm{~N} 9+00 \mathrm{E}$ to $6+75 \mathrm{~N} 7+00 \mathrm{E}$. Trend of contacts between the rock types is northwesterly; where bedding is observed it also strikes northwesterly with southwesterly dips. Cleavage planes are subparallel to the trend of depositional features. Fractures in limestone strike northeasterly and dip steeply south. No mineralization was observed in the fractures. One sample of quartz float which was analysed for gold and silver contained only background values.

## SOIL GEOCHEMISTRY

A total of 176 soil samples were analysed for silver, lead, and zinc. Analytical procedure is included in the Appendix. Soils were collected with a narrow, elongate spade from 30 to 45 cm below organic debris. Coverage was directed toward resampling the area on the Merit and Rich claims where highly anomalous silver and zinc values had been obtained during the 1985 survey.

The following table shows the results of lognormal probability graphs which are used to segregate populations of metal values and thus determine background, threshold, and anomalous values of silver, lead, and zinc in soils overlying Slocan Group rocks. These plots have been derived from years of cumulated data.

|  | $A g, p p m$ | $P b, p p m$ | $Z n, p p m$ |
| :--- | :---: | :---: | :--- |
| Background | $<2.3$ | $<38$ | Possibly <br> Threshold: |
| two | 3.3 to 4.9 | 38 to 150 | populations |
| Anamolous | $>4.9$ | $>150$ | $>980$ |

Anomalous silver values contour as clusters in a band which extends from $6+75 \mathrm{~N} 8+50 \mathrm{E}$ northeasterly across the grid to $7+50 \mathrm{~N} 12+25 \mathrm{E}$. When the threshold contour is added, the clusters are joined into a continuous pattern. Two parallel zones are suggested. One appears to extend from the vicinity of $6+75 \mathrm{~N} 8+50 \mathrm{E}$ to $7+75 \mathrm{~N} 10+50 \mathrm{E}$ ( 225 m in length), and the other from $7+25 \mathrm{~N} 10+50 \mathrm{E}$ to $7+50 \mathrm{~N} 12+25 \mathrm{E}$ ( 200 m in length). A single value of 14.2 ppm Ag at $6+75 \mathrm{~N} 12+00 \mathrm{E}$ is situated upslope from trenches in limestone.

Zinc values appear to be anomalous in a similar manner. Elongation of the anomalous contours from $6+75 \mathrm{~N} 9+25 \mathrm{E}$ to $7+75 \mathrm{~N} 10+50 \mathrm{E}$, and from $6+75 \mathrm{~N} 10+00 \mathrm{E}$ to $7+50 \mathrm{~N} 12+00 \mathrm{E}$ duplicate the pattern of silver.

No lead values are anomalous. A contour of threshold values shows the same pattern as silver and zinc.

Northwesterly drainage has transported metals downslope from sources which are presumed to $b e$ in the southeast sectors of the soil anomalies.

## CONCLUSIONS

The survey expanded an area of high metal values in soils which was detected in the 1985 progranme. Anomalous silver and zinc (with lesser lead) in soils occur in a northeasterly trending belt across the centre of the grid. Northeasterly trending fractures (the prevalent direction for productive lodes in the surrounding district) cross competent limestone upslope and southeast of the anomalies.

Silver and zinc geochemical anomalies without appreciable coincident lead suggest sources of mineralization similar to that which was mined from the nearby Lucky Jim deposits.

## RECOMMENDATIONS

A portion of the Phase 1(a) Recommendations from the October 1985 report was completed and is documented by this report.

Phase 1(a)

Detailing of four other soil geochemical anomalies and scattered singlesample high values remains to be completed.

## Phase 1(b)

A programme of road preparation and backhoe trenching on the anomaly which has been detailed will be required. Budget should be available to prepare access for trenching of any of the remaining anomalies which may be substantiated by additional soil geochemistry.

## Phase 2

Dependent upon the results of Phase 1, a preliminary programme of diamond drilling may be required.

