GEOLOGY AND SOIL GEOCHEMISTRY
NEW JERUSALEM MINERAL CLAIM
TIGER AND LILY I-IV GROUP
SLOCAN MINING DIVISION
AINSWORTH, B.C.
NTS 82 F/10 W
LATITUDE 49°45'N, LONGITUDE 116°56'W

Locke B. Goldsmith, P.Eng.
Consulting Geologist

GEOLOGICAL BRANCH
ASSESSMENT REPORT

October 28, 1985
14,038
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| GEOLOGY AND GEOCHEMICAL MAPS                 |      | (Pocket inside back cover)
SUMMARY

A stope on a quartz-carbonate-galena vein has been mined for at least 40 metres of strike length and a true width of at least 1.5 metres. One chip sample from a pillar across 1 metre of the vein adjacent to the footwall near the west end of the stope assayed 6.25% Pb, 1.70% Zn, and 1.56 oz/ton Ag. A soil geochemical anomaly 100 metres east may indicate an extension beyond the area of mining.

A programme of geological mapping, sampling, and soil geochemistry is recommended at a cost of $10,000 in Phase 1, and a total of $60,000 in two Phases.
INTRODUCTION

The New Jerusalem reverted crown-granted mineral claim, L 144, record number 4575(11), Slocan Mining Division, is considered part of the Tiger and Lily I-IV group. The property extends south from Cedar Creek, approximately 1.5 km west of Kootenay Lake and 2 km northwest of Ainsworth, B.C.

Access to the claim is via the Cody Caves Provincial Park gravel road which departs from Highway 31 about 0.5 km south of Woodbury Creek. At a point 4 km from the highway a dirt road branches to the south and continues to the north side of Cedar Creek valley. The last several hundred metres of the road to the creek is overgrown and the bridge is washed out. According to the 1:50,000 topographic map, the eastern edge of the claim is 50 metres westerly up Cedar Creek from the road crossing.

Early history of the property is recorded in Fyles (1967). Mining was undertaken prior to 1900 but Fyles lists production from only 1907, 1945 and 1952. This tonnage and grade is shown below.

\[
\begin{array}{cccc}
\text{Tons} & \text{oz/ton Au} & \text{oz/ton Ag} & \% \text{Pb} & \% \text{Zn} \\
375 & 0.021 & 1.92 & 4.77 & 1.67 \\
\end{array}
\]

MINDEP computer files of the University of British Columbia list the production as:

\[
\begin{array}{cccc}
\text{Tons} & \text{oz/ton Au} & \text{oz/ton Ag} & \% \text{Pb} & \% \text{Zn} \\
416 & 0.0325 & 2.72 & 6.75 & 2.54 \\
\end{array}
\]

These grade data correspond well with the levels and relative proportions of silver, lead, and zinc obtained in a chip sample of vein material.

A base line was established at 270° along Cedar Creek from the eastern side of the claim. Cross lines were run to the south at 100-metre intervals with stations at 50-metre spacings. Approximately 1 km of grid was prepared.
Mineral Claims

**Tiger**  
L88/1640(11)

**Lily I-IV**  
3330-3333(11)

**and New Jerusalem**  
L144/4575(11)

SLOCAN MINING DIVISION  
AINSWORTH, B.C.  
82F/10W

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**Location Map**

OCTOBER 1985

Paul Kallock, Geologist

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

ARCTEX ENGINEERING SERVICES
Mineral Claims

**Tiger**
L88/1640(11)

**Lily I-IV**
3330-3333(11)

and **New Jerusalem**
L144/4575(11)

SLOCAN MINING DIVISION
AINSWORTH, B.C.
82F/10W

Claim Map
1:50,000

OCTOBER 1985
Paul Kallock, Geologist
Locke B. Goldsmith, P.Eng., Consulting Geologist
ARCTEX ENGINEERING SERVICES
GEOLOGY

Regional and local geology are documented in earlier reports which were filed for assessment work (Goldsmith, 1980; Kallock and Davidson, 1982, 1983) and are not reproduced herein. Dark green foliated micaceous metasediments are exposed along Cedar Creek and on the south slopes of the creek valley. On line 3+00W at 1+50S light green metavolcanics and coarsely porphyritic metavolcanics form a thin horizon (±5 m) within the metasediments. Foliation where observed and measurable trends 195°, 24°–28°W.

MINERALIZATION

Near 2+00W 0+47S a quartz-carbonate-galena vein trending 295° 70°S has been mined to surface over a length of 40 metres and a width of 1.5 metres. At 2+10W 0+10S, approximately 25 metres vertically lower than the stope breakthrough, an adit has been driven at 193° towards the vein. The adit is accessible at the portal but was not examined. Fyles (1967) reports the vein to have been intersected "at about 150 feet from the portal, and drifts to the east and west follow the vein for about 100 feet". Apparently in the drift the vein "...is only a foot or so thick and poorly mineralized" (Fyles, 1967).

One chip sample was taken from a pillar at surface across 1 metre true width of the vein adjacent to the footwall. Assays of this material are as follows:

<table>
<thead>
<tr>
<th>oz/ton Ag</th>
<th>% Pb</th>
<th>% Zn</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.56</td>
<td>6.25</td>
<td>1.70</td>
</tr>
</tbody>
</table>

Silica content is high; a silica assay will be requested in the event that smelter credits could offset deductions. The vein may extend eastward to the vicinity of 1+00W 0+50 to 1+00S where mineralized float and high soil geochemical values are present.

Detailed mapping of the surface and underground geology should consider a projection of the vein to any possible intersection with limestone where the best oreshoots on transverse veins are preferentially located in the district. Rake of mineralization, typically in this camp, along a locus of intersection between the
attitude of veins and attitude of foliation, plunging shallowly west, should also be investigated (Fyles, 1967, p. 52), and a projection to limestone made.

**SOIL GEOCHEMISTRY**

Thirteen soil samples were collected with a narrow, elongate spade from depths of 30-45 cm below organic debris. Soils are uniformly brown to rusty-brown silt. Analyses were performed by Chemex Labs Ltd. of North Vancouver, B.C.

Contour intervals of +50 ppb Pb, +400 ppm Zn, and +1.0 ppm Ag as used on the Tiger-Lily grids were extended to include results of the present survey. Topographic slope is northerly into the creek valley. An anomaly at 1+00W 0+50S may be related to an eastern extension of the New Jerusalem vein; mineralized float was observed upslope. Anomalies at 1+00W 1+50S and 0+00 1+50S are unexplained; field checking and detailed soil sampling are required.

**CONCLUSIONS**

Vein mineralization may extend southeasterly on surface beyond the mine workings for an additional 100 metres and possibly 200 metres as suggested by soil geochemistry, for a total length of some 250 metres. Sulphide shoots may rake shallowly westerly; drifts driven from the adit level have intersected the vein but may have passed beneath the important concentrations of sulphides. Detailed geological mapping and sampling should be directed towards definition of mineralization controls within the vein.

Two sulphide-bearing veins and one possible replacement deposit (Lily shaft area) have been recognized on the claim group. Of these, the Lily has the poorest exposures but could have the greatest size potential.

**RECOMMENDATIONS**

**Phase 1**

Geological mapping and sampling of the New Jerusalem vein on surface and in the underground workings is required. Soil geochemistry and hand trenching should be utilized to trace the mineralization southeasterly.
Phase 2

Dependent upon the results of Phase 1, a small diamond drilling programme may be advisable. Testing of the Lily shaft area should be undertaken at the same time.

COST ESTIMATE

Phase 1

A budget of $10,000 should be available to complete geological mapping, sampling, and trenching.

$10,000

Phase 2

Approximately $50,000 might be required for diamond drilling and support services.

$50,000

Total, Phases 1 and 2

$60,000

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.

Respectfully submitted,

Locke B. Goldsmith, P.Eng.
Consulting Geologist

Vancouver, B.C.
October 28, 1985
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 26 years.

4. I have authored the report entitled, "Geology and Soil Geochemistry, New Jerusalem Mineral Claim, Tiger and Lily I-IV Group, Slocan Mining Division, Ainsworth, B.C." dated October 28, 1985. The report is based upon fieldwork and research supervised by the author.

5. I control, with associates, 100% of the property.

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.

Respectfully submitted,

Locke B. Goldsmith, P.Eng.
Consulting Geologist

Vancouver, B.C.
October 28, 1985
REFERENCES


COST STATEMENT, 1985 PROGRAMME

1. Personnel

L.B. Goldsmith, Oct. 9, 123, 124, 127, 128, total 2 1/2 days @ $400/day
$1,000.00

G. Bennett, Oct. 9, 1 day @ $220/day
220.00

$1,220.00 $1,220.00

2. Accommodation, Food

Total cost of $18.80 ÷ 2 man days
= 9.40/man/day

18.80

3. Transportation

4x4 vehicle, 1 day @ $45/day
$45.00

185 km @ $.30/km
55.50

Gas
13.10

Air fare, Vancouver-Castlegar
89.93

$203.53

203.53

4. Analyses

13 soil samples cost
$58.50

1 assay cost
22.25

Freight
13.50

$94.25

$94.25 ÷ 14 samples = $5.77/sample

94.25

5. Report

Drafting, typing, prints, photocopying, materials

426.30

Total
$1,962.88
APPENDIX
Chip sample across 1.0 metre true width of quartz-carbonate-galena vein adjacent to the footwall. From a pillar at surface near the west end of a stope. Massive galena for 0.25 m adjacent to the footwall; quartz-carbonate-galena-pyrite for the remaining 0.75 m. Limestone or carbonatized metavolcanic footwall.
Gold F.A.-A.A. Combo 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 HNO3 and then treated with aqua regia. The salts are dissolved in dilute HCl and analyzed for Au 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
Silver - 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 KI 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
### Certificate of Analysis

**TO:** GOLDSMITH, MR. L. B.

#301-1855 BALSAM STREET

VANCOUVER, B.C.

V6K 3M3

**ATTN:** L.B. GOLDSMITH

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<th>Zn ppm</th>
<th>Ag ppm</th>
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**CERT. #:** A6517371-001-A

**INVOICE #:** I8517371

**DATE:** 17-OCT-85

**P.O. #:** None

**N.J. PROJECT**

Certified by [Signature]

VOI rev. 4/85
CERTIFICATE OF ASSAY

TO : GOLDSMITH, MR. L. B.
#301-1855 BALSAM STREET
VANCOUVER, B.C.
V6K 3M3

CC: L.B. GOLDSMITH

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<th>Zn %</th>
<th>Ag oz/T</th>
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CERT. # : A8517372-001-A
INVOICE # : 18517372
DATE : 21-OCT-85
P.O. # : NONE
N.J. PROJECT

Registered Assayer, Province of British Columbia