## COST ESTIMATE

## Phase 1(a)

Geological mapping ..... $\$ 1,000$
Soil sampling ..... 1,000
Analyses ..... 1,000
Room, board, supplies ..... 500
Vehicle, travel ..... 500
Supervision, engineering ..... 5004,500Contingencies @ 10\%450
4,950 ..... \$ 4, 950

Phase 1(b)

| Road preparation, trenching | $\$ 12,000$ |  |
| :--- | ---: | :--- |
| Analyses | 1,000 |  |
| Room, board, supplies | 1,000 |  |
| Vehicle, travel | 1,000 |  |
| Supervision, engineering | 2,000 |  |
| Report | 2,000 |  |
| Contingencies; @ 10\% | 19,000 |  |
|  | $\underline{1,900}$ | $\underline{20,900}$ |
| Total, Phase 1(a) and 1(b) |  | $\$ 25,850$ |$\$ \$ 25,850$

## Phase 2

Diamond drilling, allow

90,000

Total, Phases 1 and 2
\$ 115, 850

Results of Phase 1 should be compiled into an engineering report; continuance to Phase 2 should be contingent upon receiving favourable conclusions and recommendations from an Engineer.


Vancouver, B.C.
December 8, 1986

## ENGINEER'S CERTIFICATE

## LOCKE B. GOLDSMITH

1. I, Locke B. Goldsmith, am a Registered Professional Engineer in the Province of Ontario and the Northwest Territories, and a Registered Professional Geologist in the State of Oregon. My address is 301, 1855 Balsam Street, Vancouver, B.C.
2. I have a B.Sc. (Honours) degree in Geology from Michigan Technological University, a M.Sc. degree in Geology from the University of British Columbia, and have done postgraduate study in Geology at Michigan Tech and the University of Nevada. I am a graduate of the Haileybury School of Mines, and am a Certified Mining Technician. I am a Member of the Society of Economic Geologists, the AIME, and the Australasian Institute of Mining and Metallurgy, and a Fellow of the Geological Association of Canada.
3. I have been engaged in mining exploration for the past 28 years.
4. I have authored the report entitled, "Detailed Geology and Soil Geochemistry, Merit arıd Rich Mineral Claims, Slocan Mining Division, McGuigan Creek, Zincton, B.C." dated December 8, 1986. The report is based upon fieldwork and research supervised by the author.
5. I have no ownership in the property, nor in the stocks of Trove Resources Ltd.
6. I consent to the use of this report in a prospectus, or in a statement of material facts related to the raising of funds.

Vancouver, B.C.


December 8, 1986

## REFERENCES

Cairnes, C.E. 1935. Description of Properties, Slocan Mining Camp, B.C. G.S.C. Memoir 184.

Goldsmith, L.B. 1985. Geology and Soil Geochemistry, Merit et al. Mineral Claims, Slocan Mining Division, McGuigan Creek, Zincton, B.C. Private report for Trove Resources Ltd.

Tully, D. W. April 3, 1984. Report on the Merit Mineral Claim, Seaton CreekMcGuigan Creek-Zincton Area, Slocan Mining Division, Sandon, B.C. Private report for Trove Resources Ltd.

## COST STATEMENT, 1986 PROGRAMME

## Wages:

L.B. Goldsmith, $\frac{1}{4}$ Oct. 3, $\frac{1}{2} 7, \frac{1}{2} 12,13$, $\frac{1}{2} 15, \frac{1}{4} 16, \frac{1}{4} 29, \frac{1}{4}$ Nov. 25, $\frac{1}{4} 26, \frac{1}{4}$ Dec. 3, $\frac{1}{4} 6, \frac{3}{4} 7$, $\frac{1}{2} 8$, total $5 \frac{1}{2}$ days @ $\$ 400 /$ day
\$ 2,200
G. Bennett, Oct. 12, 13, 14, total 3 days @ \$230/day
\$ 690
I. Francis, Oct. 12, 13, 14, total 3 days @ \$230/day
$\frac{\$ \quad 690}{\$ 3,580}$
$\$ 3,580.00$

Accommodation, Food, Supplies:
$171.21 \div 9 \mathrm{man}$ days $=\$ 19.02 / \mathrm{man} /$ day
171.21

Transportation:

| $4 \times 4$ vehicles, $7 \frac{3}{4}$ days @ \$45/day | $\$$348.75 <br> 321.00 <br> $1070 \mathrm{~km} @ \$ 0.30 / \mathrm{km}$ <br> Gas | 62.20 |
| :--- | ---: | ---: |

731.95
$731.95 \div 74$ days $\operatorname{a} \$ 94.45 /$ day

Analyses:
$\left.\begin{array}{l}176 \text { soil samples } \\ 1 \text { rock sample }\end{array}\right\}$ cost $\$ 848.75=\$ 4.80 /$ sample
848.75

Report:
Drafting, photocopying, typing, materials


Gold F.A.-A.A. Combc Method ppb:
For low grade samples and geochemical materials, 10 gram samples are fused in litharge, carbonate and siliceous flux with the addition of 10 mg of Au-free Ag metal and cupelled. The silver bead is parted with dilute HNO 3 and then treated with aqua regia. The salts are dissolved in dilute HCl and analyzed for $A u$ on an atomic absorption spectrophotometer.

Detection limit: 5 ppb

Copper, Lead, Zinc, Silver ppm:
1.0 gm sample is digested with perchloric-nitric acid (HClO4-HNO3) for approximately 2 hours. The digested sample is cooled and made up to 25 mls with distilled water. The solution is mixed and solids are allowed to settle. Copper, lead, zinc and silver are determined by atomic absorption techniques. Silver and lead are corrected for background absorption.

Detection limit: Copper, Zinc - 1 ppm
Si.lver - 0.2 ppm
Lead - 2 ppm

Arsenic ppm:
A 1.0 gm sample is digested with a mixture of perchloric and nitric acid to strong fumes of perchloric acid. The digested solution is diluted to volume and mixed. An aliquot of the digest is acidified, reduced with Kl and mixed. A portion of the reduced solution is converted to arsine with NaBH4 and the arsenic content determined using flameless atomic absorption.

Detection limit: 1 ppm

Chemex Labs Ltd.

Analytical Chemists • Geochemists • Registered Assayers

## CERTIFICATE JF ANALYSIS

TO: ARCTEX ENGINEERING

301 - 1855 BALSAM ST.
VANCOUVER, B.C. VGK 3M3

CERT. \# : AB615586-001-A
INVOICE $\#: 13619536$
CATE : 27-CCT-86
P.C. $\#$ : NCNE

TRCVE


212 Brooksbank Ave. North Vancouver, B.C. Canada

V7J 2C1
Phone: (604) 984-0221
Telex:
043-52597

## CERTIFICATE UF ANALYSIS

TC : ARCTEX ENGINEERING
301-1855 BALSAM ST. vanc cuver, b.C. V6K 3M3

CERT.\#: AB619335-001-A INVCICE \# : IS619585 DATE : 27-CCT-36 P.C. \# : NONE
treve


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## CERTIFICATE OF ANALYSIS

to : Arctex engineering
301 - 1855 BALSAM ST. VANCCUVER, B.C. V6K 3M3

CERT. \# : A6619585-002-A INVIICE \# : 18615595
CATE : 27-CCT-86 P.C. $\ddagger$ : NORE


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V6K 3 M3

CERT. $\#$ : AO619585-003-A
INVCICE $\#: 13619585$
DATE : 27-CCT-66
P.O. : NCNE

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## CERTIFICATE OF ANALYSIS

to : ARCTEX ENGINEERING
301-1855 BALSAM ST.
VANCCUVER, B.C.
V6K 3M3

CERT. \# : A3615585-004-A
INVGICE $\#$ : I8619535
CATE : 27-OCT-86 P.C. $\ddagger$ : NONE
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## Chemex Labs Ltd.

## Analytical Chemists

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MERIT CLAIM GROUP
Rock \& Soil Geochemistry eе.. Zn
to accompany report ey LOCKE b. GOLDSMITH p. Eng, consultimg gelogist
arctex engineering services






